RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

Site Screening Process Report for
Site Screening Areas 18, 72, 30, 79, 60, and 77

FINAL
DECEMBER 2010

PREPARED BY:

URS

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CONTRACT NO. W91238-07-D-0006
DELIVERY ORDER NO. DA01

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

January 28, 2011

Commander,
Radford Army Ammunition Plant
Attn: SJMRF-OP-EQ (Jim McKenna)
P.O. Box 2
Radford, VA 24141-0099

P.W. Holt
Environmental Manager
Alliant Techsystems, Inc.
Radford Army Ammunition Plant
P.O. Box 1
Radford, VA 24141-0100

Re: Radford Army Ammunition Plant, Va.
Review of Army's Final Site Screening Process Report for
Site Screening Areas 18, 72, 30, 79, 60, and 77

Dear Mr. McKenna and Ms. Holt:

The U.S. Environmental Protection Agency (EPA) and Virginia Department of Environmental Quality (VDEQ) have reviewed the U.S. Army's (Army's) December 2010 Final Site Screening Process Report for Site Screening Areas 18, 72, 30, 79, 60, and 77, located at the Radford Army Ammunition Plant (RFAAP) in Radford, Virginia. Based upon our review, the report is approved, and in accordance with Part II. (E) (5) of RFAAP's Corrective Action Permit, it can now be considered final.

If you have any questions, please call me at 215-814-3413. Thanks.

Sincerely,

William Geiger
RCRA Project Manager
Office of Remediation (3LC20)

cc: James Cutler, VDEQ

ATK Armament Systems
Energetic Systems
Radford Army Ammunition Plant
Route 114, P.O. Box 1
Radford, VA 24143-0100

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December 7, 2010

Mr. William Geiger
RCRA General Operations Branch, Mail Code: 3WC23
Waste and Chemicals Management Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. James L. Cutler, Jr.
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Subject: With Certification, Site Screening Process Report for Site Screening Areas 18, 72, 30, 79, 60, and 77, Final December 2010
EPA ID# VA1 210020730

Dear Mr. Geiger and Mr. Cutler:

Enclosed is the certification for the subject document that was sent to you on December 6, 2010. Also enclosed is the 6 December 2010 transmittal email.

Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jerry Redder ATK staff (540) 639-7536 or Jim McKenna, ACO Staff (540) 731-5782.

Sincerely,

P.W. Holt, Environmental Manager
ATK Energetic Systems

c: Karen Sismour
Virginia Department of Environmental Quality
P. O. Box 1105
Richmond, VA 23218

E. A. Lohman
Virginia Department of Environmental Quality
Blue Ridge Regional Office
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10-815-170
JMcKenna

Rich Mendoza
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10-815-170
JMcKenna

bc: Administrative File
J. McKenna, ACO Staff
Rob Davie-ACO Staff
P.W. Holt
J. J. Redder
Env. File

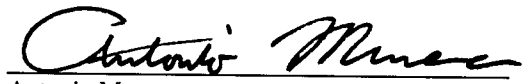
Coordination: J. McKenna M. A. Miano

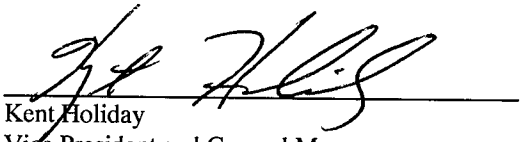
10-815-170
JMcKenna

Concerning the following:

Radford Army Ammunition Plant
Site Screening Process Report
for
Site Screening Areas 18, 72, 30, 79, 60, and 77
Final December 2010

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE: 
PRINTED NAME: Antonio Munera
TITLE: LTC, CM
Commanding

SIGNATURE: 
PRINTED NAME: Kent Holiday
TITLE: Vice President and General Manager
ATK Energetic Systems

10-815-170
JMcKenna

Greene, Anne

From: McKenna, Jim
Sent: Monday, December 06, 2010 3:12 PM
To: Greene, Anne; Cutler,Jim; dennis.druck@us.army.mil; Geiger.William@epamail.epa.gov; Redder, Jerome; jim spencer; Lohman,Elizabeth; Meyer, Tom NAB02; Sismour,Karen; Timothy.Leahy@shawgrp.com; Tina_MacGillivray@URSCorp.com; Richard Mendoza
Subject: RFAAP SSP Report Final Fedex Numbers (UNCLASSIFIED)
Attachments: RTCs USEPA VDEQ March 2010 SSP Comments 10_22_2010.pdf

Importance: High

Classification: UNCLASSIFIED
Caveats: FOUO

All,
Note the contractor will ship the subject document with a copy of this email to the POCs and tracking numbers below. Also attached to this email are the response to comments on the draft report.

Certification letter will follow from Radford AAP under separate cover.

Immediately below are the POCs with tracking numbers.

Thank you in advance for your support of the Radford Army Ammunition Plant Installation Restoration Program.

Jim McKenna
540 731 5782

Following are the fedex numbers for the RFAAP SSP Report Final. I have also attached a pdf of the RTCs.

James McKenna	7965 1870 7461	2 Paper copies
Will Geiger	7941 8418 8488	1 Paper copy/1 CD
Jim Cutler	7965 1872 0653	1 Paper copy/2 CDs
Tom Meyer	7965 1873 1087	1 Paper copy/1 CD
Richard Mendoza	(copy being held until a new shipping address is provided)	
Dennis Druck	7965 1874 4032	1 CD
Elizabeth Lohman	7941 8423 3602	1 CD
Susan Ryan	7965 1875 2122	1 CD

Classification: UNCLASSIFIED
Caveats: FOUO

Response to USEPA/VDEQ Comments (10/22/2010)
***Draft Site Screening Process Report for Site Screening Areas 18, 72, 30, 79, 60, and 77*, dated March 2010 (Comments Received via E-mail 9/22/2010)**

GENERAL COMMENTS

1. Section 3.1, Analytical Results, states that "Historical investigation results and SSP investigation results are summarized in each site-specific section of this report." While the SSP Report does describe the historical investigation results, it does not include a discussion of the individual constituents detected above the applicable screening criteria during the SSP investigation. While a fully developed nature and extent assessment is not a requirement of the SSP Guidance Document, dated October 2001 (SSP Guidance), Section 7.0, Site Screening Process Report, of the SSP Guidance does state that "a nature and extent determination (if available)" will be presented in the SSP Report. A basic discussion of those constituents detected above screening levels at the site as well as a determination of whether the distribution of contaminants across the site are suggestive of a release would be a useful addition to the SSP Report in support of the conceptual site model, and human health and ecological risk screening evaluations. Please revise the SSP Report to include a discussion of those constituents detected above applicable screening levels at each of the sites, and discuss the distribution of these constituents as they relate to potential source areas.

   Response: A summary of chemicals detected above screening levels is provided in each site specific section in the human health risk screening section. The human health risk screenings resulted in residential and industrial site-related risks/hazards below the SSP thresholds for SSAs 18, 30, 60, and 79; therefore, further analysis of chemical distribution at the sites is not necessary.

   Note that for SSAs 30 and 79, although the screening resulted in risk/hazards below the SSP thresholds, due to the presence of bagged asbestos material at the site, institutional controls (ICs) are recommended at the sites (SSAs 30 and 79 – Asbestos Disposal Trench No. 1 and No. 2). The objective of the ICs is to maintain the sites in their current industrial/commercial state as a closed solid waste management unit and to prevent any future residential use. The areas containing the bagged asbestos material were defined via the geophysics investigation.

   For SSA 72 although cumulative risk and hazard screenings for residential scenarios were above the SSP thresholds, the screenings for the industrial scenarios were below the SSP thresholds. For SSA 77 although cumulative risk and hazard screenings for residential scenarios were above the SSP thresholds, the screenings for the industrial scenarios when considering background were below the SSP threshold. Since the sites' screenings for industrial scenarios were below SSP thresholds and the recommendation for the sites are institutional controls to

maintain the sites in their current industrial/commercial state and prevent any future residential use, further analysis of chemical distribution is not necessary.

2. For the human health risk evaluations, soil data are separated into surface soil and total soil, presumably for different exposure scenarios; however, the SSP Report does not define these soil intervals (i.e., surface soil is 0-2 feet below ground surface [bgs], total soil is 0-10 feet bgs, etc.) Please define the depths of the samples incorporated into the surface soil and total soil evaluations.

   Response: The following text will be added to Section 3.2.1: "COPCs were identified for a site by comparing the maximum detected concentration (MDC) for a detected chemical in surface soil and total soil to USEPA residential regional screening levels (R-RSLs) and industrial regional screening levels (I-RSLs) for soil and tap water regional screening levels (T-RSLs) for groundwater, if available. The two soil data groupings used for COPC screening and the cumulative risk screening (see Section 3.2.2) are surface soil (0 to 1 ft bgs) and total soil (0 ft bgs to termination depth). The total soil data grouping consists of combining surface and subsurface soil to address mixing of potential constituents in soil during construction or land development activities."

3. The SSP Report presents a summary table for each site that includes the Cumulative Human Health Risk Screening Results for Soil. An example of such a table is presented in Section 4.6.2, Cumulative Risk Screen. A column is included for risk drivers, but the SSP Report has not defined the risk drivers (i.e., constituents associated with risk greater than 1E-06 or hazard index greater than 1). Additionally, the tables should define individual chemicals as specific risk drivers, and not just "metals" as is shown in the table in Section 4.6.2. Please revise the SSP Report to clearly define what constitutes a risk driver for purposes of the summary tables, and identify individual constituents as risk drivers, rather than classes of constituents in these tables.

   Response: The following text will be added to the site specific cumulative risk section (example provided for Section 4.6.2): "The hazard drivers identified in the table above are those chemicals that primarily contribute to HIs greater than the established SSP hazard level of 1."

   The tables in each site specific cumulative risk section will be revised to include a list of the metals risk/hazard drivers.

SPECIFIC COMMENTS

4. **Section 4.2.2, Acid Sewer Survey, Page 4-4**: This section indicates that an Acid Sewer Survey and Investigation was conducted on the entire RFAAP acid sewer infrastructure between 1998 and 2000 to determine the condition of the sewers. Deteriorated or broken sections were repaired or replaced within active areas; however, no actions were taken in the area of SSA 18 since the site was inactive.

In the response to Specific Comment 4 on the *Final Work Plan Addendum 028 for Site Screening Areas 18, 72, 30, 79, 60, and 77*, dated June 2009 (WPA 028), it was noted that "an assessment of the 260 ft long 6-inch diameter plastic, gravity acid sewer line that extends from the acidic wastewater sump (SSA 72) to the SAR wastewater treatment plant was not conducted." Please revise Section 4.2.2 to note that the section of the sewer line associated with SSA 18 and 72 was not originally investigated as part of the Acid Sewer Survey discussed in Section 4.2.2. This comment also applies to Section 5.2.2, as part of the discussion of SSA 72. It is acknowledged, however, that an attempt to investigate this section of the sewer line was conducted as part of the SSP, as described in Section 5.4, SSP Field Activities.

Response: The following text will be added to Sections 4.2.2 and 5.2.2: "An assessment of the 260 ft long 6-inch diameter plastic, gravity acid sewer line that extends from the acidic wastewater sump (SSA 72) to the SAR wastewater treatment plant (SSA 18) was not conducted as part of the acid sewer survey."

5. **Section 4.6, Human Health Risk Screening, Page 4-7:** The SSP Report does not state which data were used in the human health risk screening (i.e., historical and SSP data, or SSP data only). It would appear that all data (historical and SSP data) should be included in the risk evaluations since the data were collected at different locations, and no removal actions were conducted at this site that could have removed soil associated with the sample locations. Please revise the SSP Report to clearly identify the data points that were used in the risk evaluation, and assure that all data representative of current conditions are included in the risk evaluation.

   Response: Historical data for the SSA 18 area are limited to two soil samples collected from soil boring SB08 (at the location of monitoring well MW-4) and 2007 groundwater samples from monitoring wells MW-3 and MW-4 at locations potentially downgradient of SSA 18. These soil and groundwater data will be incorporated into the COPC selection and risk screening process for potential release evaluations for this SSA. Section 4.6 will be revised to identify the historical samples and SSP samples used in the risk evaluation.

6. **Section 4.6.1, Identification of COPCs, Page 4-7:** It is unclear why the existing groundwater data from 2007 were not carried through to the contaminant of potential concern (COPC) selection process as part of the human health risk screening for SSA 18 as well as SSA 72. Section 4.6.1 states, "As presented in WPA 028, potential releases to groundwater were assessed by evaluating subsurface soil data and comparison of these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table." While a comparison to SSLs is one component of the evaluation, WPA 028 also states, in Section 2.4.3, Release Assessment to Groundwater, "Potential releases to groundwater will be evaluated using existing groundwater data collected in the site area in 2007." Based on a cursory review of the groundwater data, presented

in Table 4-3, chloroform and perchlorate were detected above the tapwater Regional Screening Levels (RSL) in wells MW-3 and/or MW-4, both locations of which the SSP Report acknowledges could be used to evaluate potential releases from SSA 18 (Section 4.2.3), and possibly SSA 72. Please revise the SSP Report to include the 2007 groundwater data in the COPC selection process for these two sites, and include any COPCs in the risk/hazard estimates and cumulative risk screening.

Response: Section 4.0 of the SSP Report for SSA 18 will be revised to include the 2007 groundwater data from MW-3 and MW-4 in the COPC selection and cumulative risk screening process for potential release evaluations for this SSA. Section 5.0 of the SSP Report for SSA 72 will be revised to include the 2007 groundwater data from monitoring well MW-3 in the COPC selection and cumulative risk screening process for potential releases evaluation for this SSA. Data from monitoring well MW-4 will not be included in the analysis for SSA 72 because of its probable crossgradient location relative to this SSA.

As presented on Table 4-3, chemicals detected at concentrations above screening levels for MW-3 and MW-4 include perchlorate and chloroform. Therefore, perchlorate and chloroform are COPCs for groundwater subject to cumulative risk screening. The results of the cumulative risk screening for COPCs identified in groundwater at SSA 18 is provided in attached Table 4-9. The screening resulted in an HI of 0.1 for perchlorate which is below the SSP threshold (1) and a risk of 9E-05 for chloroform which is above the SSP threshold (1E-05). The detected chloroform concentration (18 ug/L) is above the tap water RSL but below the MCL for THMs. Chloroform was also detected in upgradient wells.

With regard to groundwater detections of chloroform at the site, it is important to note that studies and groundwater investigations have shown the presence of chloroform in most groundwater samples collected at the facility regardless of location. The concentrations of chloroform detected in monitoring wells at the site are concentrations below the range of chloroform levels present in the water transmitted through water lines at the facility. The site is located downgradient of developed areas containing water lines that could be leaking, which may have been the source of chloroform. No additional assessment of chloroform at the site is required.

This information will be incorporated into the final report.

7. **Section 5.1.3, Surface Water, Page 5-1**: This section indicates that water is still present in the sump at SSA 72. A water sample collected from this sump in 2007 identified Alpha-BHC, heptachlor, and nine metals above their tapwater RSLs (Section 5.2.4, Oleum Plant Environmental Baseline Study – Ecology and Environment, Inc. 2007). Although it does not appear that the water from the sump has been released to the environment at potentially unacceptable levels, it is recommended that the water in this sump be properly disposed in an effort to

avoid potential future releases should the sump structure be compromised. Please revise the SSP Report to address this concern.

Response: The limited water present in the sump is likely an accumulation of rainwater due to the grated opening atop the sump. During the dry season when rainfall accumulations are minimal, the sump does not contain water; therefore, removal of periodic accumulation of water from the sump is not proposed. This information will be added to Section 5.1.3.

8. **Section 5.6, Human Health Risk Screening, Pages 5-5 through 5-7**: The cumulative risk screening for surface soil at SSA 72 is based on a single surface soil sample, B-3 Surface/72SB1A. Table 5-3, Summary of Detected Chemicals in Soil Analytical Samples, shows that several metals and polynuclear aromatic hydrocarbons (PAHs) were detected above residential and/or industrial RSLs in this sample. Using only a single surface soil sample to assess risk introduces considerable uncertainty into the risk assessment. Please revise the SSP to discuss the uncertainties associated with assessing risk with a single sample, and address whether additional assessment of surface soil in the area will be necessary to better define the extent of the contamination.

   Response: Metals in sample B-3 Surface/72SB1A detected above RSLs (aluminum, arsenic, cobalt, iron, manganese, thallium, and vanadium) are well within background ranges and are below facility wide background point estimates; therefore, these metals are not considered a concern at the site.

   The following text will be added to Section 5.6.6: "Although uncertainties in assessing risk increase when using a single surface soil sample potentially underestimates risk, the use the maximum detected concentrations for the overall risk screenings potentially overestimates risk. Based on the small size of the site (0.1 acre), the lack of potential surface soil releases due to the nature of previous activities at the SSA (acid conveyance via subsurface sump and subsurface sewer line), the low level of detections of PAHs in the sample, the industrial screening resulting in risks/hazards below SSP thresholds, no additional assessment of surface soil in the area is proposed."

9. **Table 5-3, Summary of Detected Chemicals in Soil Analytical Samples:** A note included with this table indicates that chemical concentrations that exceed the soil to groundwater risk-based soil screening level (SSL) based on a dilution attenuation factor (DAF) of 20 will be shown in bold italic text. However, this approach was not consistently applied. Nitrobenzene concentrations in samples 72SB2B and 72SB3B exceed the SSL, but the detected concentrations have not been shown in bold italics. Please revise Table 5-3 to identify all constituents that exceed applicable screening criteria, including the SSL, and assure that all tables in the SSP Report do the same.

Response: Table 5-3 will be revised and all tables will be reviewed and revised as necessary.

10. **Section 6.6.1, Identification of COPCs, Page 6-5:** Dibenzofuran was identified as a site COPC since no screening value was available for this constituent at the time of report preparation. Also, risk associated with this constituent was not incorporated into the cumulative risk screening since a RSL was not available. However, beginning in December 2009, RSLs were established for dibenzofuran. Please revise the SSP Report to incorporate updated RSLs for dibenzofuran into the COPC selection process. Based on the concentration of the detection (0.043 milligrams per kilogram [mg/kg] in sample 79SS5) and the current May 2010 residential RSL for dibenzofuran (78 mg/kg), dibenzofuran does not appear to be a concern at the site.

    Response: Per previous agreements, if an updated value changes significantly so that it would impact the conclusion for the site, an analysis of the effects of this change will be conducted. A discussion of the use of the April 2009 RSLs versus the December 2009 RSLs will be added to Section 3.2.7.2 as follows: "The use of the April 2009 Regional Screening Levels rather than the December 2009 Regional Screening Levels for the SSP human health risk screening could result in the inclusion or exclusion of chemicals based on outdated toxicity data. Therefore to lessen the uncertainty associated with the use of these screening levels, an assessment of the data was conducted with respect to the December 2009 Regional Screening Levels which did not result in the identification of any additional COPCs for the sites.

11. **Section 6.8, Conclusions and Recommendations, Page 6-14:** This section indicates that institutional controls are being implemented at SSA 30 and SSA 79, the asbestos disposal trenches. The institutional controls will provide "for advance notice, assessment, and approval of intrusive work that may occur within the plant with a general digging prohibition at sites such as this." However, the recommendations for the disposal trenches do not include maintenance of the sites. Since bagged asbestos containing material is known to be buried in the site trenches, the soil cover at these sites should be properly maintained to prevent erosion and potential exposure of the bags. Please revise the SSP to incorporate maintenance of the soil cover at SSAs 30 and 79 into the recommendations for the sites.

    Response: The following text will be added to Section 6.8: "In addition since bagged asbestos containing material is known to be buried in the site trenches, the soil cover at these sites will be maintained to prevent erosion and potential exposure of the bags."

12. **Section 7.4, SSP Field Activities, Page 7-4:** Two test pits were completed at the site, but the SSP Report does not describe the materials that were found in these test pits. The SSP Report should describe the materials found in the test pits to

confirm the historical use of the site as a demolition waste pile. Revise the SSP Report to discuss findings from the test pit activities. Additionally, please provide test pit logs for both of the test pits and clarify if the log provided for Borehole 60TP-1 in Appendix D.2.1 is a part of one of the test pits.

Response: The following text will be added to Section 7.4: "During excavation of the test pits, the material encountered included fill, gravel areas, rocks, and concrete building debris."

The test pit log for 60TP-2 will be provided in Appendix D.2.1. The log for Borehole 60TP-1 will be revised to indicate Test Pit/Borehole.

13. **Section 8.6.2, Cumulative Risk Screening, Pages 8-6 and 8-7:** 2,3,7,8-TCDD Equivalents (TEQ) (dioxins) were identified as risk drivers in both surface soil and total soil. However, it does not appear that dioxins were adequately evaluated at this site since only two surface soil samples were analyzed for these constituents, both of which reported residential and/or industrial RSL exceedances. No subsurface soil samples were analyzed for dioxins to assess the vertical extent of contamination. Additionally, the two surface soil samples analyzed for dioxins (77SB2 and 77SB3) were located immediately north of the incinerator building; surface soil in other areas of the site was not evaluated although deposition of particulate matter from the chimney is a potential release mechanism at the site. Please revise the SSP Report to address the apparent data gaps with respect to sampling for dioxins in subsurface soil and surface soil, or present additional justification for not assessing the extent of this contamination.

Response: Dioxin sampling focused on surface soil at the locations where the potential for releases were highest based on the identified release mechanisms and location of the chimney (surface spills of materials removed from the chimney cleanout and deposition of particulates from the chimney). Dioxin detections did not result in an industrial cumulative risk screening equal to or above SSP 1E-05 threshold for further assessment when considering metals background. Additional sampling for dioxins is not proposed at SSA 77 given the risk screening results, collection of samples at the likely locations and depth of highest concentrations, and the limited area around SSA 77 not covered by asphalt pavement or buildings (grass covered areas are limited to approximately 0.1 acres on a steep hillside).

Note that cumulative risk and hazard screenings for industrial scenarios are below the SSP thresholds when considering background and the recommendation for the site is institutional controls to maintain the site in its current industrial/commercial state and prevent any future residential use.

14. **Section 8.8, Conclusions and Recommendation, Page 8-12:** The first bulleted item states, "Cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards." This is inconsistent with the information presented in Section 8.6.2, Cumulative Risk Screen, where it is

noted that "cumulative risk screenings were equal to the established SSP risk level of 1E-05 for the industrial scenario for surface and total soil." When excluding risk drivers below background (arsenic), site related risk falls below the established thresholds; however, this should be noted in the first bulleted item on Page 8-12. Please revise the first bulleted item in Section 8.8 to state that the risk screening results for the industrial scenario are below SSP thresholds, when excluding risk drivers below background.

Response: The first bullet of Section 8.8 will be revised as follows: "When excluding risk drivers below background (arsenic), the site related cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards."

15. **Appendix D.2.1, Site Screening Process Boring Logs**: Several of the boring logs do not specify the recovery (in feet) or the results of the photoionization detector (PID) screening. These incomplete boring logs include the logs for boreholes 18SB1, 18SB2, 18SB5, 30SB1, 30SB2, 30SB3, 77SB2, 77SB3, and 77SB5. Additionally, the log for borehole 77SB3 does not include a material description. Please revise the SSP to provide complete information on recovery, PID screening, and material descriptions for the borings completed during the SSP.

Response: The SSP Report will be revised to include the additional requested information on the above referenced boring logs.

Table 4-9
SSA 18 Cumulative HHRS (Groundwater)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	Tap Water RSL	C/N	Non Carcinogenic HI	Excess Cancer Risk	Noncarcinogenic Target Organ
67-66-3	Chloroform	ug/L	2/2	18	0.19	C	--	9.E-05	--
14797-79-0	Perchlorate	ug/L	2/2	3.59	25.55	N	1.E-01	--	thyroid
							1.E-01	9.E-05	
Target Organ Segregation						Total thyroid HI =	0.1		

Notes:

µg/L = Microgram Per Kilogram
CAS = Chemical Abstracts Service
MDC = Maximum Detected Concentration
HI = Hazard Index

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Tina MacGillivray/Richmond/URSCorp
11/23/2010 02:19 PM

To Lee Mareck/Richmond/URSCorp@URSCorp
cc
bcc
Subject Fw: SSP - SSAs 18, 72, 30, etc... (UNCLASSIFIED)

----- Forwarded by Tina MacGillivray/Richmond/URSCorp on 11/23/10 02:20 PM -----

Geiger.William@epamail.epa.gov
11/23/10 02:16 PM

To "McKenna, Jim J Mr CIV USA AMC" <jim.mckenna@us.army.mil>
cc "Andy Kassoff" <akassoff@eee-consulting.com>, "Druck, Dennis E Mr CIV USA MEDCOM PHC" <dennis.druck@us.army.mil>, "Cutler,Jim" <James.Cutler@deq.virginia.gov>, "jim spencer" <james_o_spencer@urscorp.com>, "Parks, Jeffrey N" <Jeffrey.Parks@shawgrp.com>, jerome.redder@atk.com, "Mendoza, Richard R Mr CIV USA IMCOM" <richard.r.mendoza@us.army.mil>, Timothy.Leahy@shawgrp.com, Tina_MacGillivray@URSCorp.com, "Meyer, Tom NAB02" <Tom.Meyer@usace.army.mil>
Subject RE: SSP - SSAs 18, 72, 30, etc... (UNCLASSIFIED)

Jim, EPA/VDEQ approve the responses to these comments. The text to be added for comment #8 is a little unclear. While we understood what you were getting at, you may want to clean that up a little.

Also, I'll be out of the office Dec. 14 and 15. We can probably skip the permit call that week, or maybe reschedule it for Mon or Thurs.

William A. Geiger
Remedial Project Manager
Office of Remediation (3LC20)
U.S. Environmental Protection Agency
1650 Arch Street
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Fro m: "McKenna, Jim J Mr CIV USA AMC" <jim.mckenna@us.army.mil>

To: William Geiger/R3/USEPA/US@EPA

Cc: "Druck, Dennis E Mr CIV USA MEDCOM PHC" <dennis.druck@us.army.mil>, "Cutler,Jim" <James.Cutler@deq.virginia.gov>, "jim spencer" <james_o_spencer@urscorp.com>, "Parks, Jeffrey N" <Jeffrey.Parks@shawgrp.com>, <jerome.redder@atk.com>, "Mendoza, Richard R Mr CIV USA IMCOM" <richard.r.mendoza@us.army.mil>, <Timothy.Leahy@shawgrp.com>, <Tina_MacGillivray@URSCorp.com>, "Meyer, Tom NAB02"

<Tom.Meyer@usace.army.mil>, "Andy Kassoff" <akassoff@eee-consulting.com>

Date: 10/25/2010 03:06 PM

Subject: RE: SSP - SSAs 18, 72, 30, etc... (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: FOUO

All, Attached are responses to EPA/DEQ comments on this report. Thanks, JJM

-----Original Message-----
From: Geiger.William@epamail.epa.gov
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Sent: Wednesday, September 22, 2010 3:59 PM
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Cc: Druck, Dennis E Mr CIV USA MEDCOM PHC; Cutler,Jim; jim spencer; Parks, Jeffrey N; jerome.redder@atk.com; Mendoza, Richard R Mr CIV USA IMCOM; Timothy.Leahy@shawgrp.com; Tina_MacGillivray@URSCorp.com; Meyer, Tom NAB02
Subject: SSP - SSAs 18, 72, 30, etc...

Here are EPA/VDEQ comments on the March 2010 SSP. Please call or email me with any questions.

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Classification: UNCLASSIFIED
Caveats: FOUO

[attachment "RTCs USEPA VDEQ March 2010 SSP Comments 10_22_2010.pdf" deleted by William Geiger/R3/USEPA/US]

Response to USEPA/VDEQ Comments (10/22/2010)
***Draft Site Screening Process Report for Site Screening Areas 18, 72, 30, 79, 60, and 77,* dated March 2010 (Comments Received via E-mail 9/22/2010)**

GENERAL COMMENTS

1. Section 3.1, Analytical Results, states that "Historical investigation results and SSP investigation results are summarized in each site-specific section of this report." While the SSP Report does describe the historical investigation results, it does not include a discussion of the individual constituents detected above the applicable screening criteria during the SSP investigation. While a fully developed nature and extent assessment is not a requirement of the SSP Guidance Document, dated October 2001 (SSP Guidance), Section 7.0, Site Screening Process Report, of the SSP Guidance does state that "a nature and extent determination (if available)" will be presented in the SSP Report. A basic discussion of those constituents detected above screening levels at the site as well as a determination of whether the distribution of contaminants across the site are suggestive of a release would be a useful addition to the SSP Report in support of the conceptual site model, and human health and ecological risk screening evaluations. Please revise the SSP Report to include a discussion of those constituents detected above applicable screening levels at each of the sites, and discuss the distribution of these constituents as they relate to potential source areas.

   Response: A summary of chemicals detected above screening levels is provided in each site specific section in the human health risk screening section. The human health risk screenings resulted in residential and industrial site-related risks/hazards below the SSP thresholds for SSAs 18, 30, 60, and 79; therefore, further analysis of chemical distribution at the sites is not necessary.

   Note that for SSAs 30 and 79, although the screening resulted in risk/hazards below the SSP thresholds, due to the presence of bagged asbestos material at the site, institutional controls (ICs) are recommended at the sites (SSAs 30 and 79 – Asbestos Disposal Trench No. 1 and No. 2). The objective of the ICs is to maintain the sites in their current industrial/commercial state as a closed solid waste management unit and to prevent any future residential use. The areas containing the bagged asbestos material were defined via the geophysics investigation.

   For SSA 72 although cumulative risk and hazard screenings for residential scenarios were above the SSP thresholds, the screenings for the industrial scenarios were below the SSP thresholds. For SSA 77 although cumulative risk and hazard screenings for residential scenarios were above the SSP thresholds, the screenings for the industrial scenarios when considering background were below the SSP threshold. Since the sites' screenings for industrial scenarios were below SSP thresholds and the recommendation for the sites are institutional controls to

maintain the sites in their current industrial/commercial state and prevent any future residential use, further analysis of chemical distribution is not necessary.

2. For the human health risk evaluations, soil data are separated into surface soil and total soil, presumably for different exposure scenarios; however, the SSP Report does not define these soil intervals (i.e., surface soil is 0-2 feet below ground surface [bgs], total soil is 0-10 feet bgs, etc.) Please define the depths of the samples incorporated into the surface soil and total soil evaluations.

   Response: The following text will be added to Section 3.2.1: "COPCs were identified for a site by comparing the maximum detected concentration (MDC) for a detected chemical in surface soil and total soil to USEPA residential regional screening levels (R-RSLs) and industrial regional screening levels (I-RSLs) for soil and tap water regional screening levels (T-RSLs) for groundwater, if available. The two soil data groupings used for COPC screening and the cumulative risk screening (see Section 3.2.2) are surface soil (0 to 1 ft bgs) and total soil (0 ft bgs to termination depth). The total soil data grouping consists of combining surface and subsurface soil to address mixing of potential constituents in soil during construction or land development activities."

3. The SSP Report presents a summary table for each site that includes the Cumulative Human Health Risk Screening Results for Soil. An example of such a table is presented in Section 4.6.2, Cumulative Risk Screen. A column is included for risk drivers, but the SSP Report has not defined the risk drivers (i.e., constituents associated with risk greater than 1E-06 or hazard index greater than 1). Additionally, the tables should define individual chemicals as specific risk drivers, and not just "metals" as is shown in the table in Section 4.6.2. Please revise the SSP Report to clearly define what constitutes a risk driver for purposes of the summary tables, and identify individual constituents as risk drivers, rather than classes of constituents in these tables.

   Response: The following text will be added to the site specific cumulative risk section (example provided for Section 4.6.2): "The hazard drivers identified in the table above are those chemicals that primarily contribute to HIs greater than the established SSP hazard level of 1."

   The tables in each site specific cumulative risk section will be revised to include a list of the metals risk/hazard drivers.

SPECIFIC COMMENTS

4. **Section 4.2.2, Acid Sewer Survey, Page 4-4**: This section indicates that an Acid Sewer Survey and Investigation was conducted on the entire RFAAP acid sewer infrastructure between 1998 and 2000 to determine the condition of the sewers. Deteriorated or broken sections were repaired or replaced within active areas; however, no actions were taken in the area of SSA 18 since the site was inactive.

In the response to Specific Comment 4 on the *Final Work Plan Addendum 028 for Site Screening Areas 18, 72, 30, 79, 60, and 77*, dated June 2009 (WPA 028), it was noted that "an assessment of the 260 ft long 6-inch diameter plastic, gravity acid sewer line that extends from the acidic wastewater sump (SSA 72) to the SAR wastewater treatment plant was not conducted." Please revise Section 4.2.2 to note that the section of the sewer line associated with SSA 18 and 72 was not originally investigated as part of the Acid Sewer Survey discussed in Section 4.2.2. This comment also applies to Section 5.2.2, as part of the discussion of SSA 72. It is acknowledged, however, that an attempt to investigate this section of the sewer line was conducted as part of the SSP, as described in Section 5.4, SSP Field Activities.

Response: The following text will be added to Sections 4.2.2 and 5.2.2: "An assessment of the 260 ft long 6-inch diameter plastic, gravity acid sewer line that extends from the acidic wastewater sump (SSA 72) to the SAR wastewater treatment plant (SSA 18) was not conducted as part of the acid sewer survey."

5. **Section 4.6, Human Health Risk Screening, Page 4-7:** The SSP Report does not state which data were used in the human health risk screening (i.e., historical and SSP data, or SSP data only). It would appear that all data (historical and SSP data) should be included in the risk evaluations since the data were collected at different locations, and no removal actions were conducted at this site that could have removed soil associated with the sample locations. Please revise the SSP Report to clearly identify the data points that were used in the risk evaluation, and assure that all data representative of current conditions are included in the risk evaluation.

   Response: Historical data for the SSA 18 area are limited to two soil samples collected from soil boring SB08 (at the location of monitoring well MW-4) and 2007 groundwater samples from monitoring wells MW-3 and MW-4 at locations potentially downgradient of SSA 18. These soil and groundwater data will be incorporated into the COPC selection and risk screening process for potential release evaluations for this SSA. Section 4.6 will be revised to identify the historical samples and SSP samples used in the risk evaluation.

6. **Section 4.6.1, Identification of COPCs, Page 4-7:** It is unclear why the existing groundwater data from 2007 were not carried through to the contaminant of potential concern (COPC) selection process as part of the human health risk screening for SSA 18 as well as SSA 72. Section 4.6.1 states, "As presented in WPA 028, potential releases to groundwater were assessed by evaluating subsurface soil data and comparison of these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table." While a comparison to SSLs is one component of the evaluation, WPA 028 also states, in Section 2.4.3, Release Assessment to Groundwater, "Potential releases to groundwater will be evaluated using existing groundwater data collected in the site area in 2007." Based on a cursory review of the groundwater data, presented

in Table 4-3, chloroform and perchlorate were detected above the tapwater Regional Screening Levels (RSL) in wells MW-3 and/or MW-4, both locations of which the SSP Report acknowledges could be used to evaluate potential releases from SSA 18 (Section 4.2.3), and possibly SSA 72. Please revise the SSP Report to include the 2007 groundwater data in the COPC selection process for these two sites, and include any COPCs in the risk/hazard estimates and cumulative risk screening.

Response: Section 4.0 of the SSP Report for SSA 18 will be revised to include the 2007 groundwater data from MW-3 and MW-4 in the COPC selection and cumulative risk screening process for potential release evaluations for this SSA. Section 5.0 of the SSP Report for SSA 72 will be revised to include the 2007 groundwater data from monitoring well MW-3 in the COPC selection and cumulative risk screening process for potential releases evaluation for this SSA. Data from monitoring well MW-4 will not be included in the analysis for SSA 72 because of its probable crossgradient location relative to this SSA.

As presented on Table 4-3, chemicals detected at concentrations above screening levels for MW-3 and MW-4 include perchlorate and chloroform. Therefore, perchlorate and chloroform are COPCs for groundwater subject to cumulative risk screening. The results of the cumulative risk screening for COPCs identified in groundwater at SSA 18 is provided in attached Table 4-9. The screening resulted in an HI of 0.1 for perchlorate which is below the SSP threshold (1) and a risk of 9E-05 for chloroform which is above the SSP threshold (1E-05). The detected chloroform concentration (18 ug/L) is above the tap water RSL but below the MCL for THMs. Chloroform was also detected in upgradient wells.

With regard to groundwater detections of chloroform at the site, it is important to note that studies and groundwater investigations have shown the presence of chloroform in most groundwater samples collected at the facility regardless of location. The concentrations of chloroform detected in monitoring wells at the site are concentrations below the range of chloroform levels present in the water transmitted through water lines at the facility. The site is located downgradient of developed areas containing water lines that could be leaking, which may have been the source of chloroform. No additional assessment of chloroform at the site is required.

This information will be incorporated into the final report.

7. **Section 5.1.3, Surface Water, Page 5-1**: This section indicates that water is still present in the sump at SSA 72. A water sample collected from this sump in 2007 identified Alpha-BHC, heptachlor, and nine metals above their tapwater RSLs (Section 5.2.4, Oleum Plant Environmental Baseline Study – Ecology and Environment, Inc. 2007). Although it does not appear that the water from the sump has been released to the environment at potentially unacceptable levels, it is recommended that the water in this sump be properly disposed in an effort to

avoid potential future releases should the sump structure be compromised. Please revise the SSP Report to address this concern.

Response: The limited water present in the sump is likely an accumulation of rainwater due to the grated opening atop the sump. During the dry season when rainfall accumulations are minimal, the sump does not contain water; therefore, removal of periodic accumulation of water from the sump is not proposed. This information will be added to Section 5.1.3.

8. **Section 5.6, Human Health Risk Screening, Pages 5-5 through 5-7**: The cumulative risk screening for surface soil at SSA 72 is based on a single surface soil sample, B-3 Surface/72SB1A. Table 5-3, Summary of Detected Chemicals in Soil Analytical Samples, shows that several metals and polynuclear aromatic hydrocarbons (PAHs) were detected above residential and/or industrial RSLs in this sample. Using only a single surface soil sample to assess risk introduces considerable uncertainty into the risk assessment. Please revise the SSP to discuss the uncertainties associated with assessing risk with a single sample, and address whether additional assessment of surface soil in the area will be necessary to better define the extent of the contamination.

   Response: Metals in sample B-3 Surface/72SB1A detected above RSLs (aluminum, arsenic, cobalt, iron, manganese, thallium, and vanadium) are well within background ranges and are below facility wide background point estimates; therefore, these metals are not considered a concern at the site.

   The following text will be added to Section 5.6.6: "Although uncertainties in assessing risk increase when using a single surface soil sample potentially underestimates risk, the use the maximum detected concentrations for the overall risk screenings potentially overestimates risk. Based on the small size of the site (0.1 acre), the lack of potential surface soil releases due to the nature of previous activities at the SSA (acid conveyance via subsurface sump and subsurface sewer line), the low level of detections of PAHs in the sample, the industrial screening resulting in risks/hazards below SSP thresholds, no additional assessment of surface soil in the area is proposed."

9. **Table 5-3, Summary of Detected Chemicals in Soil Analytical Samples:** A note included with this table indicates that chemical concentrations that exceed the soil to groundwater risk-based soil screening level (SSL) based on a dilution attenuation factor (DAF) of 20 will be shown in bold italic text. However, this approach was not consistently applied. Nitrobenzene concentrations in samples 72SB2B and 72SB3B exceed the SSL, but the detected concentrations have not been shown in bold italics. Please revise Table 5-3 to identify all constituents that exceed applicable screening criteria, including the SSL, and assure that all tables in the SSP Report do the same.

Response: Table 5-3 will be revised and all tables will be reviewed and revised as necessary.

10. **Section 6.6.1, Identification of COPCs, Page 6-5:** Dibenzofuran was identified as a site COPC since no screening value was available for this constituent at the time of report preparation. Also, risk associated with this constituent was not incorporated into the cumulative risk screening since a RSL was not available. However, beginning in December 2009, RSLs were established for dibenzofuran. Please revise the SSP Report to incorporate updated RSLs for dibenzofuran into the COPC selection process. Based on the concentration of the detection (0.043 milligrams per kilogram [mg/kg] in sample 79SS5) and the current May 2010 residential RSL for dibenzofuran (78 mg/kg), dibenzofuran does not appear to be a concern at the site.

    Response: Per previous agreements, if an updated value changes significantly so that it would impact the conclusion for the site, an analysis of the effects of this change will be conducted. A discussion of the use of the April 2009 RSLs versus the December 2009 RSLs will be added to Section 3.2.7.2 as follows: "The use of the April 2009 Regional Screening Levels rather than the December 2009 Regional Screening Levels for the SSP human health risk screening could result in the inclusion or exclusion of chemicals based on outdated toxicity data. Therefore to lessen the uncertainty associated with the use of these screening levels, an assessment of the data was conducted with respect to the December 2009 Regional Screening Levels which did not result in the identification of any additional COPCs for the sites.

11. **Section 6.8, Conclusions and Recommendations, Page 6-14:** This section indicates that institutional controls are being implemented at SSA 30 and SSA 79, the asbestos disposal trenches. The institutional controls will provide "for advance notice, assessment, and approval of intrusive work that may occur within the plant with a general digging prohibition at sites such as this." However, the recommendations for the disposal trenches do not include maintenance of the sites. Since bagged asbestos containing material is known to be buried in the site trenches, the soil cover at these sites should be properly maintained to prevent erosion and potential exposure of the bags. Please revise the SSP to incorporate maintenance of the soil cover at SSAs 30 and 79 into the recommendations for the sites.

    Response: The following text will be added to Section 6.8: "In addition since bagged asbestos containing material is known to be buried in the site trenches, the soil cover at these sites will be maintained to prevent erosion and potential exposure of the bags."

12. **Section 7.4, SSP Field Activities, Page 7-4:** Two test pits were completed at the site, but the SSP Report does not describe the materials that were found in these test pits. The SSP Report should describe the materials found in the test pits to

confirm the historical use of the site as a demolition waste pile. Revise the SSP Report to discuss findings from the test pit activities. Additionally, please provide test pit logs for both of the test pits and clarify if the log provided for Borehole 60TP-1 in Appendix D.2.1 is a part of one of the test pits.

Response: The following text will be added to Section 7.4: "During excavation of the test pits, the material encountered included fill, gravel areas, rocks, and concrete building debris."

The test pit log for 60TP-2 will be provided in Appendix D.2.1. The log for Borehole 60TP-1 will be revised to indicate Test Pit/Borehole.

13. **Section 8.6.2, Cumulative Risk Screening, Pages 8-6 and 8-7:** 2,3,7,8-TCDD Equivalents (TEQ) (dioxins) were identified as risk drivers in both surface soil and total soil. However, it does not appear that dioxins were adequately evaluated at this site since only two surface soil samples were analyzed for these constituents, both of which reported residential and/or industrial RSL exceedances. No subsurface soil samples were analyzed for dioxins to assess the vertical extent of contamination. Additionally, the two surface soil samples analyzed for dioxins (77SB2 and 77SB3) were located immediately north of the incinerator building; surface soil in other areas of the site was not evaluated although deposition of particulate matter from the chimney is a potential release mechanism at the site. Please revise the SSP Report to address the apparent data gaps with respect to sampling for dioxins in subsurface soil and surface soil, or present additional justification for not assessing the extent of this contamination.

    Response: Dioxin sampling focused on surface soil at the locations where the potential for releases were highest based on the identified release mechanisms and location of the chimney (surface spills of materials removed from the chimney cleanout and deposition of particulates from the chimney). Dioxin detections did not result in an industrial cumulative risk screening equal to or above SSP 1E-05 threshold for further assessment when considering metals background. Additional sampling for dioxins is not proposed at SSA 77 given the risk screening results, collection of samples at the likely locations and depth of highest concentrations, and the limited area around SSA 77 not covered by asphalt pavement or buildings (grass covered areas are limited to approximately 0.1 acres on a steep hillside).

    Note that cumulative risk and hazard screenings for industrial scenarios are below the SSP thresholds when considering background and the recommendation for the site is institutional controls to maintain the site in its current industrial/commercial state and prevent any future residential use.

14. **Section 8.8, Conclusions and Recommendation, Page 8-12:** The first bulleted item states, "Cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards." This is inconsistent with the information presented in Section 8.6.2, Cumulative Risk Screen, where it is

noted that “cumulative risk screenings were equal to the established SSP risk level of 1E-05 for the industrial scenario for surface and total soil.” When excluding risk drivers below background (arsenic), site related risk falls below the established thresholds; however, this should be noted in the first bulleted item on Page 8-12. Please revise the first bulleted item in Section 8.8 to state that the risk screening results for the industrial scenario are below SSP thresholds, when excluding risk drivers below background.

Response: The first bullet of Section 8.8 will be revised as follows: “When excluding risk drivers below background (arsenic), the site related cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards.”

15. **Appendix D.2.1, Site Screening Process Boring Logs**: Several of the boring logs do not specify the recovery (in feet) or the results of the photoionization detector (PID) screening. These incomplete boring logs include the logs for boreholes 18SB1, 18SB2, 18SB5, 30SB1, 30SB2, 30SB3, 77SB2, 77SB3, and 77SB5. Additionally, the log for borehole 77SB3 does not include a material description. Please revise the SSP to provide complete information on recovery, PID screening, and material descriptions for the borings completed during the SSP.

    Response: The SSP Report will be revised to include the additional requested information on the above referenced boring logs.

Table 4-9
SSA 18 Cumulative HHRS (Groundwater)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	Tap Water RSL	C/N	Non Carcinogenic HI	Excess Cancer Risk	Noncarcinogenic Target Organ
67-66-3	Chloroform	ug/L	2/2	18	0.19	C	--	9.E-05	--
14797-79-0	Perchlorate	ug/L	2/2	3.59	25.55	N	1.E-01	--	thyroid
							1.E-01	9.E-05	
Target Organ Segregation						Total thyroid HI =	0.1		

Notes:

µg/L = Microgram Per Kilogram
CAS = Chemical Abstracts Service
MDC = Maximum Detected Concentration
HI = Hazard Index
RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

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bcc
Subject SSP - SSAs 18, 72, 30, etc...

Here are EPA/VDEQ comments on the March 2010 SSP. Please call or email me with any questions.

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March 2010 SSP Comments.doc

Presented below are EPA/VDEQ comments on the *Draft Site Screening Process Report for Site Screening Areas 18, 72, 30, 79, 60, and 77*, dated March 2010, for the Radford Army Ammunition Plant (RFAAP) located in Radford, Virginia (SSP Report).

GENERAL COMMENTS

1. Section 3.1, Analytical Results, states that "Historical investigation results and SSP investigation results are summarized in each site-specific section of this report." While the SSP Report does describe the historical investigation results, it does not include a discussion of the individual constituents detected above the applicable screening criteria during the SSP investigation. While a fully developed nature and extent assessment is not a requirement of the SSP Guidance Document, dated October 2001 (SSP Guidance), Section 7.0, Site Screening Process Report, of the SSP Guidance does state that "a nature and extent determination (if available)" will be presented in the SSP Report. A basic discussion of those constituents detected above screening levels at the site as well as a determination of whether the distribution of contaminants across the site are suggestive of a release would be a useful addition to the SSP Report in support of the conceptual site model, and human health and ecological risk screening evaluations. Please revise the SSP Report to include a discussion of those constituents detected above applicable screening levels at each of the sites, and discuss the distribution of these constituents as they relate to potential source areas.

2. For the human health risk evaluations, soil data are separated into surface soil and total soil, presumably for different exposure scenarios; however, the SSP Report does not define these soil intervals (i.e., surface soil is 0-2 feet below ground surface [bgs], total soil is 0-10 feet bgs, etc.) Please define the depths of the samples incorporated into the surface soil and total soil evaluations.

3. The SSP Report presents a summary table for each site that includes the Cumulative Human Health Risk Screening Results for Soil. An example of such a table is presented in Section 4.6.2, Cumulative Risk Screen. A column is included for risk drivers, but the SSP Report has not defined the risk drivers (i.e., constituents associated with risk greater than 1E-06 or hazard index greater than 1). Additionally, the tables should define individual chemicals as specific risk drivers, and not just "metals" as is shown in the table in Section 4.6.2. Please revise the SSP Report to clearly define what constitutes a risk driver for purposes of the summary tables, and identify individual constituents as risk drivers, rather than classes of constituents in these tables.

SPECIFIC COMMENTS

4. **Section 4.2.2, Acid Sewer Survey, Page 4-4**: This section indicates that an Acid Sewer Survey and Investigation was conducted on the entire RFAAP acid sewer infrastructure between 1998 and 2000 to determine the condition of the sewers.

Deteriorated or broken sections were repaired or replaced within active areas; however, no actions were taken in the area of SSA 18 since the site was inactive. In the response to Specific Comment 4 on the *Final Work Plan Addendum 028 for Site Screening Areas 18, 72, 30, 79, 60, and 77*, dated June 2009 (WPA 028), it was noted that "an assessment of the 260 ft long 6-inch diameter plastic, gravity acid sewer line that extends from the acidic wastewater sump (SSA 72) to the SAR wastewater treatment plant was not conducted." Please revise Section 4.2.2 to note that the section of the sewer line associated with SSA 18 and 72 was not originally investigated as part of the Acid Sewer Survey discussed in Section 4.2.2. This comment also applies to Section 5.2.2, as part of the discussion of SSA 72. It is acknowledged, however, that an attempt to investigate this section of the sewer line was conducted as part of the SSP, as described in Section 5.4, SSP Field Activities.

5. **Section 4.6, Human Health Risk Screening, Page 4-7:** The SSP Report does not state which data were used in the human health risk screening (i.e., historical and SSP data, or SSP data only). It would appear that all data (historical and SSP data) should be included in the risk evaluations since the data were collected at different locations, and no removal actions were conducted at this site that could have removed soil associated with the sample locations. Please revise the SSP Report to clearly identify the data points that were used in the risk evaluation, and assure that all data representative of current conditions are included in the risk evaluation.

6. **Section 4.6.1, Identification of COPCs, Page 4-7:** It is unclear why the existing groundwater data from 2007 were not carried through to the contaminant of potential concern (COPC) selection process as part of the human health risk screening for SSA 18 as well as SSA 72. Section 4.6.1 states, "As presented in WPA 028, potential releases to groundwater were assessed by evaluating subsurface soil data and comparison of these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table." While a comparison to SSLs is one component of the evaluation, WPA 028 also states, in Section 2.4.3, Release Assessment to Groundwater, "Potential releases to groundwater will be evaluated using existing groundwater data collected in the site area in 2007." Based on a cursory review of the groundwater data, presented in Table 4-3, chloroform and perchlorate were detected above the tapwater Regional Screening Levels (RSL) in wells MW-3 and/or MW-4, both locations of which the SSP Report acknowledges could be used to evaluate potential releases from SSA 18 (Section 4.2.3), and possibly SSA 72. Please revise the SSP Report to include the 2007 groundwater data in the COPC selection process for these two sites, and include any COPCs in the risk/hazard estimates and cumulative risk screening.

7. **Section 5.1.3, Surface Water, Page 5-1**: This section indicates that water is still present in the sump at SSA 72. A water sample collected from this sump in 2007 identified Alpha-BHC, heptachlor, and nine metals above their tapwater RSLs

(Section 5.2.4, Oleum Plant Environmental Baseline Study – Ecology and Environment, Inc. 2007). Although it does not appear that the water from the sump has been released to the environment at potentially unacceptable levels, it is recommended that the water in this sump be properly disposed in an effort to avoid potential future releases should the sump structure be compromised. Please revise the SSP Report to address this concern.

8. **Section 5.6, Human Health Risk Screening, Pages 5-5 through 5-7**: The cumulative risk screening for surface soil at SSA 72 is based on a single surface soil sample, B-3 Surface/72SB1A. Table 5-3, Summary of Detected Chemicals in Soil Analytical Samples, shows that several metals and polynuclear aromatic hydrocarbons (PAHs) were detected above residential and/or industrial RSLs in this sample. Using only a single surface soil sample to assess risk introduces considerable uncertainty into the risk assessment. Please revise the SSP to discuss the uncertainties associated with assessing risk with a single sample, and address whether additional assessment of surface soil in the area will be necessary to better define the extent of the contamination.

9. **Table 5-3, Summary of Detected Chemicals in Soil Analytical Samples:** A note included with this table indicates that chemical concentrations that exceed the soil to groundwater risk-based soil screening level (SSL) based on a dilution attenuation factor (DAF) of 20 will be shown in bold italic text. However, this approach was not consistently applied. Nitrobenzene concentrations in samples 72SB2B and 72SB3B exceed the SSL, but the detected concentrations have not been shown in bold italics. Please revise Table 5-3 to identify all constituents that exceed applicable screening criteria, including the SSL, and assure that all tables in the SSP Report do the same.

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11. **Section 6.8, Conclusions and Recommendations, Page 6-14:** This section indicates that institutional controls are being implemented at SSA 30 and SSA 79, the asbestos disposal trenches. The institutional controls will provide "for advance notice, assessment, and approval of intrusive work that may occur within the plant with a general digging prohibition at sites such as this." However, the recommendations for the disposal trenches do not include maintenance of the sites. Since bagged asbestos containing material is known to be buried in the site

trenches, the soil cover at these sites should be properly maintained to prevent erosion and potential exposure of the bags. Please revise the SSP to incorporate maintenance of the soil cover at SSAs 30 and 79 into the recommendations for the sites.

12. **Section 7.4, SSP Field Activities, Page 7-4:** Two test pits were completed at the site, but the SSP Report does not describe the materials that were found in these test pits. The SSP Report should describe the materials found in the test pits to confirm the historical use of the site as a demolition waste pile. Revise the SSP Report to discuss findings from the test pit activities. Additionally, please provide test pit logs for both of the test pits and clarify if the log provided for Borehole 60TP-1 in Appendix D.2.1 is a part of one of the test pits.

13. **Section 8.6.2, Cumulative Risk Screening, Pages 8-6 and 8-7:** 2,3,7,8-TCDD Equivalents (TEQ) (dioxins) were identified as risk drivers in both surface soil and total soil. However, it does not appear that dioxins were adequately evaluated at this site since only two surface soil samples were analyzed for these constituents, both of which reported residential and/or industrial RSL exceedances. No subsurface soil samples were analyzed for dioxins to assess the vertical extent of contamination. Additionally, the two surface soil samples analyzed for dioxins (77SB2 and 77SB3) were located immediately north of the incinerator building; surface soil in other areas of the site was not evaluated although deposition of particulate matter from the chimney is a potential release mechanism at the site. Please revise the SSP Report to address the apparent data gaps with respect to sampling for dioxins in subsurface soil and surface soil, or present additional justification for not assessing the extent of this contamination.

14. **Section 8.8, Conclusions and Recommendation, Page 8-12:** The first bulleted item states, "Cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards." This is inconsistent with the information presented in Section 8.6.2, Cumulative Risk Screen, where it is noted that "cumulative risk screenings were equal to the established SSP risk level of 1E-05 for the industrial scenario for surface and total soil." When excluding risk drivers below background (arsenic), site related risk falls below the established thresholds; however, this should be noted in the first bulleted item on Page 8-12. Please revise the first bulleted item in Section 8.8 to state that the risk screening results for the industrial scenario are below SSP thresholds, when excluding risk drivers below background.

15. **Appendix D.2.1, Site Screening Process Boring Logs**: Several of the boring logs do not specify the recovery (in feet) or the results of the photoionization detector (PID) screening. These incomplete boring logs include the logs for boreholes 18SB1, 18SB2, 18SB5, 30SB1, 30SB2, 30SB3, 77SB2, 77SB3, and 77SB5. Additionally, the log for borehole 77SB3 does not include a material description. Please revise the SSP to provide complete information on recovery,

PID screening, and material descriptions for the borings completed during the SSP.

DEPARTMENT OF THE ARMY
US ARMY PUBLIC HEALTH COMMAND (PROVISIONAL)
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5403

MCHB-TS-REH

19 APR 2010

MEMORANDUM FOR Office of Environmental Quality, Radford Army Ammunition Plant (SJMRF-OP-EQ/Mr. Jim McKenna), P.O. Box 2, Radford, VA 24143-0002

SUBJECT: Draft Site Screening Process Report for Site Screening Areas 18, 72, 30, 79, 60, and 77, Radford Army Ammunition Plant, Virginia, March 2010

1. The US Army Public Health Command (Provisional), formerly the US Army Center for Health Promotion and Preventive Medicine, reviewed the subject document on behalf of the Office of The Surgeon General pursuant to Army Regulation 200-1 (Environmental Protection and Enhancement). We appreciate the opportunity to review the report.

2. Our comments on the previous internal draft version of the report have been addressed and we have no additional comments.

3. The document was reviewed by Mr. Dennis Druck, Environmental Health Risk Assessment Program. He can be reached at DSN 584-2953, commercial (410) 436-2953 or electronic mail, dennis.druck@us.army.mil.

FOR THE COMMANDER:

JEFFREY S. KIRKPATRICK
Director, Health Risk Management

CF:
HQDA (DASG-PPM-NC)
IMCOM-NE (IMNE-PWD-E)
USACE (CEHNC-CX-ES)
USAEC (IMAE-CD/Mr. Rich Mendoza)

ATK Armament Systems
Energetic Systems
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Radford, VA 24143-0100

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April 7, 2010

Mr. William Geiger
RCRA General Operations Branch, Mail Code: 3WC23
Waste and Chemicals Management Division
U. S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Mr. James L. Cutler, Jr.
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 24143-0100

Subject: With Certification, Site Screening Process Report for Site Screening Areas 18, 72, 30, 79, 60, and 77, Draft March 2010
EPA ID# VA1 210020730

Dear Mr. Geiger and Mr. Cutler:

Enclosed is the certification for the subject document that was sent to you on March 29, 2010. Also enclosed is the 29 March 2010 transmittal email.

Please coordinate with and provide any questions or comments to myself at (540) 639-8658, Jerry Redder ATK staff (540) 639-7536 or Jim McKenna, ACO Staff (540) 731-5782.

Sincerely,

P.W. Holt, Environmental Manager
Alliant Techsystems Inc.

c: Karen Sismour
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Richmond, VA 23240-0009

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10-815-56
JMcKenna

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Env. File

Coordination: J. McKenna

M. A. Miano

10-815-56
JMcKenna

Concerning the following:

Radford Army Ammunition Plant
Site Screening Process Report
for
Site Screening Areas 18, 72, 30, 79, 60, and 77
Draft March 2010

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

SIGNATURE: Antonio Munera
PRINTED NAME: Antonio Munera
TITLE: LTC, CM
Commanding

SIGNATURE:
PRINTED NAME: Ken Holiday
TITLE: Vice President and General Manager
ATK Energetics Systems

10-815-56
JMcKenna

Greene, Anne

From: McKenna, Jim
Sent: Monday, March 29, 2010 4:33 PM
To: Greene, Anne; Cutler,Jim; dennis.druck@us.army.mil; diane.wisbeck@arcadis-us.com; durwood willis2; Geiger.William@epamail.epa.gov; Redder, Jerome; jim spencer; Llewellyn, Tim; Lohman,Elizabeth; Mendoza, Rich; Meyer, Tom NAB02; Parks, Jeffrey N; Sismour,Karen; Timothy.Leahy@shawgrp.com; Tina_MacGillivray@URSCorp.com
Subject: Draft SSP Report at SSAs 18, 72, 30, 79, 60, and 77 (UNCLASSIFIED)

Importance: High

Classification: UNCLASSIFIED
Caveats: FOUO

Note the contractor will ship the subject document with a copy of this email to the POCs and tracking numbers below.

Certification letter will follow from Radford AAP under separate cover.

Immediately below are the POCs with tracking numbers.

Thank you in advance for your support of the Radford Army Ammunition Plant Installation Restoration Program.

Jim McKenna
540 731 5782

POCs and FedEx tracking numbers for the Draft SSP Report at SSAs 18, 72, 30, 79, 60, and 77:

James McKenna 7985 1620 7354 2 Paper copies/1 CD

Will Geiger 7985 1621 9575 3 Paper copies/3 CDs

Jim Cutler 7985 1621 5216 1 Paper copy/1 CD

Tom Meyer 7985 1623 6074 1 Paper copy/1 CD

Richard Mendoza 7933 9474 9075 1 Paper copy/1 CD

Dennis Druck 7985 1624 3764 1 CD

Elizabeth Lohman 7985 1624 6936 1 CD

Susan Ryan 7985 1623 9073 1 CD

Classification: UNCLASSIFIED
Caveats: FOUO

EXECUTIVE SUMMARY

This Site Screening Process (SSP) report presents the results and findings of the Resource Conservation and Recovery Act (RCRA) investigation conducted at the Radford Army Ammunition Plant (RFAAP) for the following site screening areas (SSAs; Figure 1-1):

- SSA 18 Sulfuric Acid Recovery Plant – Waste Acid Treatment Facility
- SSA 72 Oleum Plant Acidic Wastewater Sump
- SSA 30 Asbestos Disposal Trench No. 1
- SSA 79 Asbestos Disposal Trench No. 2
- SSA 60 Rubble Pile East of the Administration Building
- SSA 77 Garbage Incinerator

SSA 18 and SSA 72 are located in close proximity to each other in the Oleum Plant area, but were assessed separately. SSA 30 and SSA 79 are co-located in the HSA and are assessed together due to similar operational histories. SSA 60 is adjacent to the main administration building near the main gate to the plant. SSA 77 is located adjacent to shipping and receiving in the MMA.

URS Group, Inc. (URS) conducted a RCRA SSP at the RFAAP for SSAs 18, 72, 30, 79, 60, and 77. The SSP was performed in accordance with the U.S. Environmental Protection Agency (USEPA) Region III and Virginia Department of Environmental Quality (VDEQ)-approved Master Work Plan (MWP) Addendum 028 (URS 2009), the requirements set forth in the 2000 RCRA permit for RFAAP (USEPA 2000), and the USEPA approved SSP Guidance Document for RFAAP (USEPA 2001, Appendix A).

The SSP was designed to assess: whether releases of hazardous substances, pollutants, chemicals, hazardous wastes, or hazardous constituents have occurred to the environment at the site evaluated, whether further investigation (i.e., risk assessment or RCRA Facility Investigation (RFI)) or an interim removal action is appropriate at a site, or whether no further action (NFA) at a site is appropriate. Five steps were completed for the SSP following the approved guidance document including: 1) performance of a desktop audit and site visit to develop the scope of the SSP Work Plan, 2) preparation of a SSP site-specific Work Plan, 3) performance of the field work in accordance with the approved SSP Work Plan, 4) evaluation of the SSP data and completion of pre-remedial risk screening, and 5) assessment of the need for further investigation, interim removal action, or preparation of a "No Further Action" Decision Document, per the RCRA Corrective Action permit based on the results of the SSP and risk screening.

Human Health Risk Screenings

Human health risk screening was conducted for each of the sites. SSAs 30 and 79 were assessed together due to their proximity and similar historical activities. Background levels of metals were the risk and hazard drivers for each of the sites except for SSA 72 (benzo(a)pyrene and Aroclor 1254) and SSA 77 (2,3,7,8-TCDD TEQ (dioxins)). SSA 72 and SSA 77 had site-related risks/hazards equal to or above the SSP thresholds of 1E-05 and 1 for the residential scenario. The site-related cumulative risks/hazards for SSA 72 and SSA 77 were below the SSP thresholds for the industrial scenario. The remaining sites (SSA 18, SSA 30, SSA 79, and SSA 60) had site-related risks and hazards below SSP thresholds of 1E-05 and 1, respectively, for residential and industrial scenarios.

Ecological Risk Screenings

Ecological risk screening was conducted for five of the six sites. SSAs 30 and 79 were assessed together due to their proximity and similar historical activities. Metals were the primary constituents of potential ecological concern (COPECs) at the sites with the exception of SSA 77 (2,3,7,8-TCDD TEQ (dioxins)). The results of the ecological risk assessments indicated there is adequate information to conclude that

ecological risks are considered negligible at SSAs 18, 30, 79, 60, and 77; therefore, there is no need for further action at these SSP sites on the basis of ecological risk. Although a limited number of surface soil samples were collected (one sample) at SSA 72, an ecological risk assessment was not conducted for the site considering the small size of the site (0.1 acre), the nature of previous activities at the site (acid conveyance via subsurface sump and subsurface sewer line), and the lack of potential surface soil releases due to the nature of previous activities at the site. Based on these factors, the potential for ecological risk at SSA 72 is considered negligible.

Conclusions and Recommendations

A summary of conclusion and recommendation based on the SSP evaluation for each site is provided below:

- SSA 18 – No Further Action based on the results of the human health screening, ecological risk screening, and SSL evaluation;
- SSA 72 – No Further Action beyond the implementation of land use controls to maintain this site as industrial precluding residential use due to cumulative risk and hazard screening results for residential scenarios equal to or above SSP thresholds for target risk and hazards;
- SSAs 30 and 79 – No Further Action beyond the implementation of land use controls to maintain this site as a closed solid waste management unit due to the presence of bagged asbestos containing material at the site within the trenches;
- SSA 60 – No Further Action based on the results of the human health screening, ecological risk screening, and SSL evaluation; and
- SSA 77 – No Further Action beyond the implementation of land use controls to maintain this site as industrial precluding residential use due to cumulative risk and hazard screening results for residential scenarios above SSP thresholds for target risk and hazards.

SITE SCREENING PROCESS REPORT FOR
SITE SCREENING AREAS 18, 72, 30, 79, 60, AND 77
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LIST OF ACRONYMS AND ABBREVIATIONS

º .....Degree
°C .....Degrees Celsius
% .....Percent
2D-ERI.....Two-Dimensional Electrical Resistivity Imaging
AF .....Area Use Factor
AOC .....Area of Concern
ARAR .....Applicable or Relevant and Appropriate Requirements
ASTM .....American Society for Testing and Materials
BAF.....Bioaccumulation Factor
bgs.....Below Ground Surface
BMP .....Best Management Practice
CARB.....State of California Air Resources Board
CDCP .....Centers for Disease Control and Prevention
CFR.....Code of Federal Regulations
CL .....Sandy lean clay
CNS.....Central Nervous System
COC .....Chemical of Concern
COPC .....Chemical of Potential Concern
COPEC.....Chemical of Potential Ecological Concern
CSM .....Conceptual Site Model
DAF .....Dilution Attenuation Factor
DDT .....Dichloro-Diphenyl-Trichloroethane
DQO.....Data Quality Objective
EBS .....Environmental Baseline Study
ECSM.....Ecological Conceptual Site Model
EEI .....Ecology and the Environment, Inc.
EM .....Electromagnetic
EPC .....Exposure Point Concentration
EPIC.....Environmental Photographic Interpretation Center
ERAGS .....Ecological Risk Assessment Guidance for Superfund
FLFA.....Former Lead Furnace Area
ft.....Feet
GI .....Gastrointestinal
GPS .....Global Positioning System
HHRS.....Human Health Risk Screening
HI .....Hazard Index
HQ.....Hazard Quotient
HWMU .....Hazardous Waste Management Unit
I-RSL .....Industrial Regional Screening Level
IC .....Institutional Control
IDM.....Investigation-Derived Material
IEUBK .....Integrated Exposure Uptake Biokinetic
LOAEL .....Lowest Observable Adverse Effect Level
MCL.....Maximum Contaminant Level
MDC .....Maximum Detected Concentration
MDL.....Method Detection Limit
µg/dL.....Microgram Per Deciliter
mg/kg .....Milligrams Per Kilogram
µg/L.....Microgram Per Liter

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

μg/L.....Microgram Per Liter
MHSP.....Master Health and Safety Plan
ML .....Sandy Silt
MMA .....Main Manufacturing Area
MQAP.....Master Quality Assurance Plan
msl.....Mean Sea Level
MWP.....Master Work Plan
NCEA.....National Center for Environmental Assessment
NFA .....No Further Action
NOAEL.....No Observable Adverse Effect Level
NSV .....No Screening Value
NTU .....Nephelometric Turbidity Unit
PAH .....Polynuclear Aromatic Hydrocarbon
PCB.....Polychlorinated Biphenyl
PETN .....Pentaerythritol Tetranitrate
PID.....Photoionization Detector
PPE.....Personal Protective Equipment
PTFE .....Polytetrafluoroethylene
QA.....Quality Assurance
QC.....Quality Control
R-RSL .....Residential Regional Screening Level
RCRA.....Resource Conservation and Recovery Act
RDA .....Recommended Daily Allowance
RFA.....RCRA Facility Assessment
RFAAP.....Radford Army Ammunition Plant
RfD.....Reference Dose
RFI .....RCRA Facility Investigation
RL .....Reporting Limit
RSL .....Regional Screening Level
SAR.....Sulfuric Acid Recovery
SLERA.....Screening Level Ecological Risk Assessment
SM.....Silty sand
SMDP.....Scientific/Management Decision Point
SOP .....Standard Operating Procedure
SSA .....Site Screening Area
SSL.....Soil Screening Level
SSP.....Site Screening Process
SVOC.....Semi-Volatile Organic Compound
SWCB .....State Water Control Board
SWMU .....Solid Waste Management Unit
TAL.....Target Analyte List
TCL.....Target Compound List
TEQ.....Toxicity Equivalent
TOC .....Total Organic Carbon
TOX .....Total Organic Halogen
TRV .....Toxicity Reference Value
T-RSL .....Tap Water Regional Screening Level
TNT.....Trinitrotoluene

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

UCL .....Upper Confidence Limit
URS.....URS Group, Inc.
USACE .....United States Army Corps of Engineers
USEPA.....United States Environmental Protection Agency
UTL.....Upper Tolerance Limit
VDEQ .....Virginia Department of Environmental Quality
VOC.....Volatile Organic Compound
VPDES.....Virginia Pollution Discharge Elimination System
WPA.....Work Plan Addendum

1.0 INTRODUCTION

This Site Screening Process (SSP) report presents the results and findings of the Resource Conservation and Recovery Act (RCRA) investigation conducted at the Radford Army Ammunition Plant (RFAAP) for the following site screening areas (SSAs; Figure 1-1):

- SSA 18 Sulfuric Acid Recovery Plant – Waste Acid Treatment Facility
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- SSA 30 Asbestos Disposal Trench No. 1
- SSA 79 Asbestos Disposal Trench No. 2
- SSA 60 Rubble Pile East of the Administration Building
- SSA 77 Garbage Incinerator

The work was conducted by URS Group, Inc. (URS) to fulfill the requirements set forth in the 2000 RCRA Corrective Action permit as tasked by the United States Army Corps of Engineers (USACE), Baltimore District, in accordance with Contract Number W91238-07-D-0006, Delivery Order No. DA01.

URS performed the SSP in accordance with the Site Screening Process developed for RFAAP (USEPA 2001) and Work Plan Addendum (WPA) 028 to the Master Work Plan (MWP; URS 2009), which was developed to address specific aspects of this project and to describe project-related activities not included in the MWP. These documents, approved by the United States Environmental Protection Agency (USEPA) Region III and the Virginia Department of Environmental Quality (VDEQ), contain the Master Quality Assurance Plan (MQAP), the Master Health and Safety Plan (MHSP), and associated project-specific addenda.

1.1 PURPOSE

The SSP is designed to assess:

- Whether releases of hazardous substances, pollutants, chemicals, or hazardous constituents have occurred to the environment at the site evaluated;
- Whether further investigation (i.e., risk assessment or RCRA Facility Investigation [RFI]) is required;
- Whether an interim removal action at the site is required; or
- Whether no further action (NFA) at the site is appropriate.

1.2 REPORT ORGANIZATION

Section 2.0 outlines the field investigation tasks completed for the SSP. SSP risk screening procedures and assumptions used in the site-specific evaluations are presented in Section 3.0. Historical data, SSP data, and data evaluation components for each site assessed in the SSP are included in individual sections (Sections 4.0 through 8.0) with the exception of SSAs 30 and 79, which are included in a single section (Section 6.0), since the sites are co-located and have similar operation histories.

Each site-specific section of this SSP Report begins with a brief description of the site and a summary of the current conditions including descriptions of the physical and natural features that may affect the migration and exposure pathways. This is followed by a summary of previous investigations, a description of the SSP field activities, and the results of the human health risk screening and ecological risk screening. The final component of each section presents the conclusions and recommendations for the site.

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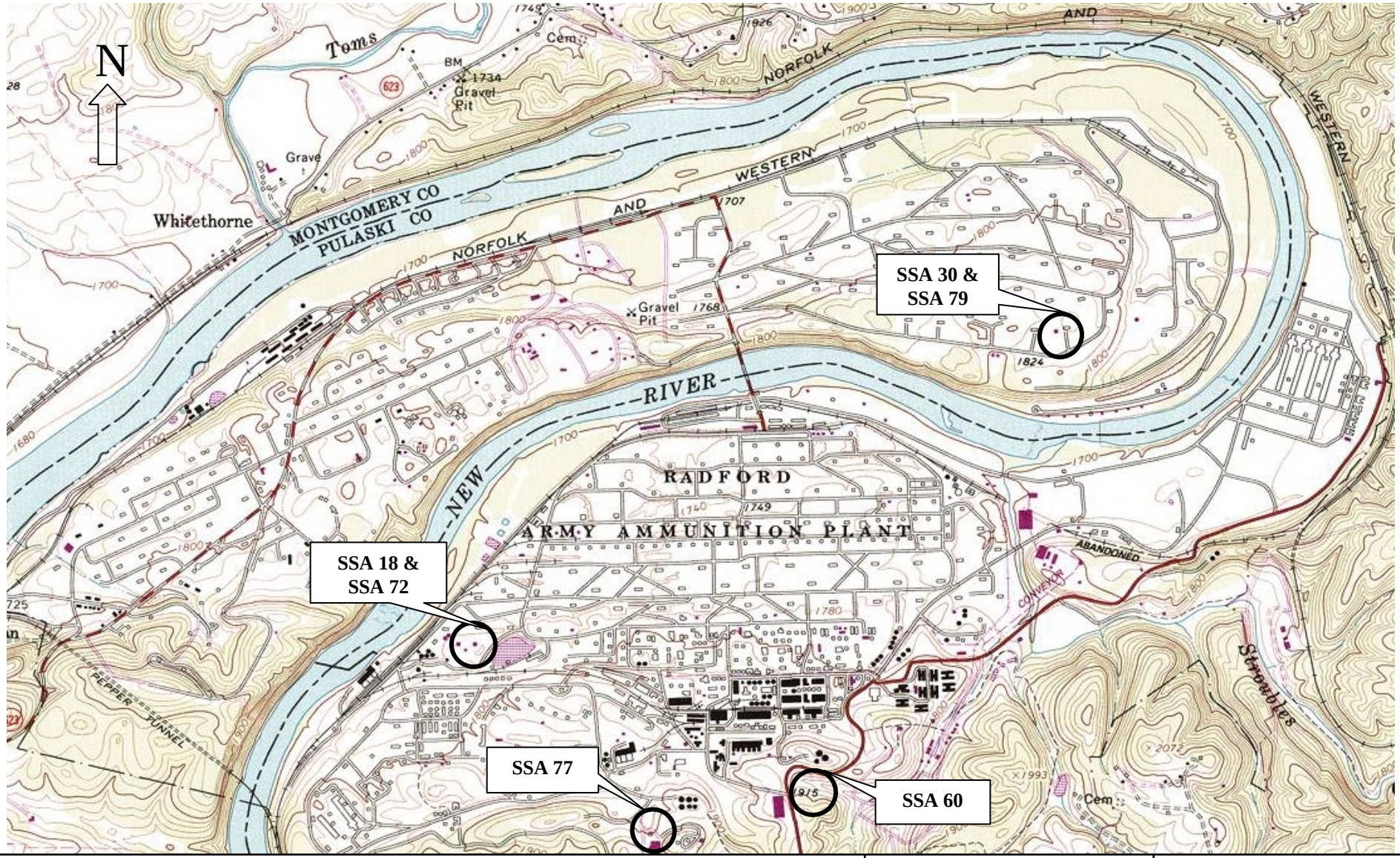

FIGURE 1-1

Site Location Map

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: *1" = 2000'*	File Name: Fig1-1 SiteLoc

SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
540 Falmouth Street
Suite 201
Richmond, Virginia 23230

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2.0 SSP INVESTIGATION PROGRAM

The SSP consisted of the following steps as outlined in the SSP Guidance (Appendix A, USEPA 2001):

- Performance of a desktop audit and site visit to develop the scope of the SSP Work Plan;
- Preparation of a SSP site-specific Work Plan;
- Performance of the field work in accordance with the approved SSP Work Plan;
- Evaluation of the SSP data and completion of pre-remedial risk screening; and
- Assessment of the need for further investigation, interim removal action, or preparation of a "No Further Action" Decision Document, per the RCRA Corrective Action permit based on the results of the SSP and risk screening.

2.1 DESKTOP AUDIT AND FIELD VISIT

A desktop audit was performed for each of the six SSP sites. This audit evaluated and documented site use and operational history, and assessed the likelihood that these operations resulted in the release of hazardous substances to the environment.

The audit included an evaluation of existing information and analytical data to identify historical uses and potential environmental factors, a visual inspection of each site, and the development of a site-specific Conceptual Site Model (CSM). The findings of the desktop audit and site inspection were evaluated to identify potential contaminant sources, migration pathways, potential human and ecological receptors, and receptor exposure pathways at each site.

2.2 SSP WORK PLAN

WPA 028 was finalized in July 2009. This work plan integrated information from the desktop audit and site visits to develop site-specific CSMs and identify data gaps. Field investigation plans were developed for each of the SSP sites based on this information.

2.3 SAMPLING AND ANALYSIS

Twenty-five surface soil samples, 21 subsurface soil samples, and 4 groundwater samples (SSAs 30 and 79) were collected for chemical analysis and eight soil samples were collected for physical soil testing during the 2009 SSP sampling activities at the six sites (Table 2-1). Field work was performed in accordance with WPA 028 (URS 2009) except for modifications described in the SSP field activities section for each site (Sections 4.0 through 8.0).

Soil samples were analyzed for the following parameters:

- Target Compound List (TCL) volatile organic compounds (VOCs) by SW-846 Method 8260B;
- TCL semi-volatile organic compounds (SVOCs) by SW-846 Method 8270C;
- Explosives (including nitroglycerin and Pentaerythritol Tetranitrate [PETN]) by SW-846 Methods 8330 and 8332;
- Target Analyte List (TAL) inorganics by SW-846 Methods 6010B, 6020, 7471A, and 9012A;
- TCL pesticides and polychlorinated biphenyls (PCBs) by SW-846 Methods 8081A and 8082;
- TCL dioxin/furans by SW-846 Method 8290 (SSA 77 only); and
- Asbestos by State of California Air Resources Board (CARB) Method 435 (SSAs 30 and 79 only).

Groundwater samples were analyzed for the following parameters:

- Asbestos by EPA Method 100.2 (SSAs 30 and 79 only).

Physical soil samples were analyzed for the following parameters:

- Grain-size analysis (ASTM D 422);
- Atterberg Limits (ASTM D 4318);
- Moisture content (ASTM D 2216);
- Total Organic Carbon (Walkley-Black); and
- pH (ASTM D 4972).

2.3.1 Soil Sampling

Samples were collected from each soil boring location for chemical analysis as presented in Table 2-2. The specific field investigation program for each SSP site is discussed within its results section (Sections 4.0 through 8.0).

2.3.2 Groundwater Sampling

Groundwater samples were collected from monitoring wells 51MW1, 51MW2, C1, and 16-4 at SSAs 30 and 79. Additional information for the groundwater sampling is included in Section 6.0.

2.4 QUALITY ASSURANCE

Quality Assurance (QA) planning defined the overall system of activities for assuring the reliability of data produced. The system integrated the quality planning, assessment, and corrective actions of various groups in the organization to provide the independent QA program necessary to establish and maintain an effective system for collection and analysis of environmental samples and related activities. The program encompasses the generation of complete data with its subsequent review, validation, and documentation.

The accuracy and integrity of SSP data were ensured through the implementation of internal quality control (QC) measures consistent with MWP Addendum 028 (URS 2009), as approved by USEPA Region III and the VDEQ. QA and QC procedures including field QC, laboratory QC, data management, and data validation of 100 percent (%) of chemical data used for risk screening were integrated into the investigation program to meet data quality objectives (DQOs) established and approved for the SSP. The data were evaluated for each of the DQO indicators as presented in Appendix G.1. The results of the data validation and usability assessments indicated that project DQOs were achieved and the data were usable for the intended purpose of release assessment and risk assessment. Data validation reports are provided in Appendix G.2. Each data validation report includes the laboratory analytical data sheets with the validation flagging and notes.

2.5 INVESTIGATION METHODOLOGY

2.5.1 Soil Sampling

Surface and subsurface soil samples were collected for chemical and physical analysis during the SSP consistent with standard operating procedure (SOP) 30.1 included in Appendix C. Soil sampling procedures for analysis of VOCs followed SOP 30.9 (Appendix C).

Surface soil samples were collected from 0 to 6-inches below ground surface (bgs) below gravel or organic layers at the surface except for VOC samples, which were collected from 6 to 12-inches bgs.

Upon retrieval of soil for sample processing, the soil was field screened for the presence of VOCs using a photoionization detector (PID). Field screening consisted of cutting a cross-sectional slice from the core

or center of the sample with a decontaminated stainless steel knife or trowel and inserting the PID probe into the gap created by the cross-sectional slice of the core. PID readings were recorded in the field logbook and on the boring log for soil boring samples. After the PID readings were recorded, a sample for VOC analysis was immediately collected from the appropriate interval using a disposable EnCore® sampler.

Once the fraction for VOC analysis was collected, the soil core interval was examined and classified by the site geologist and recorded in the field logbook and on the boring log consistent with SOPs 10.1 and 10.3, respectively (Appendix C). Soil for non-VOC analysis was then extracted from the appropriate interval, placed in a stainless steel bowl, and homogenized. The appropriate sample containers were filled, labeled, and placed into coolers with ice and maintained at 4 degrees Celsius (^{o}C).

2.5.2 Soil Borings

Two borings at SSA 30 (30SS1 and 30SS2) and three borings at SSA 60 (60SE1, 60SE2, and 60SS6) were advanced via hand auger to collect soil samples. A stainless steel hand auger with an 8-inch long, 3.25-inch diameter core sampler was used to advance each boring and collect each sample. Four samples at SSAs 30 and 79 (30SS3, 79SS1, 79SS2, and 79SS3) and five samples at SSA 60 (60SS1, 60SS2, 60SS3, 60SS4, and 60SS5) were collected using a shovel. Two samples at SSA79 (79SS4 and 79SS5) were collected using disposable hand trowels.

The remaining samples were collected from soil borings advanced using a skid steer-mounted direct push rig (Geoprobe®). This rig was equipped with 1.25-inch diameter push rods, 4-feet (ft) long, 2-inch diameter, stainless steel closed solid barrel sampler (Macro-Core®) with a disposable liner, and stainless steel cutting shoes. A percussion hammer was used to advance the sampling assembly. Following withdrawal of the Macro-Core® and removal of the liner, a cutting device was used to open the liner prior to inspection and processing of the sample cores.

Once the termination depth of the hand auger or direct push boring was reached and sample collection was completed, the borehole was backfilled with bentonite chips. Excess soil cuttings remaining after sample processing were temporarily accumulated in 55-gallon drums and staged at an Installation-approved area.

Boring logs prepared by the site geologist are included in Appendix D.2.1.

2.5.3 Test Pits

Test pits were completed using a mini-track excavator following the procedures outlined in SOP 20.4 (Appendix C). Test pit logs were completed as described in SOPs 10.3 and 20.4 and test pit activities were documented in the field log as described in SOP 10.1 (Appendix C). Equipment was decontaminated before use at each location following SOP 80.1 (Appendix C). Soil samples were collected from the test pits following subsurface techniques described in SOP 30.1 (Appendix C). Excess material excavated from the test pits was placed into 55-gallon drums and temporarily accumulated at the Installation-approved area for disposal as discussed in Section 2.5.6. Test pit boring logs are included in Appendix D.2.1.

2.5.4 Monitoring Well and Groundwater Sampling

Groundwater samples were collected from monitoring wells 51MW1, 51MW2, C1, and 16-4 at SSAs 30 and 79 using a submersible pump and the low-flow purge and sampling method as outlined in SOP 30.2 included in Appendix C.

2.5.5 Sample Locations

The location and elevation of the sample points were obtained with a Trimble Pathfinder Pro XRS global positioning system (GPS) unit. The GPS unit was used to ascertain horizontal position with sub-meter

accuracy and elevation position with 1.5 to 2.0 times horizontal accuracy. Submeter accuracy of the GPS unit is maintained to the extent possible by obtaining simultaneous measurements from a minimum of four satellites, verifying measurements as known benchmarks or surveyed locations at the sites, and by performing differential correction of the GPS data relative to a local GPS base station based in Blacksburg, Virginia. Sample location maps are contained in individual site sections. See Appendix D.6 for a complete table of sample coordinates.

Horizontal location data were recorded in the U.S. State [Virginia (South)] Plane Coordinate System (measured in U.S. survey feet) using the North American Datum 1983. Vertical control data were measured in feet using the National Geodetic Vertical Datum of 1988.

2.5.6 Management of Investigation-Derived Material

Investigation-derived materials (IDM) management activities were conducted consistent with the procedures outlined in WPA 028 (URS 2009). IDM management was documented in the field logbook and conducted as described below.

2.5.6.1 Accumulation

IDM accumulated during field sampling activities included the following materials and containers:

- Soil cuttings – twenty three 55-gallon drums;
- Personal protective equipment (PPE), probe liners, plastic sheeting, sample filters – two 55-gallon drums; and
- Decontamination water – one 55-gallon drum and one 5-gallon bucket.

IDM accumulation and labeling was conducted as outlined in SOP 70.1 (Appendix C). Drums were transferred to the Installation's approved container accumulation area at Solid Waste Management Unit (SWMU) 17.

2.5.6.2 Material Characterization

Separate IDM characterization samples were collected for the test pit material, soil from borings, and the drummed decontamination water contained in 55-gallon drums. IDM was characterized to evaluate whether it was a RCRA characteristic hazardous waste as described in Part 40 of the Code of Federal Regulations (CFR) Part 261, Subpart C (as referenced in the Virginia Hazardous Waste Management Regulations). The analytical results of this characterization indicated the IDM was non-hazardous material (Appendix D.4).

2.5.6.3 Transporter, Storage, and Disposal Facility (Soil and PPE)

Prior to disposal, waste analytical results were provided to the Installation, IDM management subcontractor, and the disposal facilities for review and approval. Manifests were reviewed and signed by Installation personnel prior to loading and transport of the IDM. The Installation maintains a record of the manifests and related information including analytical testing results and waste profiles.

First Piedmont transported the 55-gallon drums containing the soil, test pit material, and PPE to the First Piedmont Landfill on Clark Mill Road, Ringold, Virginia.

2.5.6.4 Decontamination Water

Following the waste characterization sample analysis, the Installation and RFAAP Process Water Treatment Plant engineers were provided a copy of the decontamination water IDM sample results. After receiving approval, decontamination water was discharged into the collection system of the Process Water Treatment Plant.

Table 2-1
Physical Soil Testing Results
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Soil Sample			Physical Soil Testing Results							
Location	Depth Collected (ft bgs)	USCS Soil Type	Water Content (D2216)	Liquid Limit (D4318)	Plastic Limit (D4318)	Plastic Index (D4318)	Grain Size Minus No. 200 (D422)	Hydrometer % Minus 2 μm (D422)	pH Distilled Water (D4972)	Tota Organic Carbon (Walkley-Black)
			%	--	--	--	%	%	SU	%
18SB1B	7-10	CL	24.8	40	20	NT	64	30	8	0.12
18SB2A	0-3	CL	20.9	37	21	NT	56	21	8.2	0.28
79SB2A	0-3	CL	13.1	22	14	NT	53	16	8	0.85
79SB2B	15-18	SM	14.5	NP	NP	NT	20	8	7.7	ND
60SS3	0-2	GC	9.8	35	21	NT	29	7	8.1	0.096
60SS6	18	SC	18.4	36	19	NT	36	12	8	0.15
77SB2A	0-2	CH	32	70	30	NT	76	37	7.9	0.29
77SB2B	2.5-5.5	CH	40.4	56	27	NT	82	42	8.2	0.065

Notes:
ft bgs = Feet below ground surface
USCS = Unified Soil Classification System
(D2216) = ASTM Test Method
ND = Not Detected

SU = Standard Units
-- = Unitless
NP = Not Plastic
NT = Not Tested

CL = Sandy Lean Clay
SM = Silty sand
GC = Clayey gravel with sand
SC = Clayey sand with gravel
CH = Fat clay with sand

Table 2-2
Summary of Sample Identifiers, Depths, and Analytical Methods
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

				Chemical Analysis												Physical Analysis				
Sample ID	Sample Date	Duplicate Location	Depth (ft bgs)	TAL Inorganics (including Mercury and Cyanide) SW-846 Method 6020/6010B/7471A/9012A	Pesticides/PCBs SW-846 Method 8081A/8082	VOCs SW-846 Method 8260B	SVOCs SW-846 Method 8270C	Explosives/Nitroglycerin/ PETN SW-846 Method 8330/8332	Dioxin/Furans SW-846 Method 8290	Asbestos CARB 435 (Soil) EPA Method 100.2 (Water)	TCLP Full List	TCLP Metals	Chemical Oxygen Demand EPA Method 410.4	pH (corrosivity) SW-846 Method 9040B	Paint Filter Test SW-846 Method 9095	Grain Size ASTM D422	Atterburg Limits ASTM D4318	Moisture Content ASTM D2216	Total Organic Carbon Walkley-Black	pH ASTM D4972
Soil																				
SSA 18																				
18SB1A	8/12/2009		0-1	X	X	X	X	X												
18SB1B	8/12/2009		8-10	X	X	X	X	X								X	X	X	X	X
18SB2A	8/12/2009		0-1	X	X	X	X	X								X	X	X	X	X
18SB2B	8/12/2009		5-7	X	X	X	X	X												
18SB3A	8/12/2009		0-1	X	X	X	X	X												
18SB3B	8/12/2009		5-7	X	X	X	X	X												
18SB4A	8/12/2009		0-1	X	X	X	X	X												
18SB4B	8/12/2009		5-7	X	X	X	X	X												
18SB5A	8/12/2009		0-1	X	X	X	X	X												
18SB5B	8/12/2009		6-8	X	X	X	X	X												
18SB6A	8/11/2009		0-1	X	X	X	X	X												
18SB6B	8/12/2009		8-10	X	X	X	X	X												
DUP-3	8/12/2009	18SB5B	6-8	X	X	X	X	X												
SSA 72																				
72SB1A	8/12/2009		0-1		X															
72SB1B	8/12/2009		8-10	X	X	X	X	X												
72SB2B	11/11/2009		8-10	X	X	X	X	X												
72SB3B	11/11/2009		6-8	X	X	X	X	X												
DUP-2	8/12/2009	72SB1B	8-10	X	X	X	X	X												
SSA 30 and SSA 79																				
30SS1	8/13/2009		0-1	X	X	X	X	X		X										
30SS2	8/13/2009		0-1	X	X	X	X	X		X										
30SS3	8/13/2009		0-1	X	X	X	X	X		X										
30SB1B	8/13/2009		16-18	X	X	X	X	X		X										
30SB2B	8/13/2009		16-18	X	X	X	X	X		X										
30SB3B	8/13/2009		16-18	X	X	X	X	X		X										
79SS1	8/13/2009		0-1	X	X	X	X	X		X										
79SS2	8/13/2009		0-1	X	X	X	X	X		X										
79SS3	8/13/2009		0-1	X	X	X	X	X		X										
79SS4	11/11/2009		0-1	X	X	X	X	X		X										
79SS5	11/11/2009		0-1	X	X	X	X	X		X										
79SB1B	11/11/2009		16-18	X	X	X	X	X		X										
79SB2A	8/13/2009		0-1													X	X	X	X	X
79SB2B	8/13/2009		16-18	X	X	X	X	X		X						X	X	X	X	X
79SB3B	11/11/2009		6-8	X	X	X	X	X		X										
DUP-4	8/13/2009	30SB1B	16-18	X	X	X	X	X		X										
DUP-5	8/13/2009	30SB3B	16-18	X	X	X	X	X		X										
DUP-6	11/11/2009	79SS5	0-1	X	X	X	X	X		X										

Table 2-2
Summary of Sample Identifiers, Depths, and Analytical Methods
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

				Chemical Analysis												Physical Analysis				
Sample ID	Sample Date	Duplicate Location	Depth (ft bgs)	TAL Inorganics (including Mercury and Cyanide) SW-846 Method 6020/6010B/7471A/9012A	Pesticides/PCBs SW-846 Method 8081A/8082	VOCs SW-846 Method 8260B	SVOCs SW-846 Method 8270C	Explosives/Nitroglycerin/ PETN SW-846 Method 8330/8332	Dioxin/Furans SW-846 Method 8290	Asbestos CARB 435 (Soil) EPA Method 100.2 (Water)	TCLP Full List	TCLP Metals	Chemical Oxygen Demand EPA Method 410.4	pH (corrosivity) SW-846 Method 9040B	Paint Filter Test SW-846 Method 9095	Grain Size ASTM D422	Atterburg Limits ASTM D4318	Moisture Content ASTM D2216	Total Organic Carbon Walkley-Black	pH ASTM D4972
SSA 60																				
60SE1	8/10/2009		0-1	X	X	X	X	X												
60SE2	8/10/2009		0-1	X	X	X	X	X												
60SS1	8/10/2009		0-1	X	X	X	X	X												
60SS2	8/10/2009		0-1	X	X	X	X	X												
60SS3	8/10/2009		0-1	X	X	X	X	X								X	X	X	X	X
60SS4	8/10/2009		0-1	X	X	X	X	X												
60SS5	8/10/2009		0-1	X	X	X	X	X												
60SS6*	8/13/2009		0-1*	X	X	X	X	X								X	X	X	X	X
60TP1	8/10/2009		14-16	X	X	X	X	X												
DUP-1	8/10/2009	60SS4	0-1	X	X	X	X	X												
SSA 77																				
77SB1A	8/11/2009		0-1	X	X	X	X	X												
77SB1B	8/11/2009		4-6	X	X	X	X	X												
77SB2A	8/11/2009		0-1	X	X	X	X	X	X							X	X	X	X	X
77SB2B	8/11/2009		4-5.5	X	X	X	X	X								X	X	X	X	X
77SB3A	8/11/2009		0-1	X	X	X	X	X	X											
77SB3B	8/11/2009		4-5	X	X	X	X	X												
77SB4B	8/11/2009		6-8	X	X	X	X	X												
Groundwater																				
SSA 30 and SSA 79																				
51MW1	11/9/2009		N/A							X										
51MW2	11/9/2009		N/A							X										
C1	11/9/2009		N/A							X										
16-4	11/9/2009		N/A							X										
DUP-1	11/9/2009	51MW2	N/A							X										
DUP-2	11/9/2009	16-4	N/A							X										
IDM																				
SSPIDM-SOIL	8/13/2009		N/A					X			X			X	X					
60IDM-SOIL	8/13/2009		N/A					X			X			X	X					
SSPIDM-WATER	8/13/2009		N/A									X	X	X						

Notes:
USEPA = U.S. Environmental Protection Agency
ft bgs = Feet Below Ground Surface
DUP = Duplicate sample
TAL = Target Analyte List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semivolatile Organic Compound
PETN = Pentaerythritol Tetranitrate
IDM = Investigation-Derived Material
TCLP = Toxicity Characteristic Leaching Procedure
N/A = Not Applicable
* = 60SS6 was completed horizontally into the base of the fill area to obtain an additional subsurface sample approximately 12-14 ft below the upper level surface of SSA60.

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3.0 SSP RISK SCREENING PROCEEDURES

3.1 ANALYTICAL RESULTS

Historical investigation results and SSP investigation results are summarized in each site-specific section of this report (Sections 4.0 through 8.0). Summary tables of historical analytical results (pre-SSP) and summary tables of SSP analytical results (detected chemicals) are included at the end of each site-specific section; these tables include sample information, laboratory and data validation flags, sample method detection limit (MDLs) and reporting limit (RLs), and risk screening criteria.

The physical soil testing results for the SSP are summarized in Table 2-1. The complete physical soil testing report is included in Appendix D.1.

3.2 HUMAN HEALTH RISK SCREENING

The purpose of the SSP human health risk screening is to evaluate site data using conservative criteria so a site can be eliminated from further consideration or identify if a site requires further evaluation. The screening procedures include the following five steps:

- Identification of chemicals of potential concern (COPCs) and cumulative risk screening;
- Chemical specific screening for lead and iron;
- Comparison to soil screening levels (SSLs);
- Comparison to applicable relevant and appropriate requirements (ARARs); and
- Comparison to background point estimates (available for select metals).

3.2.1 Identification of COPCs

COPCs were identified for a site by comparing the maximum detected concentration (MDC) for detected chemicals in a specific medium to USEPA residential regional screening levels (R-RSLs) and industrial regional screening levels (I-RSLs) for soil and tap water regional screening levels (T-RSLs) for groundwater, if available. The two soil data groupings used for COPC screening and the cumulative risk screening (see Section 3.2.2) are surface soil (0 to 1 ft bgs) and total soil (0 ft bgs to termination depth). The total soil data grouping consists of combining surface and subsurface soil to address mixing of potential constituents in soil during construction or land development activities. In accordance with USEPA Region III guidance, RSLs for noncarcinogenic chemicals were adjusted downward to a Hazard Quotient (HQ) of 0.1 to ensure that chemicals with additive effects were not prematurely eliminated during screening. For the purpose of COPC identification and risk screening, data from duplicate sample pairs were averaged and treated as one result. If a chemical was detected in one of the sample pair, half the detection limit of the non-detect was averaged with the detected result, and the result was considered detected. Chemicals that had a MDC greater than the adjusted USEPA RSL or for which no screening value (NSV) existed were selected as COPCs and retained for quantitative assessment. RSL values were obtained from the most recent USEPA RSL Table at the time the screenings were prepared (USEPA 2009).

3.2.2 Cumulative Risk Screen

The cumulative human health risk screen consisted of calculating the ratios between the exposure point concentrations (EPCs) of COPCs in each medium and the corresponding RSL. For purposes of this screening process, MDCs or a 95% upper confidence limit (UCL; if appropriate) would be considered in the cumulative risk screening as representative EPCs. If the site has a small sample size, the MDC is conservatively used as a default EPC (USEPA 1992b). Due to the small number of samples at the sites, 95% UCLs were not calculated for the sites and the MDCs were used as the concentration in the cumulative risk screens.

Both carcinogenic and noncarcinogenic effects were evaluated in accordance with Section 6.1.1.2 of the SSP Guidance (Appendix A). If the cumulative cancer risk is greater than or equal to 1E-05 then a quantitative risk assessment should be performed if sufficient data is available for assessment. If sufficient data is not available for a quantitative risk assessment, further investigation or assessment of the site may be necessary. If the cumulative cancer risk for a site is less than 1E-05 and other screening criteria evaluated for the SSP are below established SSP thresholds, then NFA would be recommended for the site.

If the noncarcinogenic cumulative hazard index (HI) is greater than 1, there is a potential for adverse noncarcinogenic health effects. In such cases, COPCs are divided into categories based on the target organ affected (e.g., liver, kidney) and target organ-specific HIs are calculated. The results of the cumulative risk screens are interpreted as follows:

- If the cumulative HI for a site is greater than or equal to 0.5 for a target organ, then a quantitative risk assessment would be recommended for the site; or
- If the cumulative HI for a site is less than 0.5 for each target organ, and other screening criteria evaluated for the SSP are below established SSP thresholds, then NFA would be recommended for the site.

3.2.3 Lead and Iron Screening

If the lead concentration in soil exceeds 400 milligrams per kilogram (mg/kg) or the lead concentration in groundwater exceeds 15 micrograms per liter (µg/L), then the potential risk is evaluated using USEPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model (USEPA 2007). The model predicts the probability of children expected to have blood levels of 10 microgram per deciliter (µg/dL) or greater. The lead risks are considered unacceptable if the child-blood lead level for more than 5% of children is estimated to be equal to or greater than the Center for Disease Control and Prevention (CDCP) threshold of 10 µg/dL.

If iron concentrations in soil or water result in an HQ of 0.5 or higher, then further assessment is required; this assessment consists of a "margin of exposure evaluation" where the estimated intake of iron is compared to the recommended daily allowance (RDA) and concentrations known to cause adverse health effects in children (NCEA 2006).

For the margin of exposure evaluation, the estimated iron intakes at the sites for the future resident child scenario for surface soil and total soil are calculated using the assumptions and equations provided in Appendix E. These estimated iron intake levels are then compared to the RDA for children (6 months to 10 years old) of 10 mg/day (NCEA 2006). In addition, utilizing an average child weight of 15 kg (USEPA 1989), the child intakes for surface soil and total soil are calculated and compared to the calculated provisional (reference dose) RfD of 0.7 mg/kg-day. If the estimated intake levels are above the RDA and calculated provisional RfD, further assessment of iron may be necessary.

3.2.4 SSL Comparison - Soil

3.2.4.1 Generic SSLs (Soil-to-groundwater Risk-based Screening Levels)

MDCs of chemicals found in subsurface soil will be compared to risk-based screening levels for leaching of chemicals to groundwater (i.e., soil-to-groundwater screening levels), as presented in the Regional Screening Table. A dilution attenuation factor of 20 (DAF 20), which accounts for attenuation processes in the subsurface soil zone above groundwater in addition to the mixing zone with groundwater, will be utilized in the screening.

3.2.4.2 Site-specific SSL Comparison

If organic chemicals are detected at concentrations greater than generic soil-to-groundwater screening levels, they may be evaluated utilizing site-specific SSLs calculated using site-specific physical soil characteristics.

3.2.5 Comparisons to ARARs

Based on the scope of sampling (media and constituents), ARARs potentially applicable to the SSP are associated with groundwater media sampled at SSAs 30 and 79 for the presence of asbestos and include the Federal Maximum Contaminant Level (MCL) for asbestos under the Safe Drinking Water Act.

Asbestos results for groundwater samples collected at SSAs 30 and 79 are compared to the MCL, if a detected concentration is greater than the MCL, then a recommendation is made whether further evaluation, investigation, etc. is appropriate.

3.2.6 Background Comparison

The final step in the risk screening process is the comparison of the MDCs of COPCs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals as shown in the following table (IT 2001).

Facility-Wide Background Point Estimates for Soil

Chemical	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	95% Upper Tolerance Limit (UTL) of the Mean (mg/kg)
Aluminum	3,620	47,900	40,041
Arsenic	1.2	35.9	15.8
Chromium	6.3	75.8	65.3
Iron	7,250	67,700	50,962
Manganese	16.7	2,040	2,543
Thallium	1.3	5	2.11
Vanadium	12.2	114	108

Based on the background comparison and other relevant information, a recommendation will be made as whether further investigation, response action, or NFA is appropriate for a site.

3.2.7 Uncertainties Analysis

Cumulative risk screening involves the use of assumptions, judgments, and incomplete data to varying degrees that contribute to the uncertainty of the final estimates of risk. Uncertainties result both from the use of assumptions or models, in lieu of actual data, and from the error inherent in the estimation of risk-related parameters; which may cause risk to be overestimated or underestimated. Based on the

uncertainties described below, this risk screening should not be construed as presenting an absolute estimate of risk to persons potentially exposed to COPCs.

Consideration of the uncertainty associated with various aspects of the cumulative risk screening allows better interpretation of the risk screening results and understanding of the potential adverse effects on human health. In general, the primary sources of uncertainty are associated with environmental sampling and analysis, selection of chemicals for evaluation, toxicological data, and exposure assessment. The effects of these uncertainties on the risk estimates are discussed below.

3.2.7.1 Environmental Sampling and Analysis

Uncertainty in environmental chemical analysis can stem from several sources including errors inherent in the sampling or analytical procedures. Analytical accuracy errors or sampling errors can result in rejection of data, which decreases the available data for use in the human health risk screening, or in the qualification of data, which increases the uncertainty in the detected chemical concentrations. There is uncertainty associated with chemicals reported in samples at concentrations below the RL but still included in data analysis and with those chemicals qualified with the letter J, indicating that the concentrations are estimated. Another issue involves the amount of blank-related contamination (i.e., B-qualified) data in the data set. The effects of using data with these uncertainties may overestimate or underestimate risks.

Another uncertainty associated with sampling and analysis concerns the inclusion of chemicals that are potentially present in the environment due to anthropogenic sources. For example, polynuclear aromatic hydrocarbons (PAH) are considered ubiquitous in soil from anthropogenic sources, such as the burning of fossil fuels, forest fires, and airborne particulates eroded from roadways and automobile tires. If such chemicals are not site-related, the risks attributable to site activities may be overestimated. This uncertainty may have a low-to-moderate effect on overestimating risks.

3.2.7.2 Selection of Chemicals for Evaluation

A comparison of MDCs to USEPA RSLs was conducted for surface soil and total soil. Chemicals whose MDCs were below their respective RSLs were not carried through the risk screening. It is unlikely that this risk-based screening excluded chemicals that should be included, based on the conservative exposure assumptions and conservatively derived toxicity criteria that are the basis of the RSLs. Although following this methodology does not provide a quantitative risk estimate for every chemical, it focuses the assessment on the chemicals accounting for the greatest risks (i.e., chemicals whose MDCs are above their respective RSLs) and the cumulative risk screening estimates would not be expected to be significantly greater. Utilizing the MDCs for the screening is conservative and could lead to a low-to-moderate overestimation of risk.

The use of the April 2009 RSLs rather than the December 2009 RSLs for the SSP human health risk screening could result in the inclusion or exclusion of chemicals based on outdated toxicity data. Therefore, to lessen the uncertainty associated with the use of these screening levels, an assessment of the data was conducted with respect to the December 2009 RSLs, which did not result in the identification of any additional COPCs for the sites.

Background concentrations of metal constituents in soil have been previously calculated and are available for use in the cumulative risk screening. However, as a conservative measure in the SSP, COPC selection excludes consideration of background data. Thus, it is unlikely that this risk-based screening excluded chemicals that should be included. Uncertainties associated with excluding the use of background data may lead to low-to-moderate overestimation of risks due to metals.

Uncertainty is introduced at the COPC selection step for chemicals that have adjusted RSLs or SSLs lower than the MDL. Specialized low-level analytical methods for SVOCs and explosive compounds

implemented for the SSP minimize this uncertainty. Essential nutrients, calcium, magnesium, potassium, and sodium were eliminated as COPCs per the SSP guidance (USEPA 2001).

3.2.7.3 Exposure Point Concentrations

In establishing EPCs, the concentrations of chemicals in the media evaluated are assumed to remain constant over time. Depending on the properties of the chemical and the media in which it was detected, this assumption could overestimate risks, depending on the degree of chemical transport to other media.

If fewer than eight samples are available, the MDC is conservatively used as a default EPC. Due to the small number of samples at the sites, 95% UCLs were not calculated for the sites and the MDCs were used as the concentration in the cumulative risk screens (USEPA 1992b). Using a value that is based on one sampling location (i.e., the maximum) has associated uncertainty and it adds a great deal of conservatism to the assessment.

3.2.7.4 Toxicological Data

Toxicological factors contributing to uncertainties associated with the human health risk screening process include the use of RSL age-adjusted ingestion and inhalation rates, the lack of toxicity criteria for some chemicals, and uncertainty associated with the lack of dermal risk estimates.

For some chemicals, toxicity criteria were unavailable. Although lack of published toxicity data could result in an underestimation of risk, an attempt is made to balance this uncertainty with the use of available toxicological data derived using conservative methodologies

Uncertainty is associated with using RSLs and SSLs because they do not consider dermal uptake. Given the conservative nature of the screening process, such as the use of the MDCs and RSLs, it is unlikely that omission of the dermal exposures in the risk screening process will result in the failure to identify a requirement for further evaluation or a response action.

3.3 ECOLOGICAL RISK SCREENING PROCESS

The purpose of the ecological risk screening is to provide conclusions and recommendations regarding potential ecological risk associated with sites. The Screening Level Ecological Risk Assessment (SLERA) was performed in accordance with the Final Process for Ecological Risk Assessment – Radford AAP (URS 2007). Refer to Appendix F.1 for a detailed description of the SLERA process utilized for the site evaluations and an example calculation.

3.3.1 Scope of Work

The SLERA includes Steps 1, 2, and 3a of Ecological Risk Assessment Guidance for Superfund [ERAGS] (USEPA 1997). Step 1 includes a screening-level problem formulation and ecological effects evaluation. Step 2 includes a preliminary exposure estimate and risk calculation. Step 3a reviews and refines the conservative assumptions used in the risk calculation (Step 2). The addition of Step 3a focuses the outcome of the SLERA, streamlines the review process, and functions as the initial basis for ecological risk management decision making. The scientific/management decision point (SMDP) reached from the ecological risk screening concludes that one of the following statements is true:

- There is adequate information to conclude that ecological risks are negligible and therefore there is no need for further action at the SSA on the basis of ecological risk;
- The information is not adequate to make a decision at this point and further refinement of data is needed to augment the ecological risk screening; or
- The information collected and presented indicates that a more thorough assessment is warranted.

In an effort to reduce redundancy, the approach to the risk screening, along with elements of the process that are common to the site areas, are summarized in the following sections and referred to in the document as appropriate.

3.3.2 Scope of Work

This ecological screening risk process includes Steps 1 and 2 of ERAGS (USEPA 1997). Step 1 includes a site visit, screening-level problem formulation, and ecological effects evaluation. Step 2 includes a preliminary exposure estimate and risk calculation. This approach will provide information pertinent to the potential interactions between site-related contamination and ecological resources upon which risk managers will be able to make conservative decisions regarding the ecological risk at individual SSAs.

3.3.3 Screening-Level Problem Formulation

The objectives of the ecological risk screening are to:

- Identify potentially complete exposure pathways between chemicals of potential ecological concern (COPECs) and receptors;
- Assess whether the COPECs exceed toxicological screening values that are considered to be protective of ecological receptors;
- Identify uncertainty and/or data gaps in the ecological risk screening; and
- Identify an appropriate SMDP for each SSA based on the ecological risk screening results.

3.3.4 Site Characterization

In addition to the information contained within the Site Background-Environmental Setting section for each site, additional site characterization is required for the ecological risk screening, which includes local ecological receptors (threatened and endangered species) and ecological resources. The results of the site reconnaissance for each site are also incorporated as part of the site characterization section.

A discussion of potential biota likely to use the site areas, and area-specific observations recorded as part of the site reconnaissance are included in each section. In addition, the Virginia Department of Game and Inland Fisheries (1999) survey recorded various species associated with the grassland communities at RFAAP. Based on their survey of the grassland habitats, the invertebrates (approximately 250 species) and birds (83 species) accounted for the majority of species observations at RFAAP (Virginia Department of Game and Inland Fisheries, 1999). Site-specific observations of wildlife are discussed in each site section.

The Virginia Department of Game and Inland Fisheries 1999 Installation-Wide Biological Survey identified three threatened wildlife species and two rare plant species (currently not on the 2009 Plant Watch List; http://www.dcr.virginia.gov/natural_heritage/documents/plantlist09.pdf) associated with RFAAP grassland communities. They include:

- Regal Fritillary Butterfly (*Speyeria idalia*);
- Henslow's Sparrow (*Ammodramus henslowii*);
- Loggerhead Shrike (*Lanius ludovicianus*);
- Midland Sedge (*Carex mescochorea*); and
- Shaggy False Gromwell (*Onosmodium hispidissimum*).

Threatened wildlife observations in 1999 at RFAAP included the Regal Fritillary Butterfly (Virginia Department of Game and Inland Fisheries, 1999). The Regal Fritillary Butterfly was documented in the east-central and eastern edges of the MMA.

3.3.5 Identification of Chemicals of Potential Ecological Concern

Since the sites consist of exclusively terrestrial grassland habitat or developed industrial areas, surface soil represents the potential exposure medium to ecological receptors.

3.3.5.1 Approach

Specific data sets collected from each site area were used to identify COPECs for that area because factors such as size, historical use, and current use affect potential habitat quality of the individual sites. Soil samples were collected from 0 to 6-inches bgs below gravel or organic layers at the surface except for VOC samples, which were collected from 6 to 12-inches bgs. This layer contains the zone of highest biological activity of soil organisms and the soil that is most frequently contacted by terrestrial biota. Although fossorial wildlife may be in contact with soil below 1 ft bgs, the preys of these animals are primarily associated with surficial soil. Furthermore, incidental exposure to the soil below 1 ft bgs is likely to be insignificant relative to surface soil exposure.

3.3.6 Identification of Exposure Pathways and Potential Receptors Analysis

Figure 3-1 provides the ecological conceptual site model (ECSM) developed for the terrestrial sites to identify potentially complete exposure pathways and potential receptors at the sites.

3.3.6.1 Terrestrial

The sites identified in this study are exclusively upland habitats that lack wetland and significant drainage features. Therefore, soil represents the potential exposure medium for ecological receptors. Potential ecological receptors may be exposed to COPECs in soil through the following exposure routes:

- Direct contact/absorption from soil;
- Direct ingestion of soil;
- Incidental ingestion of soil; and
- Direct ingestion of biota with accumulated COPECs.

Although receptors may be exposed to COPECs through inhalation or drinking surface water, sufficient literature regarding toxicity due to inhalation is lacking to evaluate such an exposure route. Given the potential mobility of COPECs between food web trophic levels, a number of terrestrial categories were selected. Individual receptor species were selected to represent five wildlife receptor categories and these species possess the following characteristics that are essential for assessing COPEC mobility within the food web:

- Highly likely to occur at the sites in relatively high abundance;
- Limited home range;
- Important role in the local food web; and
- Sufficient toxicological information is available in the literature.

Receptor categories and the species selected to represent the wildlife categories include:

- Plant communities;
- Soil invertebrate/microbial communities;
- Omnivorous birds: American Robin (*Turdus migratorius*);
- Carnivorous birds: Red-Tailed Hawk (*Buteo jamaicensis*);
- Herbivorous animals: Meadow Vole (*Microtus pennsylvanicus*);

- Omnivorous mammals: Red Fox (*Vulpes vulpes*); and
- Carnivorous mammals: Short-Tailed Shrew (*Blarina brevicauda*).

Specific species relevant to each site are identified in the individual ecological risk screening sections for each site where sampling occurred for the SSP.

3.3.7 Identification of Assessment and Measurement Endpoints

Assessment endpoints are explicit statements of ecological resources (entities) and attributes of those entities that are important to protect (USEPA 1998). Measurement endpoints represent quantifiable ecological characteristics that can be measured, interpreted, and related to ecological resources chosen as assessment endpoints. Assessment and measurement endpoints for the resources in the terrestrial sites are outlined below.

3.3.7.1 Terrestrial

Assessment and measurement endpoints for terrestrial receptors are as follows:

Assessment Endpoints	Measurement Endpoints
Survival, growth, and reproduction of terrestrial plants	MDCs for soil COPECs will be compared to concentrations representing no adverse effects thresholds to the survival of soil plant communities reported in the scientific literature
Survival, growth, and reproduction of soil invertebrates and microbial communities	MDCs for soil COPECs will be compared to concentrations representing no adverse effects thresholds to the survival of soil invertebrates or microbial communities reported in the scientific literature
Survival, growth, and reproduction of terrestrial wildlife (birds and mammals) populations and communities	MDCs for soil COPECs (non dioxin/furan) will be compared to no observable adverse effects levels (NOAELs) and lowest observable adverse effects levels (LOAELs) associated with effects on growth, reproduction, or survival of terrestrial wildlife Comparison of the maximum additive dose of dioxin/furan congeners ingested from soil and food to NOAEL and LOAEL doses associated with effects on growth, reproduction, or survival of terrestrial wildlife

3.3.8 Preliminary Exposure Estimate and Ecological Effects Evaluation

The preliminary exposure estimate and ecological effects evaluation considers the most conservative risk scenario. Highly conservative assumptions are used to estimate COPEC exposure to terrestrial receptors for pathways to be quantitatively evaluated. Conservative toxicity reference values (TRVs) are used to evaluate the ecological effects of exposure using the two approaches discussed below.

Risk is assessed by comparing the preliminary exposure estimate (MDC) of each detected chemical to the established TRV (detailed in Appendix F.1, Section 2.1). The preliminary risk is characterized in terms of a hazard quotient (HQ), which is expressed as:

HQ = MDC/TRV

where:

HQ = Hazard Quotient for the chemical (unitless)

MDC = Maximum Detected Concentration for chemical (mg/kg)

TRV = Screening Level for chemical (mg/kg)

An HQ of less than 1 indicates no or negligible risk. The potential for risk increases as the HQ increases above unity. However, this result should be considered in the context of other characteristics of the exposure area.

3.3.8.1 Direct Contact Approach

The maximum soil concentrations for detected chemicals are used as the preliminary exposure estimate concentrations to develop a conservative risk scenario for the direct contact pathway to soil invertebrates and terrestrial plants.

3.3.8.2 Dose Rate Modeling Approach

Preliminary risk characterization for wildlife receptors uses the conservative preliminary exposure estimate and ecological effects evaluation to characterize risk to potential terrestrial receptors. Risk is assessed by comparing the preliminary exposure estimate of each detected bioaccumulative chemical, as defined in Table 4-2 in *Bioaccumulative Testing and Interpretation for the Purpose of Sediment Quality Assessment, Status, and Needs*, EPA-823-R-00-001, to the TRV developed in the ecological effects evaluation. An example calculation for dose rate modeling is provided in Appendix F.1, Section 4.1, utilizing the equation below.

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \ (BAF_{food} \cdot DF) + IR_s \ )AF}$$

where:

C_{TRV} = NOAEL or LOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg COPEC/kg body weight-day)
BW = Minimum Body Weight of the receptor (kilogram - kg)
IR_{food} = Maximum Ingestion Rate of food (kg food ingested per day, dry weight)
BAF_{food} = Bioaccumulation Factor (BAF) of most contaminated dietary component used, specific to prey type and COPEC (ratio of mg of COPEC/kg fauna, wet weight to mg COPEC/ kg substrate, dry weight)
DF = Dietary Fraction (most contaminated dietary component assumed to be 100% of diet)
IR_s = Maximum Incidental Ingestion Rate of soil (kg substrate ingested per day, dry weight)
AF = 100% Area Use Factor

In the preliminary dose rate modeling approach, the maximum COPEC concentrations for detected bioaccumulative chemicals, along with assumptions of maximum ingestion rate, minimum body weight, 100% area use, and 100% bioavailability are used in the conservative risk scenario as the preliminary exposure estimate for soil and compared to the calculated TRVs.

3.3.9 Refined Exposure Estimate and Risk Characterization

Refined exposure estimates and ecological effects are developed for two major receptor categories having complete exposure pathways to be quantitatively evaluated: 1) direct contact to plants and invertebrates, and 2) wildlife ingestion (i.e., omnivorous birds and mammals, carnivorous birds and mammals, and herbivorous mammals). The refined exposure and risk characterization, Step 3a of ERAGS, reviews and

refines the conservative assumptions used in the risk calculation (USEPA 1997). In Step 3a, conservative assumptions used in the preliminary exposure and risk characterization are replaced with more environmentally realistic assumptions to evaluate risk posed by constituents identified in the preliminary risk characterization. The addition of Step 3a focuses the outcome of the SLERA, streamlines the review process, and functions as the initial basis for ecological risk management decision-making.

Generally for the refined exposure estimate and risk characterization, the 95% UCL is used as the exposure concentration rather than the MDC. Due to the limited number of samples at the sites, 95% UCLs were not calculated for the sites and the MDCs were used as the concentration in the refined exposure assessment

For the refined evaluation, risk is assessed by comparing the EPC (MDC) of each detected chemical to the TRV. The refined risk HQ is expressed as:

HQ = EPC/TRV

where:

HQ = Hazard Quotient for the chemical (unitless)

EPC = Calculated Exposure Point Concentration for chemical (mg/kg)

TRV = Screening Level for chemical (mg/kg)

An HQ of less than 1 indicates no or negligible risk. The potential for risk increases as the HQ increases above unity. However, this result should be considered in the context of other characteristics of the exposure area.

3.3.9.1 Direct Contact Approach

The refined exposure estimate for the direct contact pathway to soil invertebrate and microbial communities incorporates the 95% UCL as the exposure concentration for evaluating the COPECs using a conservative yet more realistic exposure assumption than MDCs. Due to the number of samples at the sites, a 95% UCL was not calculated; therefore, a refinement of the direct contact pathway was not conducted for the sites.

3.3.9.2 Dose Rate Modeling Approach

The conservative assumptions used in the preliminary exposure estimate and ecological effects evaluation were replaced with more environmentally realistic assumptions resulting in a more realistic estimate of potential risk. An example calculation for dose rate modeling is provided in Appendix F.1, Section 4.4, utilizing the equation below.

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + IR_s) AF_{refined}}$$

where:

C_{TRV} = NOAEL or LOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg COPEC/kg body weight-day)
BW = Average Body Weight of the receptor (kg)
IR_{food} = Average Ingestion Rate of food (kg food ingested per day, dry weight)
BAF_{food} = BAF of dietary component used, specific to prey type and COPEC (ratio of mg of COPEC/kg fauna, wet weight to mg COPEC/ kg substrate, dry weight)
DF = Dietary Fraction
IR_s = Average Incidental Ingestion Rate of soil (kg substrate ingested per day, dry weight)
$AF_{refined}$ = Refined Area Use Factor (detailed below)

The refined exposure estimates and ecological effects are developed for wildlife receptors having complete exposure pathways to be quantitatively evaluated (i.e., omnivorous birds, and carnivorous and herbivorous mammals). In the refined model, an average body weight and average ingestion rate are used. In addition, a realistic area use factor ($AF_{refined}$) was calculated as the ratio of the site area to the average home range of the receptor for each site as presented in the site-specific sections (Sections 4.0 through 8.0).

3.3.10 Risk Management – Scientific Management Decision Point

The findings of the ecological risk screen including site characterization and risk calculations are used as input to risk management decision-making for the sites. The SMDP reached from the ecological risk screening concludes that one of the following statements is true:

- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the site on the basis of ecological risk;
- The information is not adequate to make a decision at this point and further refinement of data is needed to augment the ecological risk screening; or
- The information collected and presented indicates that a more thorough assessment is warranted.

3.3.11 Exposure and Risk Uncertainty Analysis

Based on this assessment, while factors such as lack of TRV and wildlife profile assumptions may create limited uncertainty, the overall result of the conservative nature of the process has produced a conservative assessment of potential ecological risks associated with the sites.

Assumptions and other factors that tend to overestimate, underestimate, or have an unknown effect on the findings of the ecological risk screening are presented below with a discussion of their uncertainty.

3.3.11.1 Data Quality

Insufficient sampling density or the analyte list may not provide a representative estimate of exposure to COPECs. Misrepresentation of exposure results in uncertainty and may lead to an overestimation or underestimation of risk. The extensive list of constituents analyzed reduces the likelihood of failing to identify a COPEC. Therefore, the uncertainty in the ecological risk screening results associated with data quality is likely minimal.

3.3.11.2 COPEC Bioavailability

Chemical analyses of exposure media measured the total levels of the COPECs rather than the more bioavailable toxic forms. The availability of the total concentrations alone assumes that the entire fraction is bioavailable and toxic. This is likely to be a very conservative assumption that varies from constituent to constituent. It was also assumed that no geochemical factors limited receptor exposure to, or the potential for toxic expression of COPECs. It is likely that COPECs may, to some degree, adsorb to fine-grained particles and/or complex with chemical complexing agents and organic ligands in the exposure media. Such actions may change the chemical speciation of the COPECs to a less toxic form, or reduce the concentrations of bioavailable chemicals and subsequent uptake by receptors. Therefore, risk is likely to be overestimated.

3.3.11.3 Wildlife Profile Assumptions

Dose rate models require a number of assumptions, which could result in either an overestimation or underestimation of risk to receptors. For example, body weights and ingestion rates are estimated from limited information. In addition, receptors are assumed to feed on specified food sources, although some such as the Red Fox may feed opportunistically on a greater variety of food types.

AFs were estimated based on the size of the sites relative to the home ranges of the receptors. However, the foraging of birds and mammals is not assessed simply by size, but rather a function of habitat suitability, habitat productivity, and species-specific foraging behaviors. Therefore, because habitat quality is not accounted for in estimating AF, the risk to terrestrial receptors in this assessment is likely to be overestimated.

3.3.11.4 Lack of Toxicological Data

The evaluation of ecological effects was limited in the direct contact and wildlife ingestion pathways due to limited toxicological data of the COPECs. The effects of many COPECs evaluated for the direct contact pathway to invertebrates and microbial communities were not quantified due to the lack of invertebrate derived TRVs. In addition, NOAEL and LOAEL TRVs were not available for receptors exposed to multiple COPECs. Therefore, due to the lack of toxicological data, the risk to potential receptors may be underestimated or unknown.

3.3.11.5 TRVs

NOAEL and LOAEL TRVs identified for wildlife receptors represent the most conservative application of toxicity test results identified from the literature. High uncertainty factors were used to provide TRVs representative of chronic exposure and sub-lethal effects. This approach is likely to overestimate the sensitivity of many ecological receptors and likely overestimates risk to potential receptors.

3.3.11.6 Exposure Point Concentrations

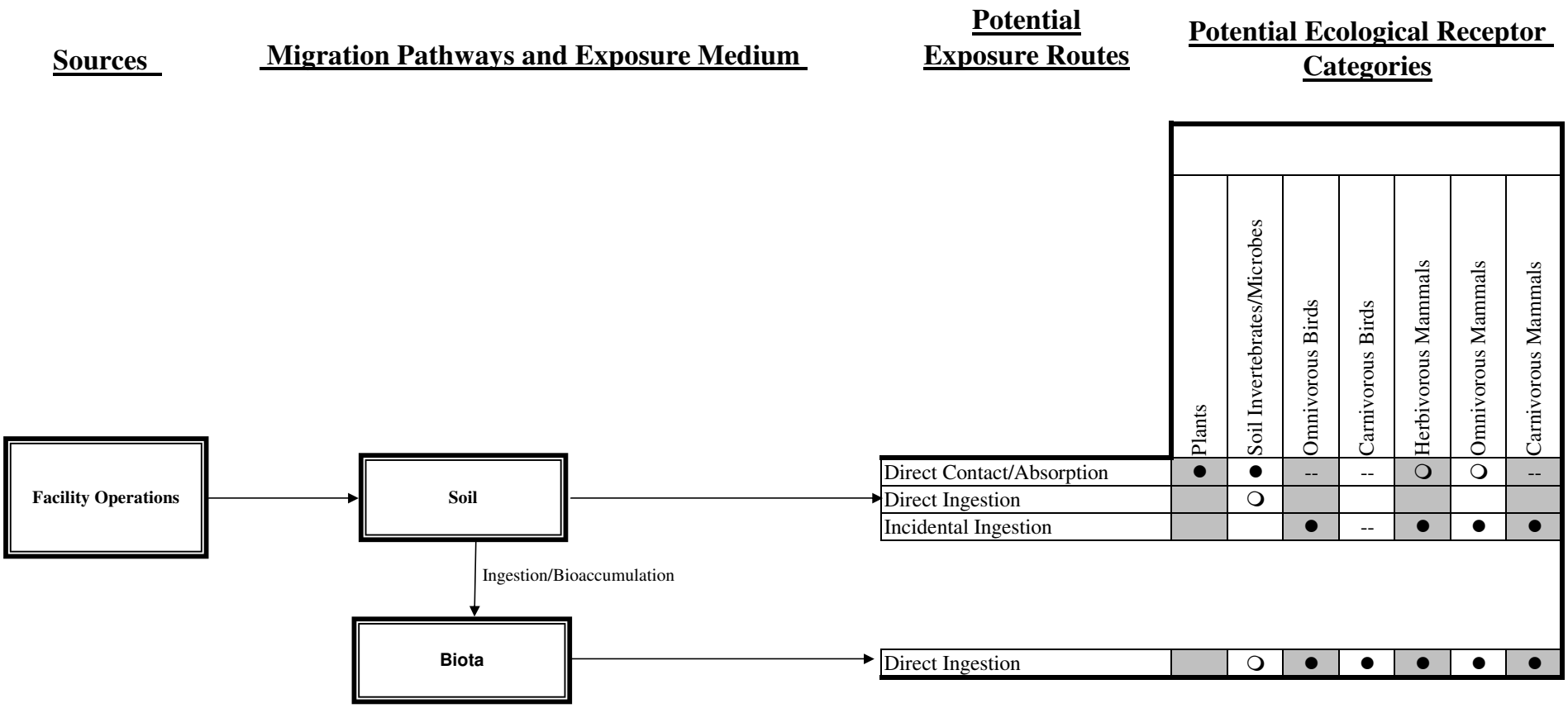
In establishing EPCs, the concentrations of chemicals in the media evaluated are assumed to remain constant over time. Depending on the properties of the chemical and the media in which it was detected, this assumption could overestimate risks, depending on the degree of chemical transport to other media.

Due to the small number of samples at the sites, 95% UCLs were not calculated for the sites and the MDCs were used as the concentration in the cumulative risk screens. Using a value that is based on one sampling location (i.e., the maximum) has associated uncertainty and it adds a great deal of conservatism to the assessment.

3.3.11.7 Hazard Quotients

Uncertainties in characterizing risks are primarily associated with the assumption that an HQ greater than 1 is an adequate indicator of the potential for ecological risks of individual chemicals. Given the use of conservative and realistic exposure and effects assumptions previously discussed, there is minimal uncertainty that the potential for ecological risks of individual chemicals are not identified in the ecological risk screening of the sites. Conversely, there is a strong possibility for false positive identification of ecological risks for some individual chemicals.

Figure 3-1
Terrestrial Ecological Conceptual Site Model
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia



Notes:

● = POTENTIALLY COMPLETE PATHWAY EVALUATED QUANTITATIVELY

❍ = COMPLETE PATHWAY EVALUATED QUALITATIVELY

-- = PATHWAY IS INSIGNIFICANT

BLANK = INCOMPLETE PATHWAY

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4.0 SSA 18 SULFURIC ACID RECOVERY PLANT, ACIDIC WASTEWATER TREATMENT FACILITY

4.1 SITE BACKGROUND – ENVIRONMENTAL SETTING

4.1.1 Site Description

SSA 18, the Sulfuric Acid Recovery (SAR) Plant (Oleum Plant), Acidic Wastewater Treatment Facility (Building 4434) is located in the northwest section of the main manufacturing area (MMA) approximately 400 to 600 ft east of the New River (Figure 1-1) and connected to SSA 72, the Oleum Plant Wastewater Sump via a gravity sewer (see Section 5.0). Sulfuric acid was recovered at the SAR Plant from spent acid generated in the trinitrotoluene (TNT) manufacturing area. Acidic wastewater generated by this process was conveyed by underground sewers to the acidic wastewater sump (SSA 72). Wastewater collected in the sump was then discharged by gravity sewer to the SAR Wastewater Treatment Facility for treatment.

Figure 4-1 shows the layout of the SSA 18. The acidic wastewater sump (SSA 72) and associated gravity sewer are assessed in Section 5.0. The gravity sewer daylights through a headwall and discharges into the steel, aboveground wastewater surge tank at SSA 18. A site photographic log for SSA 18 is included in Appendix B.

The SAR wastewater treatment facility encompasses an approximate 0.25 acre area (Figure 4-1). Ground surface elevations range from approximately 1,722 ft mean sea level (msl) to 1,726 ft msl, with a slight slope toward the north and the New River. Acidic wastewater discharged into the surge tank at the wastewater treatment facility was then pumped into the neutralization tank inside Building 4434 where it was neutralized with lime slurry, and processed through clarifiers and vacuum dry filters to remove calcium sulfate solids. Lime was delivered to the facility using a railroad spur located along the north side of Building 4434. Lime was unloaded from railroad cars into a hopper and conveyed by a screw conveyor and elevator into Building 4434 for slaking and transfer into the lime silos.

Effluent from the treatment plant originally discharged via a concrete outfall sump to the New River via Virginia Pollution Discharge Elimination System (VPDES) Outfall 004. This discharge was later modified in 1982 to discharge to Hazardous Waste Management Unit (HWMU) 7 for further treatment prior to discharge at Outfall 004 (Figure 4-2). In 1985, the discharge from wastewater treatment plant was rerouted to the C-Line Acidic Wastewater Treatment Facility for further treatment before discharge at Outfall 005. The new discharge line consisted of 8 inch diameter polytetrafluoroethylene (PTFE) lined, terra cotta above grade pipe, was installed from the concrete discharge sump to the C-Line facility.

Calcium sulfate sludge from the wastewater treatment process was disposed offsite or onsite at various SWMUs including calcium sulfate drying beds at SWMU 37, SWMU 38, and Area of Concern (AOC) Q where the sludge was dried. Dried sludge was then removed from the drying beds and delivered to RFAAP's onsite SWMU 27, 50, and HWMU 16 for disposal.

As presented on Figure 4-1, seven subunits were identified in the RCRA Facility Assessment (RFA) completed at the wastewater treatment facility (USEPA 1987) including:

- *Unit 18a Sheet Metal Wastewater Treatment Plant* – this structure contains the wastewater pH adjustment and neutralization tank (Unit 18c), vacuum drum filters (Unit 18b), and associated piping and pump system.
- *Unit 18b: Vacuum Drum Filters* – neutralized wastewater was processed through two rotary vacuum dry filters to remove calcium sulfate solids from the wastewater. Extracted solid material (calcium sulfate) was then collected and placed in calcium sulfate drying beds to be dried and then removed and delivered to onsite disposal areas.
- *Unit 18c: Lime Silos, Slakers, and Lime Slurry Mix Tank* – Lime (calcium oxide) was slaked and dumped into two conical silos located inside Building 4434, then fed into the lime-slurry mix

tank. The lime slurry was then pumped to the wastewater pH adjustment and neutralization tanks (Unit 18d), to be mixed with the acidic wastewater.

- *Unit 18d: Steel Wastewater Neutralization Tanks* – Acidic wastewater was pumped from the steel wastewater surge tank (Unit 18f) into two (2) 500 gallon pH adjustment neutralization tanks, then two 250 gallon wastewater neutralization tanks inside Building 4434. Lime slurry was added in these tanks to neutralize the wastewater.
- *Unit 18e; Concrete Clarifiers:*– Neutralized wastewater was pumped into the westernmost concrete clarifier, which contains a sweep/bottom solids rake designed to allow for calcium sulfate solids collection. Wastewater exiting this clarifier then overflowed into a second concrete clarifier. Each clarifier is 24 ft diameter and 6 ft deep. Residual solids from the clarifier bottoms were then pumped to the vacuum drum filters to remove residual solids. Effluent from the clarifiers was discharged into the concrete wastewater discharge station (Unit 18g).
- *Unit 18f; Steel Wastewater Surge Tank* – Acidic wastewater from the Sulfuric Acid Recovery Plant was pumped to an outdoor aboveground 20,000 gallon, closed top, steel wastewater surge tank. The surge tank is located within a concrete secondary containment area. Wastewater from the surge tank was then pumped into the pH adjustment and neutralization tanks inside Building 4434.
- *Unit 18g; Concrete Wastewater Discharge Station:* – Wastewater exiting the clarifiers flowed into a below grade, two compartment concrete sump, which served as the discharge point from the Treatment Facility. The sump dimensions are 16 ft long, 7 ft wide, and 7 ft deep to the foundation base. Effluent from this discharge station, most recently flowed to C-Line Acidic Wastewater Treatment Plant by an aboveground line.

4.1.2 Site History

The SAR Plant operated from 1976 until 1987, when these facilities were rendered inactive due to TNT manufacturing operations ceasing at RFAAP in 1986.

In 1994, the State Water Control Board (SWCB) issued RFAAP a Best Management Practice (BMP) Consent Order to correct total suspended solid issues in the Outfall 004 storm water ditch, which was also used to direct the wastewater discharge from SSA 18 from 1976 to 1982. During this period, storm water runoff from the nearby coal pile storage yard was also discharged directly into the Outfall 004 ditch, causing suspended solids and pH compliance issues. RFAAP implemented a BMP by dredging the length of the Outfall 004 ditch line to remove the residual coal fines, and placed stone rip-rap in the ditch to aid in stormwater flow distribution and solids deposition reduction. The BMP implemented satisfied the SWCB.

Plant wastewater utilities, acid area, and environmental personnel were consulted to determine if any spills or cleanup actions have occurred at SSA 18. No employees recalled any chemical or wastewater spills or cleanup actions from this facility during their years of operation.

Aerial photographs of the SSA 18 area for 1949, 1962, 1971, 1986, and 1990 are presented on Figures 4-3, 4-4, 4-5, 4-6, and 4-7, respectively. Photographs from 1949 and 1962 show the site area is undeveloped and surrounding by storage buildings related to manufacturing operations. The 1971 photograph shows the SAR Plant under construction and the SSA 18 area remaining undeveloped. More recent aerial photographs from 1986 and 1990 show the SSA 18 area in its general current configuration.

4.1.3 Surface Water

The closest natural surface water body to SSA 18 is the New River, which is located approximately 400 to 600 ft west/northwest of the site. SSA 18 is located at elevations above the 100 year floodplain of the New River (USHUD 1978).

At SSA 18, the concrete floor of Building 4434 has 4-inch cast iron floor drains that connect to a 6-inch cast iron drain leading to the sump at Unit 18g. Four inch floor drains are located in the vacuum pump and lime slurry tank areas. Condensate and hub drains also connect to the floor drains.

Stormwater drains or catch basins are not located in the immediate area of SSA 18. A drainage ditch is located approximately 30 to 60 ft east of units 18e and 18f and may receive some stormwater runoff from the easternmost portion of the site. This drainage ditch extends northeast for approximately 200 ft ending at the manmade ditch associated with VPDES Outfall 004. The outfall ditch, which originates approximately 1,400 ft east of the site, typically contains flowing surface water and ends at Outfall 004 located approximately 400 ft west of the site.

4.1.4 Soil

According to the *Soil Survey of Montgomery County, Virginia* (USDA 1985), the area of SSA 18 is underlain by Unison-Urban Land complex soil. This soil has moderate permeability and medium-to-strong acidity. Soil classification is not practical in urban land areas because the original soil has been physically altered or obscured. A typical profile of undisturbed Unison soil consists of a 15-inch thick surface layer of dark brown loam and a 43-inch thick subsoil of yellowish-red, sticky plastic clay underlain by a red sandy clay loam to a depth of 58 inches. In general, permeability is moderate in Unison soil, natural fertility is low, and organic matter content is low to moderate.

4.1.5 Geology

Geologic conditions were previously investigated in the Oleum Plant and surrounding areas for an Environmental Baseline Study (EBS) conducted by Ecology and the Environment, Inc. (EEI) in 2007 (EEI 2007). This investigation indicated that the site area is underlain by approximately 25 to 30 ft of alluvial terrace deposits consisting of silt and clay (ML/CL) to depths up to 19 ft bgs underlain by silty sand (SM). Limestone/dolomite bedrock of the Elbrook Formation is present at approximate depths of 25 to 30 ft bgs. Appendix D.2.2 includes boring logs for the EBS investigation conducted by EEI. Six shallow borings (7 to 10 ft bgs) were completed for the SSP investigation at SSA 18 and confirmed the presence of fine-grained terrace deposits (silt) to the depths explored. Appendix D.2.1 includes boring logs for the SSP Investigation.

4.1.6 Hydrogeology

Six monitoring wells were installed for the EBS conducted in the Oleum Plant and surrounding areas by EEI (EEI 2007). Figure 4-8 shows the locations of the monitoring wells. Groundwater monitoring well construction and water level measurement data from the EBS are summarized in Table 4-1. Groundwater was encountered under water table conditions within the lower portion of the alluvium in the area of SSA 18, where measured static water levels were approximately 24 to 26 ft bgs. South of SSA 18 at higher elevations in the SAR Plant area, groundwater was encountered within bedrock but not alluvium with potentiometric levels greater than 30 ft bgs. In the EBS Report, EEI indicated an implied groundwater flow direction of approximately 15 degrees north of west based on triangulation of potentiometric data from the three monitoring wells screened within bedrock. A similar groundwater flow direction was implied for groundwater within the alluvium. Appendix D.2.2 includes boring logs and construction data for monitoring wells installed for the EBS.

4.2 PREVIOUS INVESTIGATIONS

4.2.1 RCRA Facility Assessment – USEPA 1987

An assessment was conducted at SSA 18 (listed as Unit 18 in RFA) to evaluate potential hazardous waste or hazardous chemical releases and implement corrective actions, as necessary. The assessment consisted of a preliminary review and evaluation of available site information, personnel interviews, and a visual inspection of the site. Environmental samples were not collected at SSA 18 as part of the inspection. The assessment identified seven units at SSA 18 including: sheet metal fabricated building (unit a), vacuum

filters (unit b), lime silos (unit c), neutralization tank (unit d), concrete clarifiers (unit e), steel feed tank (unit f), and concrete discharge station (unit g). The RFA indicated that no visible signs of releases were observed during the site inspection.

4.2.2 Acid Sewer Survey

From 1998 to 2000, an Acid Sewer Survey and Investigation was conducted on the entire RFAAP acid sewer infrastructure to determine the condition of the sewers. Videotaping of the interior lines was conducted and submitted to the USEPA. An assessment of the 260 ft long 6-inch diameter plastic, gravity acid sewer line that extends from the acidic wastewater sump (SSA 72) to the SAR wastewater treatment plant (SSA 18) was not conducted as part of the acid sewer survey. Deteriorated or broken sections of sewer lines were repaired or replaced within active areas. No actions were undertaken in the area of SSA 18 due to the inactive status of the SAR Plant wastewater system and treatment facility.

4.2.3 Oleum Plant Environmental Baseline Study – Ecology and Environment, Inc. 2007

The study area for this EBS was focused on the Oleum Plant area and included the collection of soil and groundwater samples from a study area encompassing SSA 18. Specific locations sampled that may be used to evaluate potential releases from SSA 18 included: soil boring SB08/monitoring well MW04 (collocated) located north of Unit 18g and monitoring well MW03 located west/northwest and downgradient of SSA 18 (Figure 4-8). The study also included the installation of wells at locations (MW05 and MW06) that are upgradient of SSA 18. Soil and groundwater samples were analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, TLC pesticides, explosives, TAL metals, nitrate/nitrite, and perchlorate (groundwater).

Detected results for the two subsurface soil samples collected from soil boring SB08 are summarized in Table 4-2. Subsurface soil samples were collected from depth intervals of 2 to 4 ft bgs and 16 to 18 ft bgs. VOCs, Aroclor 1254, pesticides, and metals were detected in one or more of the soil samples. Detected constituent concentrations were below their adjusted R-RSLs or background point estimates, with the exception of arsenic, which was detected at concentrations above its I-RSL but below the facility's background point estimate of 15.8 mg/kg.

Detected results for the groundwater samples collected from monitoring wells MW03, MW04, MW05, and MW06 are summarized in Table 4-3. VOCs, SVOCs, pesticides, explosives, and metals were detected in one or more of these samples. Perchlorate was detected in each of the samples collected from these wells. With the exception of MW06, chloroform was detected in each of the groundwater samples above its adjusted T-RSL but below the MCL for trihalomethanes. Perchlorate was detected in sample MW04 at a concentration of 3.59 µg/L, which was above the adjusted T-RSL.

4.3 WORK PLAN DATA GAP ANALYSIS

The data gap analysis presented in WPA 028 indicated that limited soil sampling and analyses had occurred at SSA 18 (URS 2009). The data gap analysis completed for SSA 18 identified data gaps for characterizing releases to surface soil and subsurface soil, and characterizing physical and geotechnical properties of site soil.

4.3.1 Release Assessment to Surface Soil

An assessment of potential releases to surface soil had not been performed at SSA 18. This data gap was filled by collecting surface soil samples for chemical analysis from the wastewater treatment facility area. Field investigation activities are discussed in Section 4.4.

4.3.2 Release Assessment to Subsurface Soil

Limited soil sampling (soil boring SB08) had been conducted in the area of SSA 18 to assess releases to subsurface soil. This data gap was filled by completing additional soil borings in the wastewater

treatment facility and collecting subsurface soil samples for chemical analysis. Field investigation activities are discussed in Section 4.4.

4.3.3 Release Assessment to Groundwater

Potential releases to groundwater were evaluated using existing groundwater data collected in the site area in 2007. Additional release assessments to groundwater were conducted by evaluating subsurface soil data and comparing these data to USEPA Region III soil-to-groundwater SSLs.

4.3.4 Physical Soil Testing

Two representative samples of soil at the site (one surface sample and one subsurface sample) were submitted for analysis of physical and geotechnical properties, as described in Section 4.4.

4.3.5 Summary of Data Gaps

The following table summarizes these identified data gaps and the completion plan to fill the data gaps from WPA 028 (URS 2009).

SSA 18 - Summary of Data Gap Analysis and Completion Plan

DATA GAPS			COMPLETION PLAN
Item	**Physical**	**Chemical**	
Releases to Soil	Surface Soil Samples	Chemical Data –VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect surface soil samples in area of SSA 18 for chemical analysis
	Subsurface Soil Samples	Chemical Data –VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect subsurface soil samples from area of SSA 18 for chemical analysis.
Releases to Groundwater	Subsurface Soil Samples	Use subsurface soil sample data and existing groundwater data	Compare subsurface soil data to soil-to-groundwater SSLs and compare existing groundwater data to T-RSLs.
Site-Wide Soil Characteristics	Physical / Geotechnical Properties	pH, total organic carbon (TOC), grain size, Atterberg Limits, and moisture content	Collect samples for geotechnical and physical property analysis.

4.4 SSP FIELD ACTIVITIES

Six borings were advanced in and around the site to evaluate for the presence or absence of chemicals in soil potentially associated with historical activities at the sites (Figure 4-9). Borings were advanced using a skid steer-mounted, direct-push Geoprobe® unit. Discrete samples were collected from surface and/or intermediate intervals for the borings as summarized below.

SSAs 18 and 72 Sample and Boring Information

Boring ID	Total Depth of Boring (ft bgs)	Surface Sample ID	Sample Depth (ft bgs)	Intermediate Sample ID	Sample Depth (ft bgs)
18SB1	10	18SB1A	0-1	18SB1B	8-10
18SB2	7.0	18SB2A	0-1	18SB2B	5-7
18SB3	7.0	18SB3A	0-1	18SB3B	5-7
18SB4	7.0	18SB4A	0-1	18SB4B	5-7

Boring ID	Total Depth of Boring (ft bgs)	Surface Sample ID	Sample Depth (ft bgs)	Intermediate Sample ID	Sample Depth (ft bgs)
18SB5	8.0	18SB5A	0-1	18SB5B	6-8
18SB6	10	18SB6A	0-1	18SB6B	8-10

Six surface soil samples were collected from the following locations to evaluate potential releases at SSA 18:

- Sample 18SB1A was collected adjacent to the concrete discharge station (Unit 18g) near the concrete clarifiers (Unit 18e);
- Sample 18SB2A was collected between the aboveground surge tank (Unit 18f) and Building 4343 in the area where aboveground influent piping runs from the containment area at Unit 18f to the building;
- Sample 18SB3A was collected between Building 4343 and the railroad spur where material unloading occurred from railcars;
- Sample 18SB4A was collected immediately south of the secondary containment area for the aboveground surge tank (Unit 18f) adjacent to where the aboveground influent acid sewer line enters the secondary containment area;
- Sample 18SB5A was collected from the drainage ditch/swale located east of the wastewater treatment facility; and
- Sample 18SB6A was collected from along the original alignment of the effluent discharge line between the concrete discharge station (Unit 18g) and the Outfall 004 drainage ditch.

Six subsurface soil samples were collected from the following locations to evaluate potential releases at SSA 18:

- Sample 18SB1B was collected from a direct push boring completed at the location of surface soil sample 18SB1A at a depth below the bottom elevation of the sump (1,720 ft msl) at a depth of 8 to 10 ft bgs;
- Sample 18SB2B was collected from a direct push boring completed at the location of surface soil sample 18SB2A at a depth of 5 to 7 ft bgs;
- Sample 18SB3B was collected from a direct push boring completed at the location of surface soil sample 18SB3A at a depth of 5 to 7 ft bgs;
- Sample 18SB4B was collected from a direct push boring completed at the location of surface soil sample 18SB4A at a depth of 5 to 7 ft bgs;
- Sample 18SB5B was collected from a direct push boring completed at the location of surface soil sample 18SB5A at a depth of 6 to 8 ft bgs; and
- Sample 18SB6B was collected from a direct push boring completed along the original alignment of the effluent discharge line between the concrete discharge station (Unit 18g) and the Outfall 004 drainage ditch. The sample was collected at a depth below the bottom of the effluent line from an interval of 8 to 10 ft bgs;

Soil samples were analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, TCL pesticides, explosives (including nitroglycerin and PETN), and TAL inorganics. Analytical results (detected chemicals) used for the SSP are summarized in Table 4-4.

Two samples were collected for physical testing (one surface soil sample (18SB2A) and one subsurface soil sample (18SB1B)). Physical testing for each sample included: grain size analysis, Atterberg limits, soil moisture content, TOC, and pH. Analytical results for these samples are summarized in Table 2-1 and the complete results are provided in Appendix D.1.

Modifications to the proposed field investigation in WPA 028 during field sampling activities were limited to the collection of surface soil sample at 18SB8 and a subsurface sample at 18SB5. WPA 028 identified only collection of a subsurface sample at 18SB8 and a surface sample at 18SB5. For data completeness, the additional samples were collected.

4.5 CONCEPTUAL SITE MODEL (CSM)

A CSM for SSA 18 is presented on Figure 4-10. The site is located on an alluvial terrace approximately 400 to 600 ft east of the New River. Approximately 30 ft of alluvial terrace deposits overlies limestone/dolomite bedrock at the site. Groundwater is present within the lower portion of the alluvium and within underlying bedrock at depths of approximately 25 to 26 ft bgs.

Potential constituent sources at the site are related to handling and treatment of acidic wastewater, discharge of neutralized wastewater and handling materials used for wastewater treatment. Potentially affected media at the site include:

- Surface soil from leaks or spills from related to outside storage and treatment of wastewater in aboveground tanks and structures or from materials handling;
- Subsurface soil from any constituents released to surface soil; and
- Groundwater via leaching of constituents from subsurface soil.

Although current and likely future land-use scenarios are limited to industrial operations, both residential and industrial scenarios will be evaluated in the SSP human health screening (USEPA 2001).

SSA 18 is exclusively an upland habitat that lacks wetland and significant onsite drainage features. Therefore, soil represents the potential exposure medium for ecological receptors. An ECSM is provided in Section 3.0, Figure 3-1.

4.6 HUMAN HEALTH RISK SCREENING

4.6.1 Identification of COPCs

4.6.1.1 Soil

Tables 4-5 and 4-6 present the results of the COPC evaluations for surface soil and total soil, respectively. SSP samples and two samples from boring SB08 (see Table 4-2) from the Oleum Plant Environmental Baseline Study are used in the screening. COPCs identified for surface soil and total soil included:

TAL metals: aluminum, arsenic, cobalt, iron, manganese, vanadium;

TCL Pesticides: none;

TCL PCBs: none;

TCL VOCs: none;

TAL SVOCs: none; and

Explosives: not detected.

4.6.1.2 Groundwater

Due to the locations of monitoring well MW04 located north of Unit 18g and monitoring well MW03 located west/northwest and downgradient of SSA 18, the groundwater data from these locations will be used to evaluate potential releases to groundwater from the site. As presented on Table 4-3, COPCs identified in groundwater included:

TAL metals: none;

TCL Pesticides: not detected;

TCL PCBs: not detected;

TCL VOCs: chloroform;

TAL SVOCs: not detected;

Explosives: none; and

Perchlorate: perchlorate.

Potential releases to groundwater were also assessed by evaluating subsurface soil data and comparison of these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table (USEPA 2009; Section 4.6.4).

4.6.2 Cumulative Risk Screen

4.6.2.1 Soil

The cumulative risk screening for surface soil is presented on Table 4-7. The cumulative risk screening for total soil is presented on Table 4-8. A summary of the screening results is presented below:

Cumulative Human Health Risk Screening Results for Soil

	Surface Soil			Total Soil		
	Above/ Below/ Equal	**Risk/ Hazard**	**Drivers**	**Above/ Below/ Equal**	**Risk/ Hazard**	**Drivers**
Residential Risk	Below	7.E-06	--	Below	8.E-06	--
Industrial Risk	Below	2.E-06	--	Below	2.E-06	--
Residential Hazard	Above	2	Aluminum, Cobalt, Iron, Manganese	Above	4	Aluminum, Cobalt, Iron, Manganese
Industrial Hazard	Below	0.2	--	Below	0.3	--

*Note: Above, below, or equal to established SSP risk and hazard levels.

The cumulative human health risk screens were below the established SSP risk level of 1E-05 and above the established SSP hazard level of 1 for the residential scenario for surface and total soil. Cumulative risk screenings were below the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the industrial scenarios. The hazard drivers identified in the table above are those chemicals that primarily contribute to HIs greater than the established SSP hazard level of 1.

Due to multiple chemicals contributing to a residential HI greater than 1, as presented on Table 4-7 (surface soil) and Table 4-8 (total soil), the HIs have been segregated based on primary target organs for chronic exposure. The HI segregation for surface and total soil resulted in values equal to or higher than the cumulative SSP HI target organ threshold of 0.5 for the following target organs: blood, central nervous system (CNS), gastrointestinal (GI) tract, and liver.

4.6.2.2 Groundwater

The cumulative risk screening for groundwater is presented on Table 4-9. A summary of the screening results is presented below:

Cumulative Human Health Risk Screening Results for SSA 18 – Groundwater

	Above/ Below/ Equal	Risk/ Hazard	Drivers
Risk	Above	9E-05	Chloroform
Hazard	Below	0.1	--

*Note: Above, below, or equal to established SSP risk and hazard levels.

The cumulative human health risk screen was below the established SSP hazard level of 1 and above the established SSP risk level 1E-05 for groundwater.

4.6.3 Lead and Iron Screening

Detected soil lead concentrations at the site were below 400 mg/kg; therefore, lead modeling was not conducted for the site.

Since iron concentrations in soil result in an HQ of greater than 0.5, further assessment is required. This assessment consists of a "margin of exposure evaluation" where the estimated intake of iron is compared to the RDA and concentrations known to cause adverse health effects in children (NCEA 2006). Appendix E.1 presents the margin of exposure evaluation for surface soil and total soil. A summary of the results for SSA 18 is presented below.

Iron Margin of Exposure Evaluation – Future Child Resident

	Surface Soil			Total Soil		
	Above/ Below	**Estimated Site Intake**	**Exposure Screening Level**	**Above/ Below**	**Estimated Site Intake**	**Exposure Screening Level**
RDA Screen (mg/day)	Below	6	10	Below	7	10
Provisional Reference Dose (RfD) Screen (mg/kg-day)	Below	0.4	0.7	Below	0.5	0.7

The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 18.

4.6.4 SSL Comparison - Soil

4.6.4.1 Generic SSLs (Soil-to-groundwater Risk-based Screening Levels)

An SSL screening was conducted for detected chemicals in subsurface soil to evaluate the potential for leaching of chemicals from soil to groundwater. As presented in Table 4-9, the detected concentrations for each chemical in subsurface soil were compared to their USEPA risk-based SSLs included in the Regional Screening Table (USEPA 2009), if available. The comparisons of subsurface soil concentrations to generic SSLs (DAF 20) for detected chemicals indicated that arsenic, cobalt, iron, and manganese were above their SSLs (Table 4-10).

4.6.4.2 Site-specific SSL Comparison

Organic chemical were not detected in subsurface soil at concentrations above their generic SSLs (DAF 20); therefore, site-specific SSLs were not calculated.

4.6.5 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPCs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). No metals identified as COPCs in surface soil and total soil were above their background point estimates (Table 4-11).

4.6.6 Human Health Risk Screening Summary

Soil COPCs with screening values were limited to metals. The cumulative human health risk screens were below the established SSP risk level of 1E-05 and above hazard level of 1.0 for the residential scenario for surface and total soil. Cumulative risk screenings were below the established SSP risk and hazard levels of 1E-05 and 1.0, respectively, for the industrial scenario.

The noncarcinogenic residential soil hazard screenings were above the established SSP threshold (HI=1) for surface and total soil primarily due to metals. As presented Table 4-11, metal COPCs (aluminum, arsenic, cobalt, iron, manganese, and vanadium) were below background point estimates and are therefore not a concern at the site.

Detected lead concentrations at the site were below 400 mg/kg; therefore, lead modeling was not conducted for the site. The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 18.

The comparisons of subsurface soil to generic risk-based SSLs (DAF 20) for detected chemicals indicated that arsenic, cobalt, and iron were above their SSLs (Table 4-10). Although arsenic, cobalt, and iron were above their SSLs, detected concentrations were below their background point estimates and are not considered a concern at the site.

Groundwater COPCs were limited to chloroform and perchlorate. The noncarcinogenic hazard screening for groundwater was below the established SSP threshold (HI=1).

The cumulative human health risk screen was below the established SSP hazard level of 1 and above the SSP risk level 1E-05 and for groundwater. The maximum detected chloroform concentration (18 µg/L) is above the tap water RSL but below the MCL for trihalomethanes. Cholorform was also detected in upgradient wells.

With regard to groundwater detections of chloroform in groundwater at the site, it is important to note that studies and groundwater investigations have shown the presence of chloroform in most groundwater samples collected at the facility regardless of location. The concentrations of chloroform detected in monitoring wells at the site are concentrations below the range of chloroform levels present in the water transmitted through water lines at the facility. The site is located downgradient of developed areas

containing water lines that could be leaking, which may have been the source of chloroform. No additional assessment of chloroform at the site is required.

4.7 ECOLOGICAL RISK SCREENING

4.7.1 Ecological Site Characterization

An overview of the site physiography, water resources, soil, and geology for SSA 18 is presented in Section 4.1. The SAR wastewater treatment facility encompasses an approximate 0.25 acre area (Figure 4-1) consisting primarily of concrete impervious areas, tanks, and buildings; therefore, the site provides minimal habitat value to wildlife potentially occurring in the area.

Observations made during the site reconnaissance indicate that the area surrounding SSA 18 is a viable herbaceous vegetation community (see photographic log – Appendix B). Signs of chemical vegetative stress were not observed during the reconnaissance. Based on information from the Installation-Wide Biological Survey (ref) and observations made during the site reconnaissance, the grassland vegetative community at the site is typical of other meadow-grassed areas that are regularly maintained at RFAAP.

The habitat could support some ecological use (i.e., shelter and foraging) by some smaller common species in the area. Given its limited size, impervious area, tanks, and buildings, few individuals would be expected to utilize the area for a lengthy period.

Threatened, rare, or endangered species were not observed during the site reconnaissance. These species are not likely to be present within the boundaries of the site. Threatened, rare, and endangered species information for RFAAP is discussed in Section 3.3.4.

4.7.1.1 Data Organization

The following table identifies the soil samples used for the SLERA. These samples were analyzed for TAL inorganics, TCL pesticides, TCL PCBs, TCL VOCs, TCL SVOCs, and explosives (including nitroglycerin and PETN). Refer to Table 2-2 for a detailed list of samples and analytes.

Soil Samples Evaluated for SLERA

SSAs 18 and 72	
18SB1A	18SB4A
18SB2A	18SB5A
18SB3A	18SB6A

Detected chemical occurrence and distribution tables for surface soil are presented in Table F.2-1. Refer to Table 4-1 for a complete list of results for detected analytes. In addition, to evaluate the adequate sensitivity of the MDL for the necessary screening levels, Table F.2-2 provides a screening of the maximum MDL versus available ecological screening values for non-detected chemicals in surface soil.

4.7.1.2 Ecological Conceptual Site Model (ECSM)

The terrestrial ECSM is presented on Figure 3-1. Surface soil is a potential exposure medium of concern based on historical activities at the site. Based on the site characterization and data, the terrestrial receptor exposure to surface soil pathway exists.

4.7.2 Preliminary Exposure Estimate and Ecological Effects Evaluation

The preliminary exposure estimate and ecological effects evaluation considers the most conservative risk scenario. Highly conservative assumptions are used to estimate COPEC exposure to terrestrial receptors for pathways to be quantitatively evaluated. Conservative TRVs are used to evaluate the ecological effects of exposure using the two approaches discussed below.

4.7.2.1 Direct Contact Approach

The MDC for detected chemicals are used as the preliminary exposure estimate concentrations to develop a conservative risk scenario for the direct contact pathway to soil invertebrates and terrestrial plants. The results of the preliminary exposure assessments for plants and invertebrates are provided below.

Terrestrial Plants

Preliminary direct contact HQs calculated for plants are presented in Table F.2-6 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of aluminum, chromium, cobalt, manganese, and vanadium resulted in HQ values that were greater than 1.

Soil Invertebrates and Microbial Communities

Preliminary direct contact HQs calculated for invertebrates are presented in Table F.2-8 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of chromium, iron, manganese, vanadium, and cyanide resulted in HQ values that were greater than 1.

4.7.2.2 Dose Rate Modeling Approach

Quantitative risk characterization for terrestrial wildlife is limited to direct ingestion of biota and incidental ingestion of soil. The preliminary risks for detected bioaccumulative chemicals are summarized in Table F.2-24 for each terrestrial wildlife receptor and the chemicals with HQs greater than 1 are characterized as follows:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	cadmium	arsenic, selenium
Short-tailed Shrew	arsenic, cadmium, chromium	none
Red Fox	arsenic, chromium, lead, selenium, zinc	cadmium
American Robin	cadmium	chromium, lead, zinc
Red-tailed Hawk	none	none

4.7.3 Refined Exposure Estimate and Risk Characterization

4.7.3.1 Direct Contact Approach

The refined exposure estimate for the direct contact pathway to soil invertebrate and microbial communities incorporates the 95% UCL as the exposure concentration for evaluating the COPECs using a conservative yet more realistic exposure assumption than MDCs. Due to the number of samples at the site, a 95% UCL was not calculated; therefore, a refinement of the direct contact pathway was not conducted.

4.7.3.2 Dose Rate Modeling Approach

The refined exposure estimates and ecological effects are developed for wildlife receptors having complete exposure pathways to be quantitatively evaluated (i.e., omnivorous birds, and carnivorous and herbivorous mammals). In the refined model, an average body weight, average ingestion rate, and a 95% UCL as the EPC are used. Due to the small number of samples at the site, a 95% UCL was not calculated for the site and the MDC was used as the EPC for the refinement. Refined receptor-specific exposure parameters are presented on Table F.2-9 (Appendix F.2). In addition, a realistic $AF_{refined}$ was calculated as the ratio of the site area to the average home range of the receptor which is also presented in Table F.2-9 (Appendix F.2). A summary of the results of the refined exposure assessment for terrestrial wildlife is provided below.

Terrestrial Wildlife

The refined risk characterization results are presented in Table F.2-24 and summarized below for each of the receptors with chemical HQs greater than 1:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	none	none
Short-tailed Shrew	none	none
Red Fox	none	none
American Robin	none	none
Red-tailed Hawk	none	none

4.7.4 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPECs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). No MDCs of COPECs were identified above their background point estimates (Table 4-10). Note that background point estimates were not available for selenium and cyanide; therefore, background comparisons were not conducted.

4.7.5 Risk Management – Scientific Management Decision Point

The findings of the ecological risk screen including site characterization and risk calculations are used as input to risk management decision-making for the site. The SMDP reached from the ecological risk screening concludes that one of the following statements is true:

- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the site on the basis of ecological risk;
- The information is not adequate to make a decision at this point and further refinement of data is needed to augment the ecological risk screening; or
- The information collected and presented indicates that a more thorough assessment is warranted.

Terrestrial plant COPECs with HQs greater than 1 included: aluminum (HQ=480), chromium (HQ=38), cobalt (HQ=1.2), manganese (HQ=4.5), and vanadium (HQ=28). Aluminum, chromium, cobalt, manganese, and vanadium are below background point estimates (Table 4-10); therefore, these chemicals are not considered site-related.

Soil invertebrates and microbial processes COPECs with HQs greater than 1 included chromium (HQ=95), iron (HQ=160), manganese (HQ=2.2), vanadium (HQ=2.8), and cyanide (HQ=2). Chromium, iron, manganese, and vanadium are below background point estimates (Table 4-10); therefore, these chemicals are not considered site-related. Although the HQ for cyanide (2) is greater than 1 and no background point estimate is available, this risk considered to present low to negligible risk to invertebrates and microbial processes at the site.

The refined risk characterization for wildlife resulted in the identification of no chemicals with a LOAEL-based HQ greater than 1.

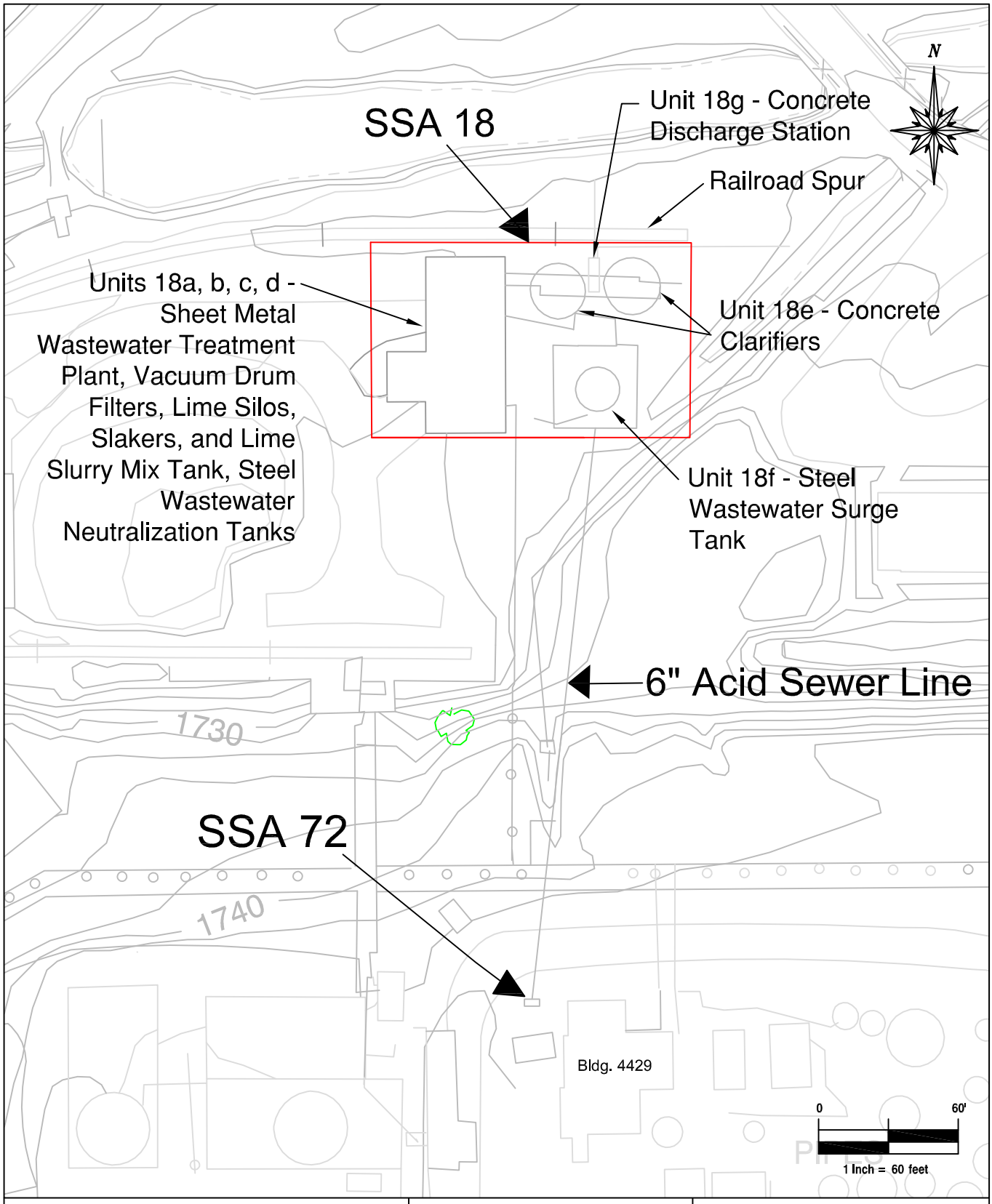
After consideration of the limited metals concentrations primarily below background point estimates but above ecological screening levels for plants and invertebrates and the lack of refined LOAEL-based HQs greater than 1 for terrestrial receptors, the SMDP is the following:

There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the site on the basis of ecological risk.

4.8 CONCLUSIONS AND RECOMMENDATION

No further action is recommended for SSA 18 based on the following results of the SSP screening:

- Cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards;
- Site-related cumulative risk and hazard screening results for residential scenarios are below SSP thresholds for target risk and hazards;
- Chloroform detections in groundwater are not considered site related;
- The MDC for lead in soil is below the SSP screening level of 400 mg/kg;
- The iron exposure assessment results for the hypothetical future child resident are below the applicable iron margin of exposure screening criteria;
- Chemicals at concentrations above their generic SSLs are limited to metals at concentrations below background and therefore not considered a concern at the site; and
- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at SSA 18 based on ecological risk.



Legend

- Approximate SSA Boundary
- Topographic Contour
- Vegetation
- Fence
- Aboveground Piping

FIGURE 4-1

Site Layout - SSA 18

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 60 feet	File Name: Fig.4-1 SiteLayout

SSP Report for SSAs 18, 72, 30, 79, 60, and 77
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Radford, Virginia

URS Group, Inc.
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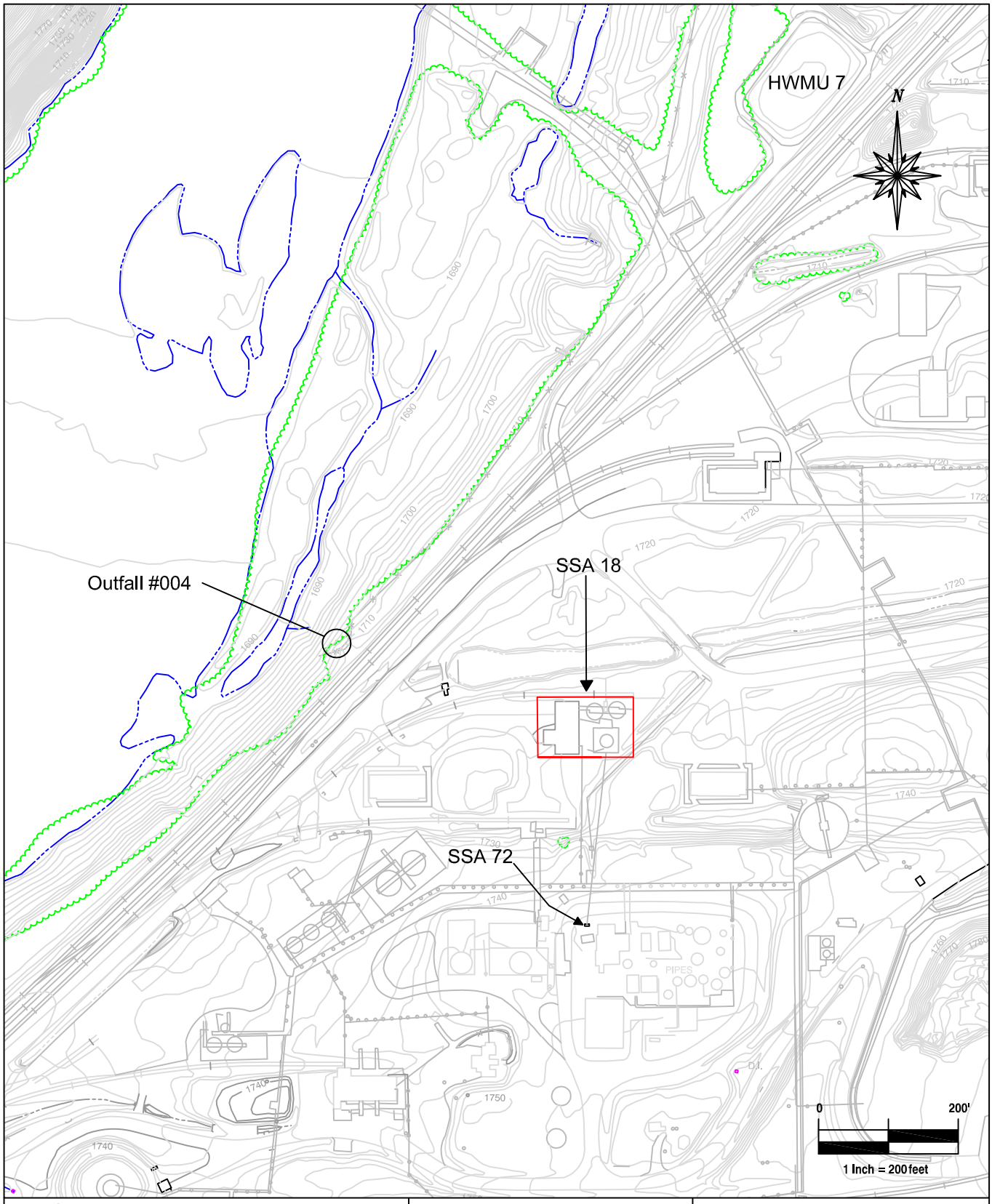
Suite 201
Richmond, Virginia 23230



Legend

- Approximate SSA Boundary
- Topographic Contour
- Vegetation
- Fence
- Aboveground Piping

FIGURE 4-2

Additional Layout Map
SSA 18

Date: March 2009	URS Project #: 11657490
Prepared by: DBC	Approved by: JOS
Scale: 1 inch = 200 feet	File Name: Fig.4-2

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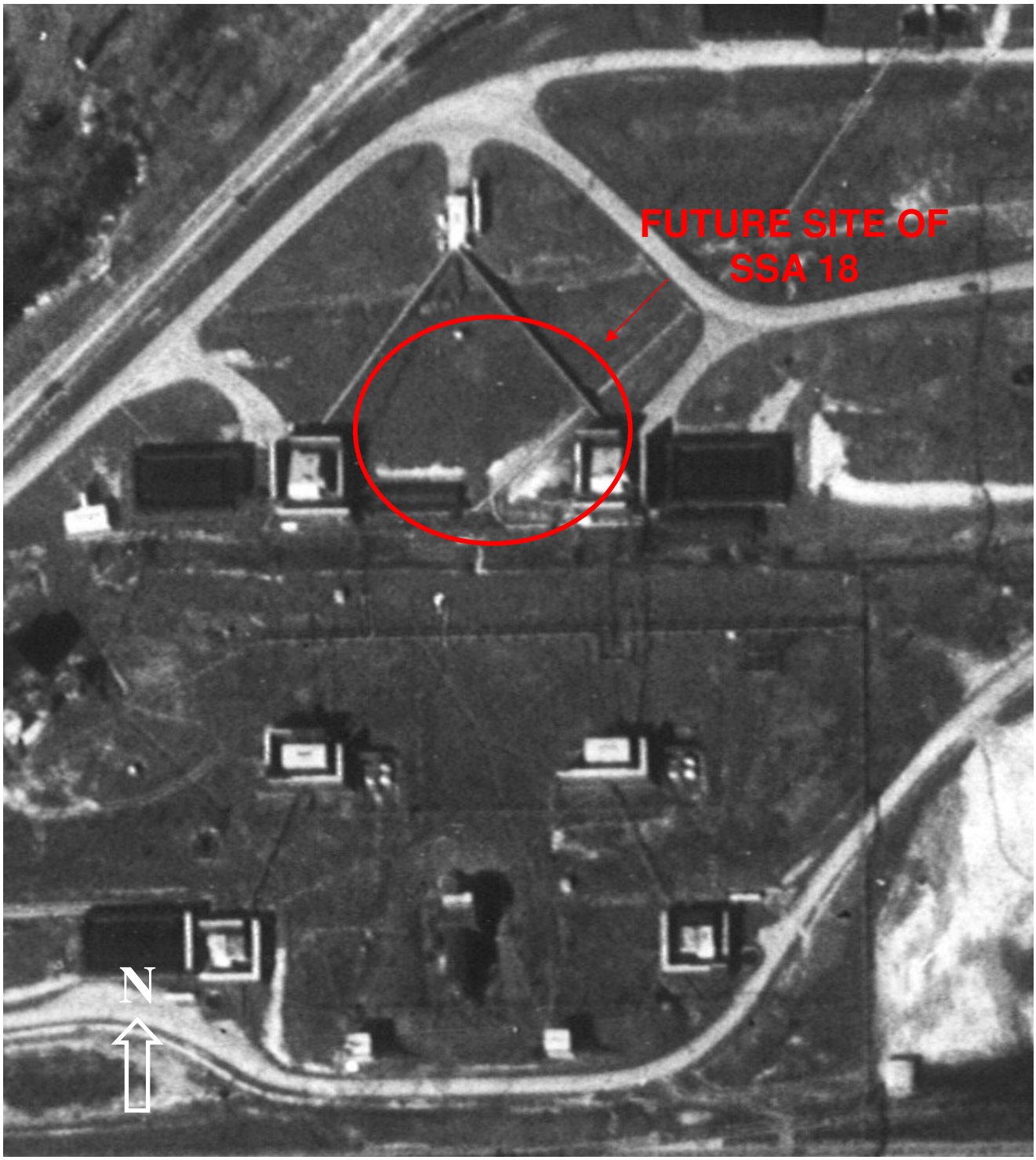


SSA 18
AERIAL PHOTOGRAPH – 1949

FIGURE 4-3

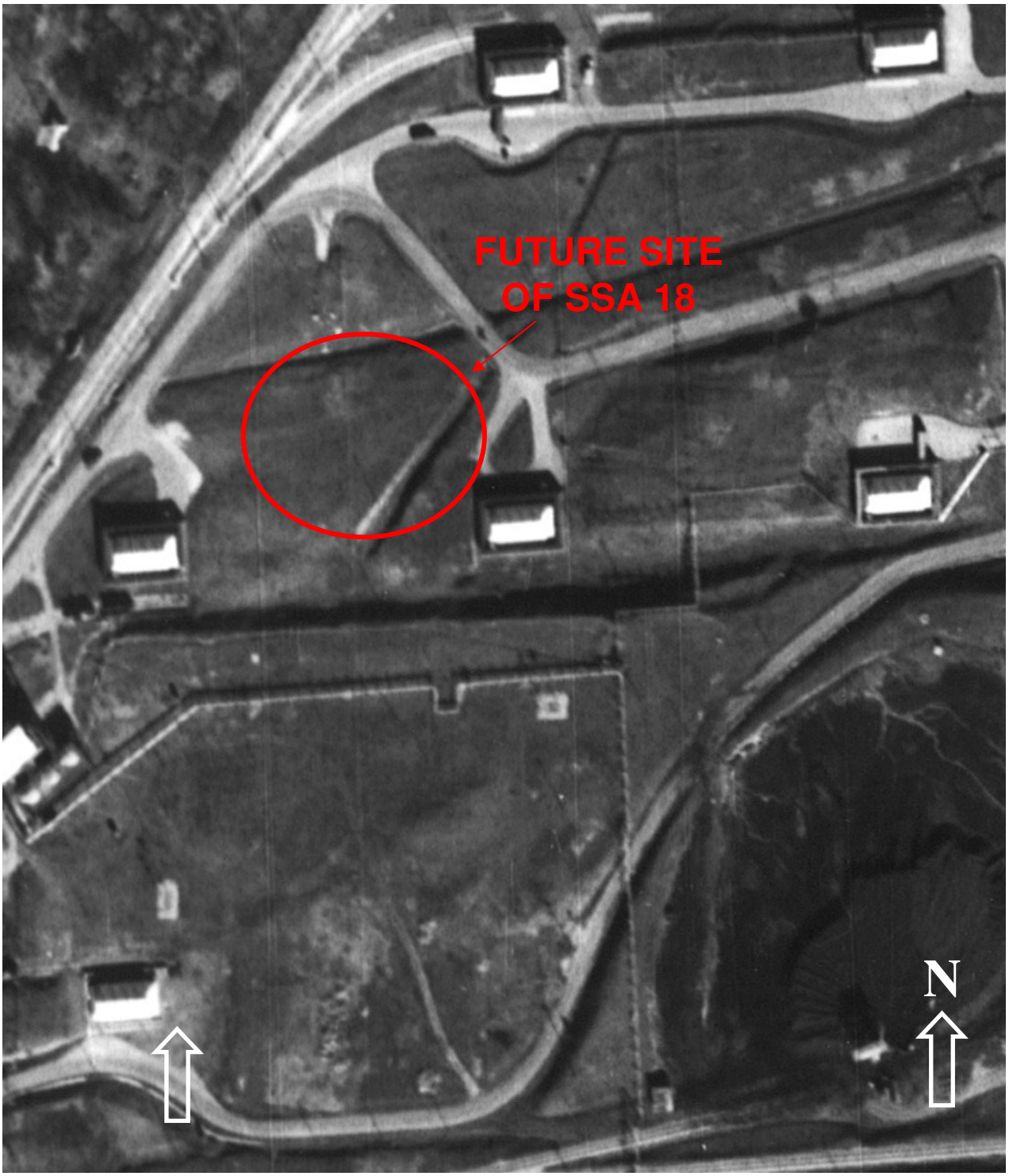
Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



SSA 18
AERIAL PHOTOGRAPH – 1962

FIGURE 4-4

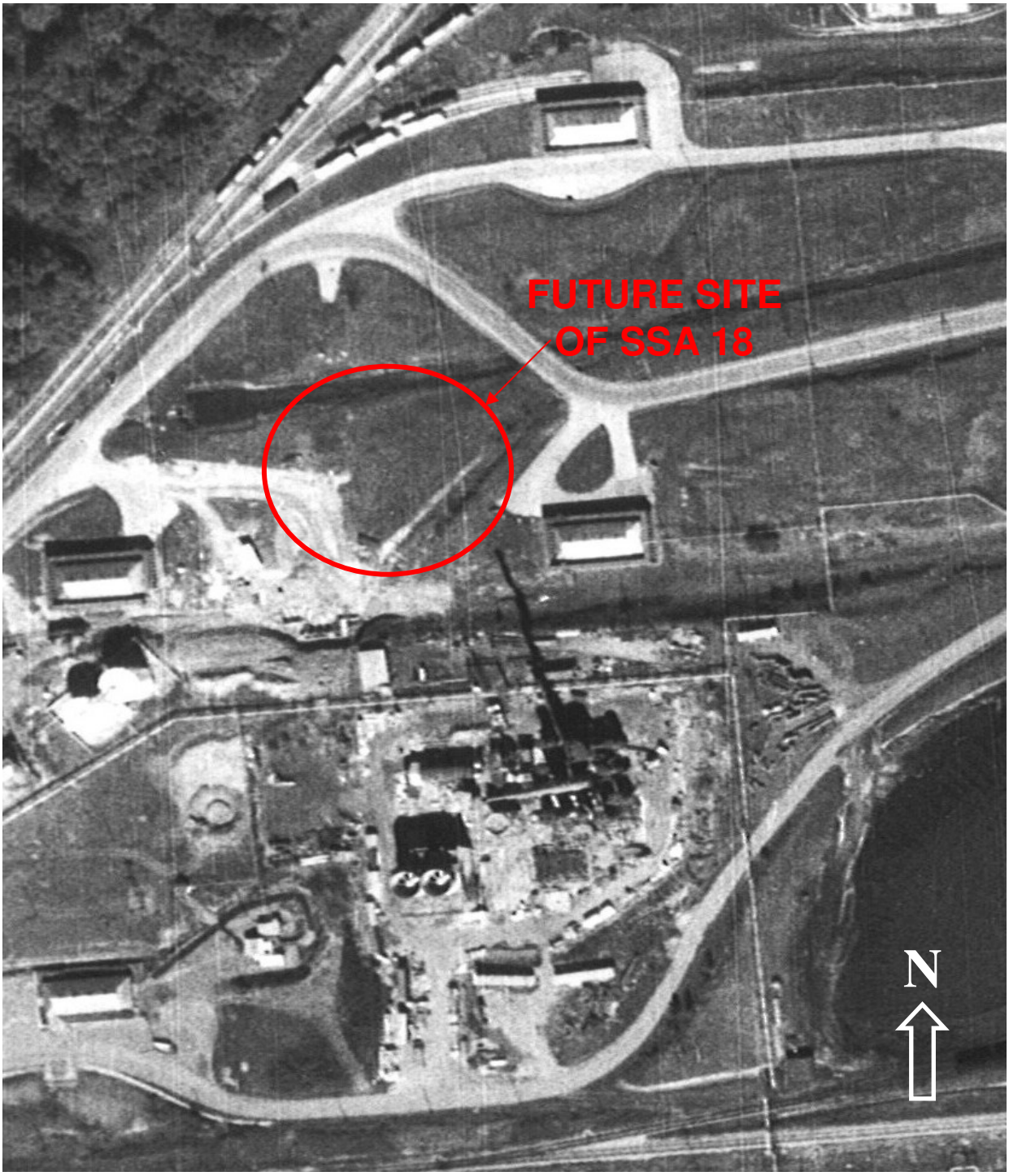
Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



SSA 18
AERIAL PHOTOGRAPH – 1971

FIGURE 4-5

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*

SSA 18
AERIAL PHOTOGRAPH – 1986

FIGURE 4-6

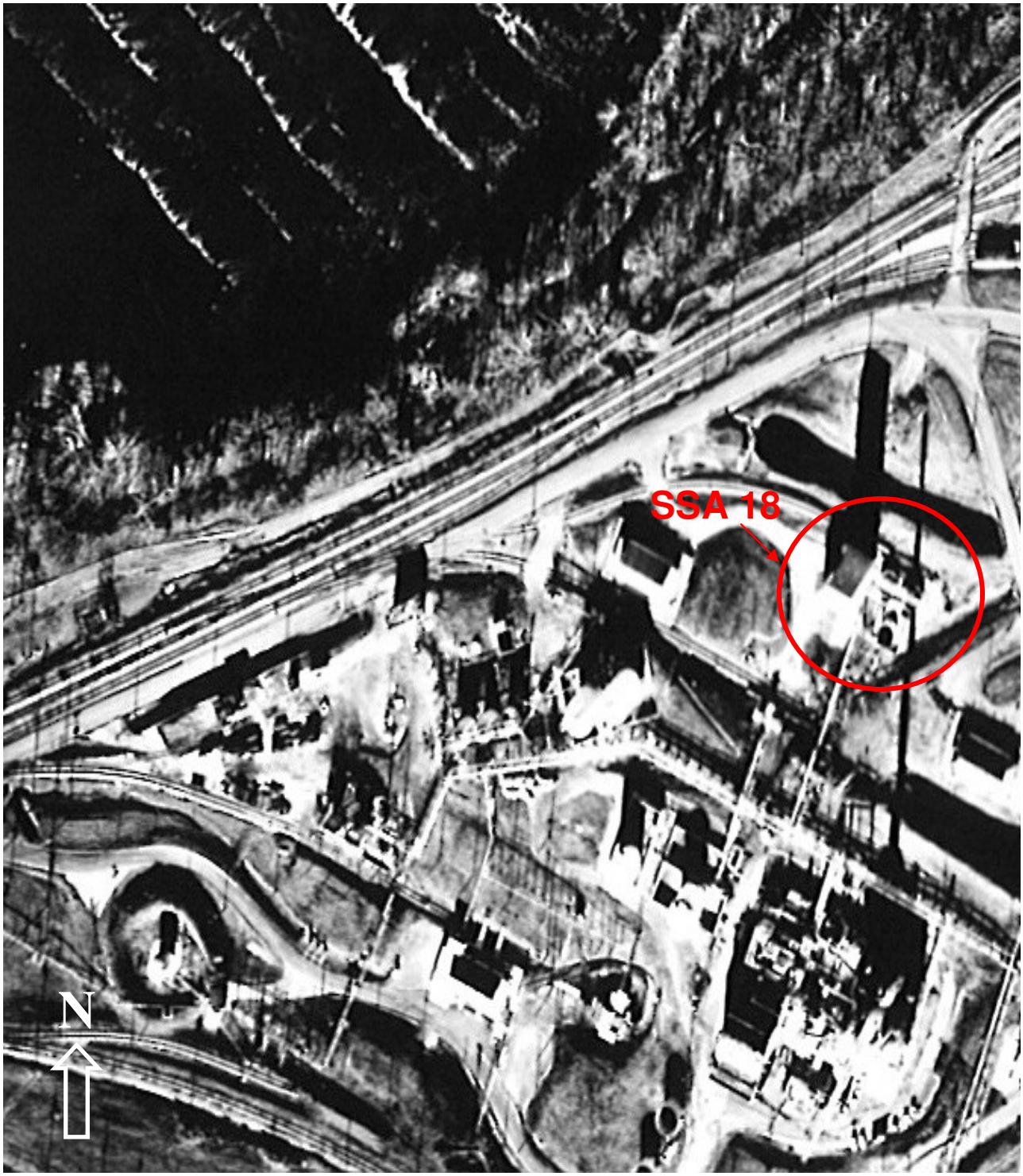
Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



SSA 18
AERIAL PHOTOGRAPH – 1990

FIGURE 4-7

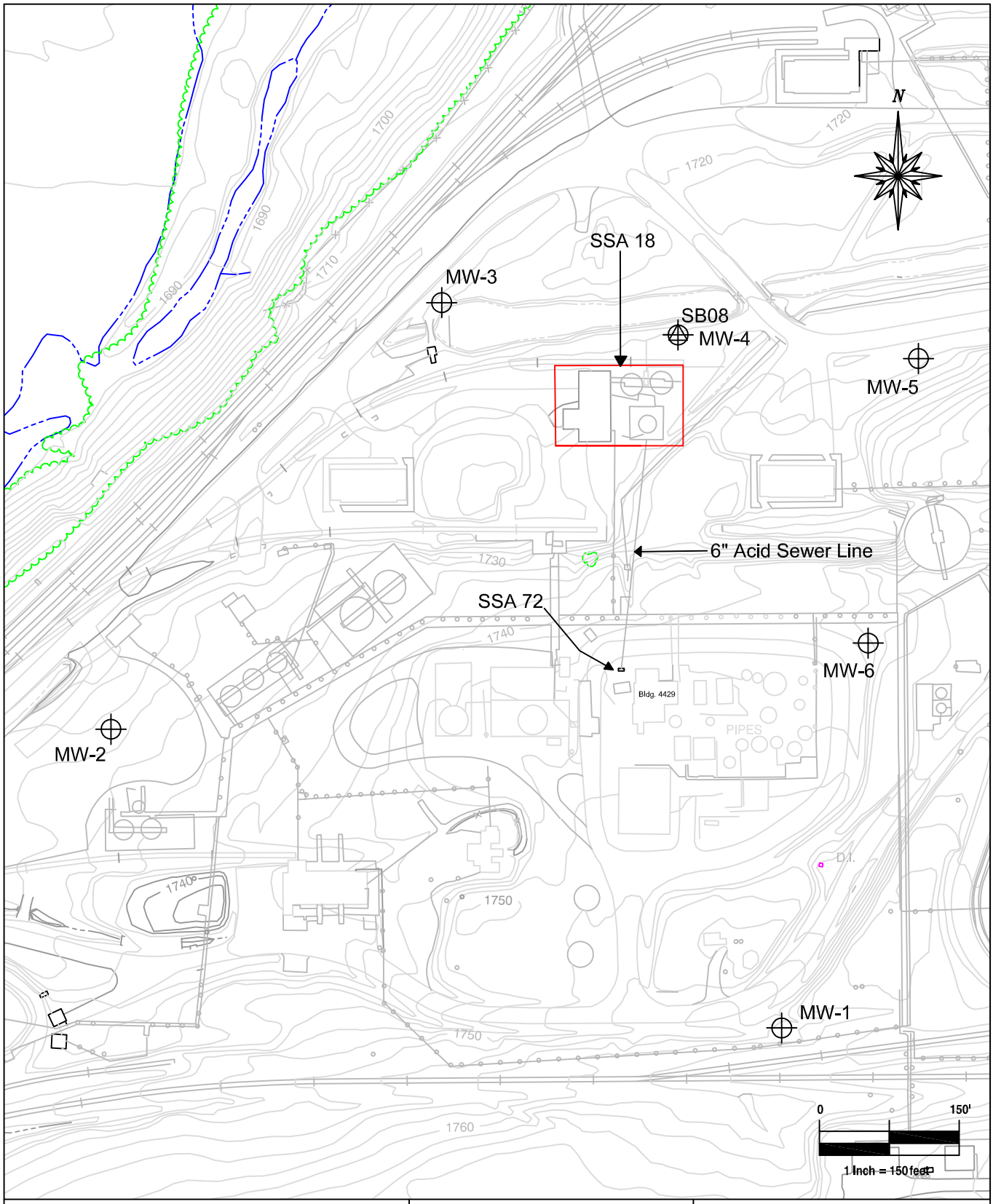
Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



Legend

- Monitoring Well Location
- Ecology and Environmental Sample Location
- Draper Aden Sample Location
- Approximate SSA Boundary
- Topographic Contour
- Vegetation
- Fence
- Aboveground Piping

FIGURE 4-8

Previous Investigations - SSA 18

Date: January 2010	URS Project #: 11657490
Prepared by: DBC	Approved by: JOS
Scale: 1 inch = 150 feet	File Name: Fig.4-8 Prev Invest

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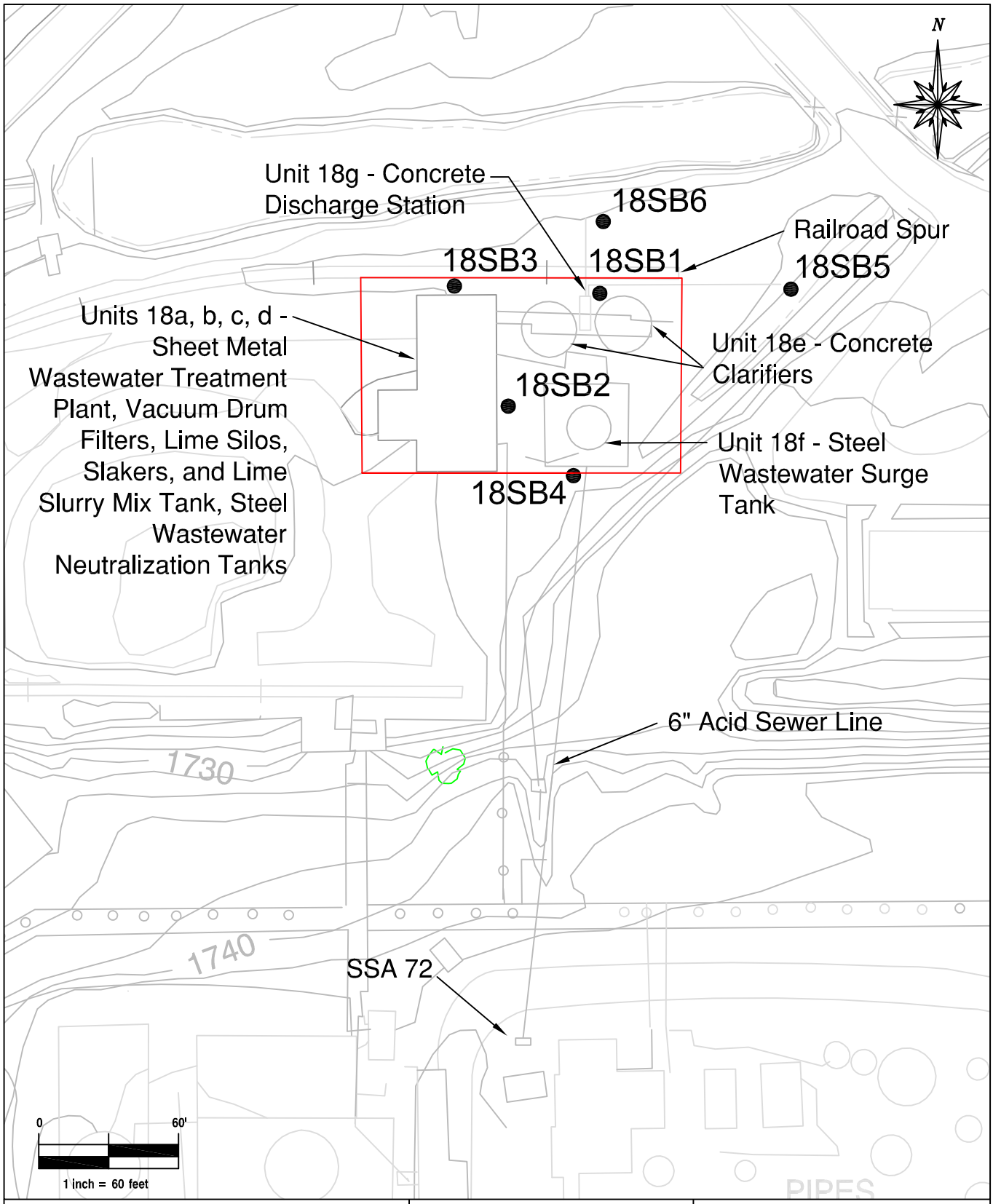
Suite 201
Richmond, Virginia 23230



Legend

- SSP Sample Location
- Approximate SSA Boundary
- Topographic Contour
- Fence
- Approximate SWMU Boundary

FIGURE 4-9

SSP Sample Locations - SSA 18

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 60 feet	File Name: Fig.4-9 SSP Samp.

SSP for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

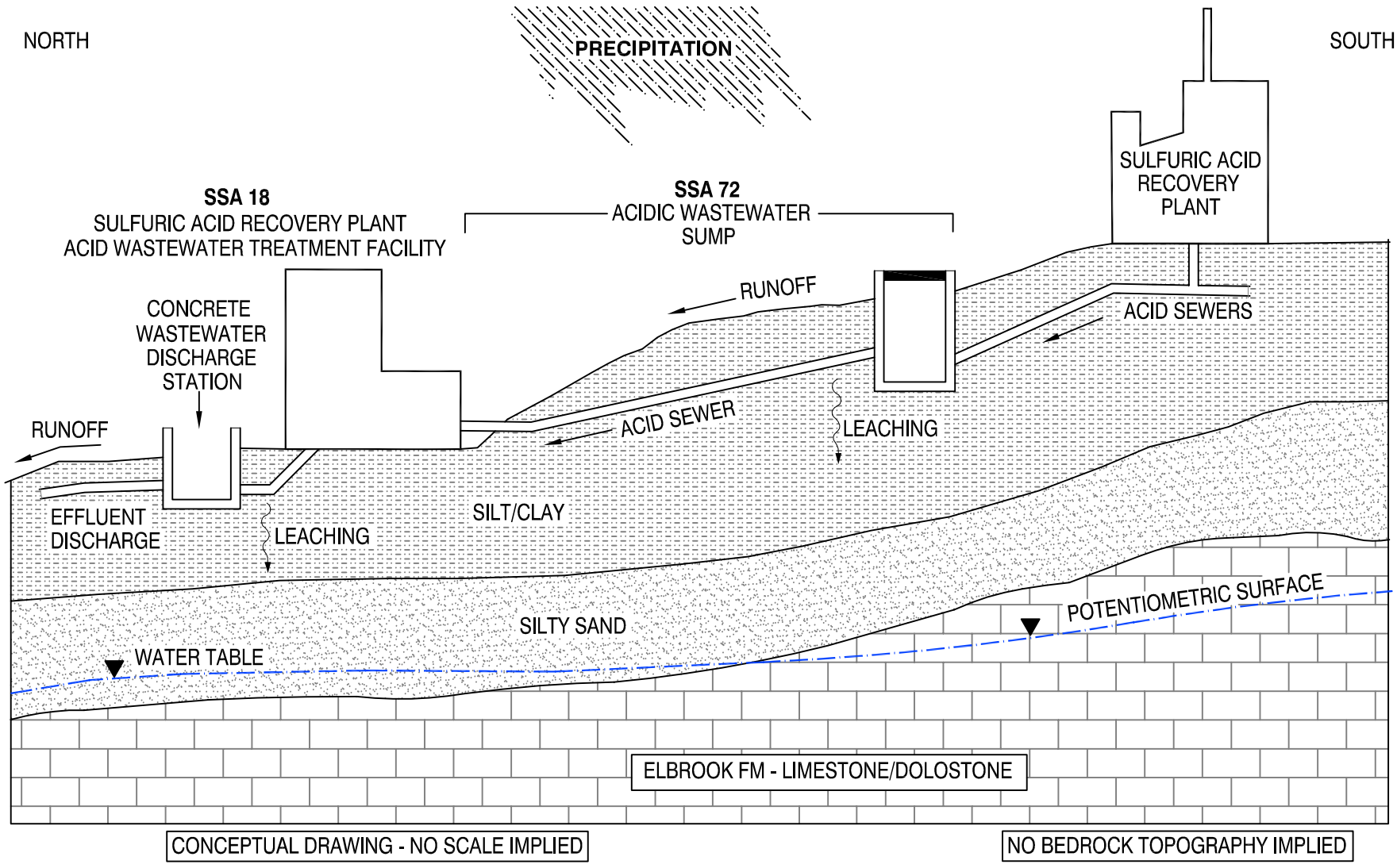


FIGURE 4-10

Conceptual Site Model - SSA 18

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: Not to Scale	File Name: Fig. 4-10

SSP Report for SSAs 18, 72, 30, 79, 60 and 77

Radford Army Ammunition Plant

Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

Table 4-1
Monitoring Well Construction and Groundwater Data - SSA 18
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	Monitoring Well Construction Information						5/7/2007- 5/8/2007	
Well Identification	Date Installed	Well Diameter (In)	Total Well Depth (ft bgs)	Elevation Ground Surface (ft msl)	Elevation TOC (ft msl)	Screened Interval (ft bgs)	Depth to Water (ft bgs)	Groundwater Elevation (ft msl)
MW-1	5/3/2007	4	50	1756.71	1759.35	40.0-50.0	44.35	1712.36
MW-2	5/1/2007	4	50	1727.90	1730.55	39.5-49.5	34.50	1693.40
MW-3	5/2/2007	4	34	1718.51	1720.71	24.0-34.0	24.36	1694.15
MW-4	5/2/2007	4	33	1723.70	1726.07	20.5-30.5	26.55	1697.15
MW-5	5/2/2007	4	25	1724.90	1727.42	13.6-23.6	17.99	1706.91
MW-6	5/3/2007	4	82	1748.26	1751.22	72.0-82.0	37.14	1711.12

Notes:
TOC = Top of Casing
BTOC = Below Top of Casing
In = Inch
ft = feet
msl = mean sea level
bgs = below ground surface

Table 4-2
Summary of Historical Analytical Data For Soil Samples Collected at SSA 18
Modified from Previous Investigations
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

					Ecology and Environment 2007 SSA 18	
Sample ID Sample Date Sample Depth (ft bgs)	CAS	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Adjusted Soil RSL (Industrial)	ATK-SS-SB08 19-Apr-07 2-4	ATK-SUB-SB08 19-Apr-07 16-19
TAL Inorganics (mg/kg)						
Aluminum	7429-90-5	40,041	7,700	99,000	17,700	19,800
Antimony	7440-36-0	--	3.1	41	ND	1.3
Arsenic	7440-38-2	15.8	0.39	1.6	**3**	**2.5**
Barium	7440-39-3	209	1,500	19,000	143	115
Beryllium	7440-41-7	1.02	16	200	1.2	1.2
Cadmium	7440-43-9	0.69	7	81	0.47	0.52
Chromium	7440-47-3	65.3	280	1,400	26.9	32.7
Cobalt	7440-48-4	72.3	2.3	30	17.7	9.7
Copper	7440-50-8	53.5	310	4,100	11.3	17.6
Iron	7439-89-6	50,962	5,500	72,000	25,300	29,000
Lead [1]	7439-92-1	26.8	400	800	17.9	9.1
Manganese	7439-96-5	2,543	180	2,300	1240	484
Mercury	7439-97-6	0.13	0.67	2.8	0.023	0.013
Nickel	7440-02-0	62.8	160	2,000	12.5	17.1
Selenium	7782-49-2	--	39	510	ND	ND
Thallium	7440-28-0	2.11	0.51	6.6	ND	ND
Vanadium	7440-62-2	108	55	720	50.4	56.9
Zinc	7440-66-6	202	2,300	31,000	58.3	60.4
VOCs (ug/kg)						
2-Butanone (MEK)	78-93-3	--	2,800,000	19,000,000	19	ND
Acetone	67-64-1	--	6,100,000	61,000,000	150	12
PCBs (ug/kg)						
Aroclor 1254	11097-69-1	--	110	740	ND	34

Notes:
USEPA = U.S. Environmental Protection Agency
CAS = Chemical Abstracts Service
ft bgs = Feet Below Ground Surface
mg/kg = Milligram per Kilogram
ug/kg = Microgram per Kilogram
TAL = Target Analyte List
VOC = Volatile Organic Compound
PCB = Polychlorinated Biphenyls
RSL = Regional Screening Level
USEPA Regional Screening Level (RSL) values from the October 2008 Regional Screening Table as presented in Work Plan Addendum 028 (URS 2009)
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Risk Criteria Available
ND = Not Detected
[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

= Concentration Exceeds Soil Residential RSL

bold = Concentration Exceeds Soil Industrial RSL

underline = Concentration Exceeds Background Point Estimate

[1] = Lead criteria are Action Levels; see USEPA Region III guidance

Table 4-3
Historical Analytical Data For Groundwater Samples Collected at SSA 18
Modified from Ecology and Environment Investigation 2007
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date	CAS	Adjusted Tap Water RSL	MCL	ATK-GW-MW01 8-May-07	ATK-GW-MW02 7-May-07	ATK-GW-MW03 7-May-07	ATK-GW-MW04 8-May-07	ATK-GW-MW05 8-May-07	ATK-GW-MW06 7-May-07
TAL Inorganics (ug/L)									
Aluminum	7429-90-5	3,700	--	227	1,250	970	660	220	731
Barium	7440-39-3	730	2,000	39.5	45.2	33.6	34.3	62.5	46.2
Chromium [1]	7440-47-3	5,500	100	<15	<15	<15	<15	<15	<15
Cobalt	7440-48-4	1.1	--	<50	<50	<50	<50	<50	2.5
Iron	7439-89-6	2,600	--	162	845	852	512	185	558
Manganese	7439-96-5	180	--	20.5	25.2	29.2	20.3	4.2	68.3
Nickel	7440-02-0	73	--	<40	<40	2.4	<40	<40	3.2
Zinc	7440-66-6	1,100	--	3.3	11.4	5.1	3.9	2.6	5.2
Pesticides (ug/L)									
alpha-chlordane [2]	5103-71-9	0.19	--	0.005	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.037	--	<0.05	<0.05	0.0096	<0.05	<0.05	0.011
Endosulfan sulfate [3]	1031-07-8	22	--	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.0074	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	0.0054
VOCs (ug/L)									
1,1-dichloroethene	75-35-4	34	7	0.15	<1	<1	<1	<1	<1
4-Methyl-2-pentanone (MIBK)	108-10-1	200	--	<5	<5	<5	0.89	<5	<5
Carbon tetrachloride	56-23-5	0.2	5	<1	<1	<1	0.11	0.22	<1
Chloroform	67-66-3	0.19	80	8.1	8.9	18	0.53	1.8	<1
Methylene chloride	75-09-2	4.8	--	<2	<2	<2	<2	<2	<2
Tetrachloroethene	127-18-4	0.11	5	<1	0.12	0.39	0.7	<1	<1
Toluene	108-88-3	230	1,000	<1	0.92	<1	<1	<1	<1
Trichloroethene	79-01-6	1.7	5	<1	0.42	<1	<1	<1	0.63
SVOCs (ug/L)									
bis(2-Ethylhexyl)phthalate	117-81-7	4.8	--	<10	<10	<10	<10	<10	19
Di-n-octylphthalate	117-84-0	--	--	<10	<10	<10	<10	<10	4
Naphthalene	91-20-3	0.14	--	<10	<10	<10	<10	<10	0.7
Explosives (ug/L)									
2,4-Dinitrotoluene	121-14-2	7.3	--	<0.2	0.11	<0.2	<0.2	<0.2	<0.2
2,6-Dinitrotoluene	606-20-2	3.7	--	<0.2	0.098	<0.2	<0.2	<0.2	<0.2
RDX	121-82-4	0.61	--	<0.5	<0.5	<0.5	0.47	0.47	<0.5
Nitrobenzene	98-95-3	0.34	--	0.42	1.7	<0.2	<0.2	<0.2	<0.2
HMX	2691-41-0	180	--	0.12	0.83	0.49	2.7	3.2	<0.5
Perchlorate (ug/L)									
Perchlorate	14797-73-0	2.6	--	0.587	2.1	1.91	3.59	2.47	0.0707

Table 4-3
Historical Analytical Data For Groundwater Samples Collected at SSA 18
Modified from Ecology and Environment Investigation 2007
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Notes:

USEPA = U.S. Environmental Protection Agency
CAS = Chemical Abstracts Service
MCL = Maximum Contaminant Level
ug/L = Microgram per Liter
TAL = Target Analyte List
VOC = Volatile Organic Compound
SVOC = Semivolatile Organic Compound
RSL = Regional Screening Level
USEPA Regional Screening Level (RSL) values from the October 2008 Regional Screening Table as presented in Work Plan Addendum 028 (URS 2009)
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Risk Criteria Available

= Concentration Exceeds Adj. Tap Water RSL

bold = Concentration Exceeds MCL

(1) = Chromium III RSL used
(2) = Chlordane RSL used
(3) = Endosulfan RSL used

Table 4-4
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Areas 18
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	18SB1A 8/12/2009 0-1		MDL	RL	18SB1B 8/12/2009 8-10		MDL	RL	18SB2A 8/12/2009 0-1		MDL	RL	18SB2B 8/12/2009 5-7		MDL	RL	18SB3A 8/12/2009 0-1		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																											
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	21,000		1.8	10	32,000		1.8	10	23,000		1.8	10	24,000		180	1,000	24,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.19	J	0.037	0.2	0.14	J	0.037	0.2	0.14	J	0.037	0.2	0.11	J	0.037	0.2	0.46		0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***2.6***	,L,m	0.03	0.1	***2.1***	,L,m	0.03	0.1	***1.6***	,L,m	0.03	0.1	***1.6***	,L,m	0.03	0.1	***1.6***	,L,m	0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	150		0.28	1	120		0.28	1	110		0.28	1	130		0.28	1	140		0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	0.79	J	0.035	1	1.3		0.035	1	1.1		0.035	1	1.2		0.035	1	1.1		0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	1.1	J	0.24	2	1	J	0.24	2	1.3	J	0.24	2	0.62	J	0.24	2	0.81	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	24,000		8.7	50	15,000		8.7	50	18,000		8.7	50	1,200		8.7	50	4,600		8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	30	,J,s	0.74	5	43	,J,s	0.74	5	34	,J,s	0.74	5	37	,J,s	0.74	5	35	,J,s	0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	***11***	,L,m	0.44	2	***15***	,L,m	0.44	2	***13***	,L,m	0.44	2	***32***	,L,m	0.44	2	***13***	,L,m	0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	11		0.043	0.2	15		0.043	0.2	15		0.043	0.2	14		0.043	0.2	12		0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***24,000***		0.47	10	***37,000***		0.47	10	***30,000***		0.47	10	***33,000***		230	5,000	***29,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	14	,L,m	0.049	0.2	17	,L,m	0.049	0.2	26	,L,m	0.049	0.2	18	,L,m	0.049	0.2	15	,L,m	0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	13,000		4.4	50	12,000		4.4	50	11,000		4.4	50	3,300		4.4	50	4,500		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	600		0.21	1	610		0.21	1	660		0.21	1	***2,300***		21	100	790		0.21	1
Mercury [1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.033	J	0.0093	0.05	0.032	J	0.0093	0.05	0.032	J	0.0093	0.05	0.046	J	0.0093	0.05	0.039	J	0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	12		0.025	0.1	18		0.025	0.1	16		0.025	0.1	15		0.025	0.1	13		0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	1,300		6.8	50	1,800		6.8	50	2,100		6.8	50	1,600		6.8	50	1,700		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.36	,B,x	0.049	0.2	0.073	J,B,x	0.049	0.2	0.27	,B,x	0.049	0.2	0.15	J,B,x	0.049	0.2	0.2	,B,x	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.047	J,B,o	0.011	0.1	0.049	J,B,o	0.011	0.1	0.047	J,B,o	0.011	0.1	0.045	J,B,o	0.011	0.1	0.048	J,B,o	0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	96	J	5.4	100	150		5.4	100	43	J	5.4	100	31	J	5.4	100	30	J	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.21		0.0061	0.1	0.24		0.0061	0.1	0.25		0.0061	0.1	0.27		0.0061	0.1	0.23		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	50		0.032	0.1	62		0.065	0.2	56		0.065	0.2	54		0.065	0.2	49		0.032	0.1
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	54		0.79	5	72		0.79	5	69		0.79	5	75		0.79	5	69		0.79	5
Pesticides (mg/kg)																											
4,4'-DDT	50-29-3	--	1.7	c*	7	c*	1.74	<0.02	U	0.0003	0.02	<0.021	U	0.00032	0.021	<0.02	U	0.00031	0.02	<0.02	U	0.00031	0.02	<0.02	U	0.00031	0.02
Endrin	72-20-8	--	1.8	n	18	n	4.6	<0.02	U	0.00032	0.02	<0.021	U	0.00034	0.021	<0.02	U	0.00033	0.02	<0.02	U	0.00033	0.02	<0.02	U	0.00032	0.02
Endrin Aldehyde [2]	7421-93-4	--	1.8	n	18	n	4.6	<0.02	U	0.001	0.02	<0.021	U	0.0011	0.021	<0.02	U	0.0011	0.02	<0.02	U	0.0011	0.02	<0.02	U	0.0011	0.02
PCBs (ug/kg)																											
Aroclor 1260	11096-82-5	--	220	c	740	c	280	8.4	J	5.8	78	<82	U	6.1	82	<80	U	6	80	<80	U	6	80	<79	U	5.9	79
VOCs (ug/kg)																											
Chloroform	67-66-3	--	3.0E+02	c	1.5E+03	c	1.1E+00	<5.8	U	0.27	5.8	0.4	J	0.33	7.1	<5.3	U	0.24	5.3	0.61	J	0.27	6	<6.4	U	0.29	6.4
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	4.2	J,B,z	1.4	23	6.5	J,B,z	1.8	29	2.7	J,B,z	1.3	21	4.7	J,B,z	1.5	24	4.3	J,B,z	1.6	26
SVOCs (ug/kg)																											
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	<200	U	0.52	200	<210	U	0.56	210	<200	U	0.54	200	<200	U	0.54	200	<200	U	0.53	200
Acenaphthylene [3]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	3.5	J	1.9	20	<21	U	2	21	<20	U	2	20	<20	U	2	20	<20	U	2	20
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	6.6	J	1.3	20	<21	U	1.4	21	3.2	J	1.3	20	<20	U	1.4	20	3.5	J	1.3	20
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	6.9	J	1.6	20	<21	U	1.7	21	3.2	J	1.7	20	<20	U	1.7	20	2	J	1.7	20
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	8.5	J	3.4	20	<21	U	3.6	21	<20	U	3.5	20	<20	U	3.5	20	5.5	J	3.4	20
Benzo(g,h,i)perylene [3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	4.6	J	1.1	78	<82	U	1.1	82	<80	U	1.1	80	<80	U	1.1	80	<79	U	1.1	79
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	3.5	J	1.5	20	<21	U	1.6	21	2	J	1.5	20	<20	U	1.5	20	2.8	J	1.5	20
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	65	J,B,x	5.4	200	660		5.7	210	42	J,B,z	5.6	200	8	J,B,z	5.6	200	15	J,B,z	5.5	200
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	<200	U	5.7	200	27	J	6	210	<200	U	5.9	200	<200	U	5.9	200	6.3	J	5.8	200
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	6.6	J	4	20	<21	U	4.3	21	<20	U	4.2	20	<20	U	4.2	20	5.5	J	4.1	20
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	<200	U	29	200	93	JB,B,z	30	210	<200	U	30	200	110	JB,B,z	30	200	53	JB,B,z	29	200
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	4.6	J	0.88	20	<21	U	0.93	21	2.8	J	0.91	20	<20	U	0.91	20	10	J	0.9	20
Phenanthrene [3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<20	U	1.2	20	<21	U	1.3	21	2	J	1.3	20	<20	U	1.3	20	2.8	J	1.2	20
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	8.1	J	1.4	20	<21	U	1.5	21	2.8	J	1.4	20	<20	U	1.4	20	9.4	J	1.4	20
Cyanide (mg/kg)																											
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	1.8		0.077	0.35	0.11	J	0.082	0.37	<0.36	U	0.08	0.36	0.084	J	0.08	0.36	0.31	J	0.079	0.35
Total Organic Carbon, TOC (%)																											
Carbon, Total Organic	--	--	--	--	--	--	--	NT				0.12	J	0.0062	0.2	0.28		0.0062	0.2	NT				NT			
Percent Solids (%)																											
Percent Solids	--	--	--	--	--	--	--	86		0.1	0.1	82		0.1	0.1	84		0.1	0.1	84		0.1	0.1	85		0.1	0.1

Table 4-4
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Areas 18
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	18SB3B 8/12/2009 5-7		MDL	RL	18SB4A 8/12/2009 0-1		MDL	RL	18SB4B 8/12/2009 5-7		MDL	RL	18SB5A 8/12/2009 0-1		MDL	RL	18SB5B 8/12/2009 6-8		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																											
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	24,000		1.8	10	23,000		1.8	10	19,000		1.8	10	14,000		1.8	10	32,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.15	J	0.037	0.2	0.18	J	0.037	0.2	0.062	J	0.037	0.2	0.13	J	0.037	0.2	0.16	J	0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***1.5***	,L,m	0.03	0.1	***2***	,L,m	0.03	0.1	***1***	,L,m	0.03	0.1	***1.6***	,L,m	0.03	0.1	***2.1***	,L,m	0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	150		0.28	1	110		0.28	1	110		0.28	1	140		0.28	1	150		0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	1.2		0.035	1	1.1		0.035	1	1.2		0.035	1	0.95	J	0.035	1	1.5		0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	0.66	J	0.24	2	1.1	J	0.24	2	0.71	J	0.24	2	0.64	J	0.24	2	0.83	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	2,100		8.7	50	23,000		8.7	50	1,100		8.7	50	1,200		8.7	50	1,200		8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	37	,J,s	0.74	5	38	,J,s	0.74	5	26	,J,s	0.74	5	26	,J,s	0.74	5	47	,J,s	0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	***14***	,L,m	0.44	2	***15***	,L,m	0.44	2	9.7	,L,m	0.44	2	***14***	,L,m	0.44	2	***13***	,L,m	0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	14		0.043	0.2	19		0.043	0.2	11		0.043	0.2	11		0.043	0.2	14		0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***31,000***		0.47	10	***31,000***		0.47	10	***27,000***		0.47	10	***18,000***		0.47	10	***38,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	15	,L,m	0.049	0.2	17	,L,m	0.049	0.2	11	,L,m	0.049	0.2	15	,L,m	0.049	0.2	14	,L,m	0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	3,800		4.4	50	15,000		4.4	50	3,600		4.4	50	1,900		4.4	50	4,100		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	910		0.21	1	690		0.21	1	480		0.21	1	980		0.21	1	760		0.21	1
Mercury [1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.04	J	0.0093	0.05	0.027	J	0.0093	0.05	0.018	J	0.0093	0.05	0.017	J	0.0093	0.05	0.053		0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	15		0.025	0.1	16		0.025	0.1	16		0.025	0.1	9.3		0.025	0.1	16		0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	2,000		6.8	50	2,500		6.8	50	2,000		6.8	50	1,200		6.8	50	1,800		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.16	J,B,x	0.049	0.2	0.18	J,B,x	0.049	0.2	0.21	,B,x	0.049	0.2	0.29	,B,x	0.049	0.2	0.27	,B,x	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.047	J,B,o	0.011	0.1	0.069	J,B,o	0.011	0.1	0.041	J,B,o	0.011	0.1	0.043	J,B,o	0.011	0.1	0.046	J,B,o	0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	31	J	5.4	100	92	J	5.4	100	51	J	5.4	100	20	J	5.4	100	65	J	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.25		0.0061	0.1	0.28		0.0061	0.1	0.18		0.0061	0.1	0.17		0.0061	0.1	0.24		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	54		0.065	0.2	53		0.065	0.2	52		0.065	0.2	32		0.032	0.1	60		0.065	0.2
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	73		0.79	5	71		0.79	5	62		0.79	5	55		0.79	5	82		0.79	5
Pesticides (mg/kg)																											
4,4'-DDT	50-29-3	--	1.7	c*	7	c*	1.74	0.0012	J	0.00032	0.021	<0.021	U	0.00032	0.021	<0.021	U	0.00032	0.021	<0.019	U	0.00029	0.019	<0.021	U	0.00032	0.021
Endrin	72-20-8	--	1.8	n	18	n	4.6	<0.021	U	0.00034	0.021	<0.021	U	0.00034	0.021	<0.021	U	0.00034	0.021	0.00053	J	0.00031	0.019	<0.021	U	0.00033	0.021
Endrin Aldehyde [2]	7421-93-4	--	1.8	n	18	n	4.6	0.0023	J,J,g	0.0011	0.021	<0.021	U	0.0011	0.021	<0.021	U	0.0011	0.021	<0.019	U	0.001	0.019	<0.021	U	0.0011	0.021
PCBs (ug/kg)																											
Aroclor 1260	11096-82-5	--	220	c	740	c	280	<82	U	6.1	82	<82	U	6.1	82	<82	U	6.1	82	8.3	J	5.7	76	<82	U	6.1	82
VOCs (ug/kg)																											
Chloroform	67-66-3	--	3.0E+02	c	1.5E+03	c	1.1E+00	<6.1	U	0.28	6.1	1.1	J	0.3	6.5	0.49	J	0.28	6.1	<6.9	U	0.32	6.9	***1.2***	J	0.28	6.1
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	3.2	J,B,z	1.5	25	3.9	J,B,z	1.6	26	3.4	J,B,z	1.5	25	3.1	J	1.7	28	5.6	J,B,z	1.5	24
SVOCs (ug/kg)																											
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	<210	U	0.56	210	<210	U	0.55	210	<210	U	0.56	210	0.76	J	0.51	190	<210	U	0.55	210
Acenaphthylene [3]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<21	U	2.1	21	<21	U	2	21	<21	U	2.1	21	<19	U	1.9	19	<21	U	2	21
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	7.4	J	1.4	21	4.1	J	1.4	21	1.6	J	1.4	21	3.4	J	1.3	19	<21	U	1.4	21
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	5.3	J	1.7	21	3.7	J	1.7	21	<21	U	1.7	21	2.6	J	1.6	19	<21	U	1.7	21
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	6.6	J	3.6	21	6.5	J	3.6	21	<21	U	3.6	21	4.5	J	3.3	19	<21	U	3.6	21
Benzo(g,h,i)perylene [3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	2.9	J	1.1	82	3.3	J	1.1	82	<82	U	1.1	82	2.3	J	1.1	76	<82	U	1.1	82
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	3.3	J	1.6	21	2.8	J	1.6	21	<21	U	1.6	21	<19	U	1.5	19	<21	U	1.6	21
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	10	J,B,z	5.7	210	33	J,B,z	5.7	210	7	J,B,z	5.7	210	110	J	5.3	190	13	J,B,z	5.7	210
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	<210	U	6	210	7.7	J	6	210	<210	U	6	210	26	J	5.6	190	17	J	6	210
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	6.1	J	4.3	21	4.9	J	4.2	21	<21	U	4.3	21	<19	U	3.9	19	<21	U	4.2	21
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	38	JB,B,z	30	210	<210	U	30	210	59	JB,B,z	30	210	140	JB,B,z	28	190	190	JB,B,z	30	210
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	15	J	0.94	21	8.1	J	0.93	21	<21	U	0.94	21	3	J	0.86	19	<21	U	0.93	21
Phenanthrene [3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	9	J	1.3	21	4.9	J	1.3	21	<21	U	1.3	21	2.3	J	1.2	19	<21	U	1.3	21
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	12	J	1.5	21	8.5	J	1.5	21	<21	U	1.5	21	5.7	J	1.3	19	<21	U	1.4	21
Cyanide (mg/kg)																											
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	0.16	J	0.082	0.37	0.1	J	0.081	0.37	<0.37	U	0.082	0.37	0.11	J	0.076	0.34	<0.37	U	0.081	0.37
Total Organic Carbon, TOC (%)																											
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT				NT				NT			
Percent Solids (%)																											
Percent Solids	--	--	--	--	--	--	--	81		0.1	0.1	82		0.1	0.1	81		0.1	0.1	88		0.1	0.1	82		0.1	0.1

Table 4-4
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Areas 18
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	18SB5B-DUP (DUP-3) 8/12/2009 6-8		MDL	RL	18SB6A 8/12/2009 0-1		MDL	RL	18SB6B 8/12/2009 8-10		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																			
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	33,000		1.8	10	23,000		1.8	10	25,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.17	J	0.037	0.2	0.14	J	0.037	0.2	0.12	J	0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***2.1***	,L,m	0.03	0.1	***1.5***	,L,m	0.03	0.1	***1.8***	,L,m	0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	150		0.28	1	110		0.28	1	120		0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	1.3		0.035	1	1.2		0.035	1	1.1		0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	0.74	J	0.24	2	0.7	J	0.24	2	0.74	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	1,300		8.7	50	1,800		8.7	50	1,300		8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	45	,J,s	0.74	5	36	,J,s	0.74	5	43	,J,s	0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	***11***	,L,m	0.44	2	***13***	,L,m	0.44	2	8.7	,L,m	0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	14		0.043	0.2	14		0.043	0.2	15		0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***37,000***		0.47	10	***32,000***		0.47	10	***32,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	13	,L,m	0.049	0.2	14	,L,m	0.049	0.2	12	,L,m	0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	4,200		4.4	50	3,400		4.4	50	4,400		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	590		0.21	1	690		0.21	1	430		0.21	1
Mercury [1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.053		0.0093	0.05	0.036	J	0.0093	0.05	0.031	J	0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	17		0.025	0.1	14		0.025	0.1	16		0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	1,800		6.8	50	1,900		6.8	50	1,600		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.17	J,B,x	0.049	0.2	0.26	,B,x	0.049	0.2	0.18	J,B,x	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.051	J,B,o	0.011	0.1	0.045	J,B,o	0.011	0.1	0.051	J,B,o	0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	65	J	5.4	100	25	J	5.4	100	35	J	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.25		0.0061	0.1	0.23		0.0061	0.1	0.26		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	59		0.065	0.2	56		0.065	0.2	52		0.065	0.2
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	85		0.79	5	68		0.79	5	74		0.79	5
Pesticides (mg/kg)																			
4,4'-DDT	50-29-3	--	1.7	c*	7	c*	1.74	<0.021	U	0.00031	0.021	<0.02	U	0.00031	0.02	<0.021	U	0.00032	0.021
Endrin	72-20-8	--	1.8	n	18	n	4.6	<0.021	U	0.00033	0.021	<0.02	U	0.00033	0.02	<0.021	U	0.00034	0.021
Endrin Aldehyde [2]	7421-93-4	--	1.8	n	18	n	4.6	<0.021	U	0.0011	0.021	<0.02	U	0.0011	0.02	<0.021	U	0.0011	0.021
PCBs (ug/kg)																			
Aroclor 1260	11096-82-5	--	220	c	740	c	280	<81	U	6.1	81	<79	U	5.9	79	<82	U	6.1	82
VOCs (ug/kg)																			
Chloroform	67-66-3	--	3.0E+02	c	1.5E+03	c	1.1E+00	***2.4***	J	0.28	6.1	<5.9	U	0.27	5.9	0.62	J	0.28	6.1
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	4.9	J,B,z	1.5	24	3.2	J,B,z	1.5	24	3.9	J,B,z	1.5	24
SVOCs (ug/kg)																			
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	<210	U	0.55	210	<200	U	0.54	200	<210	U	0.55	210
Acenaphthylene [3]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<21	U	2	21	<20	U	2	20	<21	U	2	21
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	<21	U	1.4	21	2.4	J	1.3	20	<21	U	1.4	21
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	<21	U	1.7	21	<20	U	1.7	20	<21	U	1.7	21
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	<21	U	3.5	21	<20	U	3.5	20	<21	U	3.6	21
Benzo(g,h,i)perylene [3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	<81	U	1.1	81	<79	U	1.1	79	<82	U	1.1	82
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	<21	U	1.6	21	<20	U	1.5	20	<21	U	1.6	21
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	9.3	J,B,z	5.6	210	11	J	5.5	200	6.1	J,B,z	5.7	210
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	12	J	6	210	<200	U	5.8	200	<210	U	6	210
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	<21	U	4.2	21	<20	U	4.1	20	<21	U	4.2	21
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	210	B,B,z	30	210	190	JB,B,z	29	200	<210	U	30	210
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	<21	U	0.93	21	1.2	J	0.9	20	<21	U	0.93	21
Phenanthrene [3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<21	U	1.3	21	<20	U	1.2	20	<21	U	1.3	21
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	<21	U	1.4	21	1.6	J	1.4	20	<21	U	1.5	21
Cyanide (mg/kg)																			
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	0.11	J	0.081	0.36	0.1	J	0.079	0.35	<0.37	U	0.081	0.37
Total Organic Carbon, TOC (%)																			
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT			
Percent Solids (%)																			
Percent Solids	--	--	--	--	--	--	--	82		0.1	0.1	85		0.1	0.1	82		0.1	0.1

Notes:

CAS = Chemical Abstracts Service
ft bgs = Feet Below Ground Surface
mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
NT = Not Tested

[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
* = where: n SL < 100X c SL
** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = No Screening Value Available

[1] = Mercuric chloride soil RSLs value used
[2] = Endrin soil RSLs used
[3] = Pyrene soil RSLs used

= Concentration Exceeds Adjusted Soil Residential RSL

= Concentration Exceeds Adjusted Soil Industrial RSL

underline = Concentration Exceeds Facility Background Point Estimate

bold italic = Concentration Exceeds Soil-to-Groundwater Risk-based SSL (DAF 20)

Data Qualifiers:

Laboratory Qualifiers
- B Analyte found in associated blank as well as in the sample.
- J Analyte present. Reported value may not be accurate or precise.
- U The compound was analyzed for but not detected. The reporting limit will be adjusted to reflect any dilution, and for soil, the percent moisture.

Validation Qualifiers
- B Not detected substantially above the level reported in laboratory or field blanks.
- J Analyte present. Reported value may not be accurate or precise.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.

Reason Codes
- GC/MS Organics
  - x Field and/or equipment blank contamination
  - z Method blank and/or storage blank contamination
- Inorganics and Conventionals
  - o Calibration blank contamination
  - m MS/MSD recovery failure
  - s Serial dilution failure
  - x CRDL standard recovery failure
- GC and HPLC Organics
  - g Dual column confirmation imprecision
  - x Trip blank contamination

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Table 4-5
SSA 18 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil		**TAL Metals**														
	7429-90-5	Aluminum	14,000	24,000	mg/kg	18SB3A	6/6	1.8 - 1.8	24,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.13	0.46	mg/kg	18SB3A	6/6	0.037 - 0.037	0.46	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	1.5	2.6	mg/kg	18SB1A	6/6	0.03 - 0.03	2.6	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	110	150	mg/kg	18SB1A	6/6	0.28 - 0.28	150	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	0.79	1.2	mg/kg	18SB6A	6/6	0.035 - 0.035	1.2	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.64	1.3	mg/kg	18SB2A	6/6	0.24 - 0.24	1.3	7	n	80	n	IND	N	BSL
	7440-70-2	Calcium	1,200	24,000	mg/kg	18SB1A	6/6	8.7 - 8.7	24,000	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	26	38	mg/kg	18SB4A	6/6	0.74 - 0.74	38	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	11	15	mg/kg	18SB4A	6/6	0.44 - 0.44	15	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	11	19	mg/kg	18SB4A	6/6	0.043 - 0.043	19	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	18,000	32,000	mg/kg	18SB6A	6/6	0.47 - 0.47	32,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	14	26	mg/kg	18SB2A	6/6	0.049 - 0.049	26	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	1,900	15,000	mg/kg	18SB4A	6/6	4.4 - 4.4	15,000	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	600	980	mg/kg	18SB5A	6/6	0.21 - 0.21	980	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.017	0.039	mg/kg	18SB3A	6/6	0.0093 - 0.0093	0.039	2.3	ns	31	ns	IND	N	BSL
	7440-02-0	Nickel	9.3	16	mg/kg	18SB2A	6/6	0.025 - 0.025	16	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	1,200	2,500	mg/kg	18SB4A	6/6	6.8 - 6.8	2,500	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.18	0.36	mg/kg	18SB1A	6/6	0.049 - 0.049	0.36	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.043	0.069	mg/kg	18SB4A	6/6	0.011 - 0.011	0.069	39	n	510	n	IND	N	BSL
	7440-23-5	Sodium	20	96	mg/kg	18SB1A	6/6	5.4 - 5.4	96	--	--	625,700	--	RDA	N	BSL
	7440-28-0	Thallium	0.17	0.28	mg/kg	18SB4A	6/6	0.0061 - 0.0061	0.28	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	32	56	mg/kg	18SB2A	6/6	0.032 - 0.065	56	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	54	71	mg/kg	18SB4A	6/6	0.79 - 0.79	71	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	72-20-8	Endrin	5.3E-04	5.3E-04	mg/kg	18SB5A	1/6	0.00031 - 0.00034	5.3E-04	1.8E+00	n	1.8E+01	n	IND	N	BSL
		PCBs														
	11096-82-5	Aroclor 1260	8.3E-03	8.4E-03	mg/kg	18SB1A	2/6	0.0057 - 0.0061	8.4E-03	2.2E-01	c	7.4E-01	c	IND	N	BSL
		VOCs														
	67-66-3	Chloroform	1.1E-03	1.1E-03	mg/kg	18SB4A	1/6	0.00024 - 0.00032	1.1E-03	3.0E-01	c	1.5E+00	c	IND	N	BSL
	75-09-2	Methylene Chloride	2.7E-03	4.3E-03	mg/kg	18SB3A	6/6	0.0013 - 0.0017	4.3E-03	1.1E+01	c	5.4E+01	c	IND	N	BSL
		SVOCs														
	91-57-6	2-Methylnaphthalene	7.6E-04	7.6E-04	mg/kg	18SB5A	1/6	0.00051 - 0.00055	7.6E-04	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	208-96-8	Acenaphthylene	3.5E-03	3.5E-03	mg/kg	18SB1A	1/6	0.0019 - 0.002	3.5E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	56-55-3	Benzo(a)anthracene	2.4E-03	6.6E-03	mg/kg	18SB1A	6/6	0.0013 - 0.0014	6.6E-03	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	2.0E-03	6.9E-03	mg/kg	18SB1A	5/6	0.0016 - 0.0017	6.9E-03	1.5E-02	c	2.1E-01	c	IND	N	BSL
	205-99-2	Benzo(b)fluoranthene	4.5E-03	8.5E-03	mg/kg	18SB1A	4/6	0.0033 - 0.0036	8.5E-03	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [2]	2.3E-03	4.6E-03	mg/kg	18SB1A	3/6	0.0011 - 0.0011	4.6E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	2.0E-03	3.5E-03	mg/kg	18SB1A	4/6	0.0015 - 0.0016	3.5E-03	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	1.1E-02	1.1E-01	mg/kg	18SB5A	6/6	0.0053 - 0.0057	1.1E-01	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	6.3E-03	2.6E-02	mg/kg	18SB5A	3/6	0.0056 - 0.006	2.6E-02	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	4.9E-03	6.6E-03	mg/kg	18SB1A	3/6	0.0039 - 0.0042	6.6E-03	1.5E+01	c	2.1E+02	c	IND	N	BSL
	84-74-2	Di-n-butyl Phthalate	5.3E-02	1.9E-01	mg/kg	18SB6A	3/6	0.028 - 0.03	1.9E-01	6.1E+02	n	6.2E+03	n	IND	N	BSL
	206-44-0	Fluoranthene	1.2E-03	1.0E-02	mg/kg	18SB3A	6/6	0.00086 - 0.00093	1.0E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	85-01-8	Phenanthrene [2]	2.0E-03	4.9E-03	mg/kg	18SB4A	4/6	0.0012 - 0.0013	4.9E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	1.6E-03	9.4E-03	mg/kg	18SB3A	6/6	0.0013 - 0.0015	9.4E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
		Cyanide														
	57-12-5	Cyanide, Total	1.0E-01	1.8E+00	mg/kg	18SB1A	5/6	0.076 - 0.081	1.8E+00	1.6E+02	n	2.0E+03	n	IND	N	BSL

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
c* = where: n SL < 100X c SL
c** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = No Screening Value Available

[1] = Mercuric chloride soil RSLs value used
[2] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 4-6
SSA 18 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Total Soil		**TAL Metals**														
	7429-90-5	Aluminum	14,000	32,500	mg/kg	18SB5B DUP AVG	14/14	1.8 - 180	32,500	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.062	1.3	mg/kg	ATK-SUB-SB08	13/14	0.037 - 0.037	1.3	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	1	3	mg/kg	ATK-SS-SB08	14/14	0.03 - 0.03	3	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	110	150	mg/kg	18SB1A	14/14	0.28 - 0.28	150	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	0.79	1.4	mg/kg	18SB5B DUP AVG	14/14	0.035 - 0.035	1.4	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.47	1.3	mg/kg	18SB2A	14/14	0.24 - 0.24	1.3	7	n	80	n	IND	N	BSL
	7440-70-2	Calcium	1,100	24,000	mg/kg	18SB1A	12/12	8.7 - 8.7	24,000	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	26	46	mg/kg	18SB5B DUP AVG	14/14	0.74 - 0.74	46	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	8.7	32	mg/kg	18SB2B	14/14	0.44 - 0.44	32	2.3	n	30	n	IND	Y	***ARES/IND***
	7440-50-8	Copper	11	19	mg/kg	18SB4A	14/14	0.043 - 0.043	19	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	18,000	37,500	mg/kg	18SB5B DUP AVG	14/14	0.47 - 230	37,500	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	9.1	26	mg/kg	18SB2A	14/14	0.049 - 0.049	26	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	1,900	15,000	mg/kg	18SB4A	12/12	4.4 - 4.4	15,000	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	430	2,300	mg/kg	18SB2B	14/14	0.21 - 21	2,300	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.013	0.053	mg/kg	18SB5B DUP AVG	14/14	0.0093 - 0.0093	0.053	2.3	ns	31	ns	IND	N	BSL
	7440-02-0	Nickel	9.3	18	mg/kg	18SB1B	14/14	0.025 - 0.025	18	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	1,200	2,500	mg/kg	18SB4A	12/12	6.8 - 6.8	2,500	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.073	0.36	mg/kg	18SB1A	12/14	0.049 - 0.049	0.36	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.041	0.069	mg/kg	18SB4A	12/12	0.011 - 0.011	0.069	39	n	510	n	IND	N	BSL
	7440-23-5	Sodium	20	150	mg/kg	18SB1B	12/12	5.4 - 5.4	150	--	--	625,700	--	RDA	N	BSL
	7440-28-0	Thallium	0.17	0.28	mg/kg	18SB4A	12/14	0.0061 - 0.0061	0.28	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	32	62	mg/kg	18SB1B	14/14	0.032 - 0.065	62	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	54	83.5	mg/kg	18SB5B DUP AVG	14/14	0.79 - 0.79	84	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	50-29-3	4,4'-DDT	1.2E-03	1.2E-03	mg/kg	18SB3B	1/12	0.00029 - 0.00032	1.2E-03	1.7E+00	c*	7.0E+00	c*	IND	N	BSL
	72-20-8	Endrin	5.3E-04	5.3E-04	mg/kg	18SB5A	1/12	0.00031 - 0.00034	5.3E-04	1.8E+00	n	1.8E+01	n	IND	N	BSL
	7421-93-4	Endrin Aldehyde [2]	2.3E-03	2.3E-03	mg/kg	18SB3B	1/12	0.001 - 0.0011	2.3E-03	1.8E+00	n	1.8E+01	n	IND	N	BSL
		PCBs														
	11096-82-5	Aroclor 1260	8.3E-03	8.4E-03	mg/kg	18SB1A	2/12	0.0057 - 0.0061	8.4E-03	2.2E-01	c	7.4E-01	c	IND	N	BSL
		VOCs														
	67-66-3	Chloroform	4.0E-04	1.8E-03	mg/kg	18SB5B DUP AVG	6/12	0.00024 - 0.00033	1.8E-03	3.0E-01	c	1.5E+00	c	IND	N	BSL
	75-09-2	Methylene Chloride	2.7E-03	6.5E-03	mg/kg	18SB1B	12/12	0.0013 - 0.0018	6.5E-03	1.1E+01	c	5.4E+01	c	IND	N	BSL
		SVOCs														
	91-57-6	2-Methylnaphthalene	7.6E-04	7.6E-04	mg/kg	18SB5A	1/12	0.00051 - 0.00056	7.6E-04	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	208-96-8	Acenaphthylene	3.5E-03	3.5E-03	mg/kg	18SB1A	1/12	0.0019 - 0.0021	3.5E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	56-55-3	Benzo(a)anthracene	1.6E-03	7.4E-03	mg/kg	18SB3B	8/12	0.0013 - 0.0014	7.4E-03	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	2.0E-03	6.9E-03	mg/kg	18SB1A	6/12	0.0016 - 0.0017	6.9E-03	1.5E-02	c	2.1E-01	c	IND	N	BSL
	205-99-2	Benzo(b)fluoranthene	4.5E-03	8.5E-03	mg/kg	18SB1A	5/12	0.0033 - 0.0036	8.5E-03	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [4]	2.3E-03	4.6E-03	mg/kg	18SB1A	4/12	0.0011 - 0.0011	4.6E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	2.0E-03	3.5E-03	mg/kg	18SB1A	5/12	0.0015 - 0.0016	3.5E-03	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	6.1E-03	6.6E-01	mg/kg	18SB1B	12/12	0.0053 - 0.0057	6.6E-01	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	6.3E-03	2.7E-02	mg/kg	18SB1B	5/12	0.0056 - 0.006	2.7E-02	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	4.9E-03	6.6E-03	mg/kg	18SB1A	4/12	0.0039 - 0.0043	6.6E-03	1.5E+01	c	2.1E+02	c	IND	N	BSL
	84-74-2	Di-n-butyl Phthalate	3.8E-02	2.0E-01	mg/kg	18SB5B DUP AVG	8/12	0.028 - 0.03	2.0E-01	6.1E+02	n	6.2E+03	n	IND	N	BSL
	206-44-0	Fluoranthene	1.2E-03	1.5E-02	mg/kg	18SB3B	7/12	0.00086 - 0.00094	1.5E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	85-01-8	Phenanthrene [4]	2.0E-03	9.0E-03	mg/kg	18SB3B	5/12	0.0012 - 0.0013	9.0E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	1.6E-03	1.2E-02	mg/kg	18SB3B	7/12	0.0013 - 0.0015	1.2E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
		Cyanide														
	57-12-5	Cyanide, Total	7.5E-02	1.8E+00	mg/kg	18SB1A	9/12	0.076 - 0.082	1.8E+00	1.6E+02	n	2.0E+03	n	IND	N	BSL

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
c* = where: n SL < 100X c SL
c** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = No Screening Value Available

[1] = Mercuric chloride soil RSLs value used
[2] = Endrin soil RSLs used
[3] = Aroclor 1254 Noncancer Soil Residential RSL used
[4] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 4-7
SSA 18 Cumulative HHRS (Surface Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	6/6	24,000	77,000	n	990,000	n	3.E-01	--	2.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	6/6	2.6	0.39	c	1.6	c	--	7.E-06	--	2.E-06	--
7440-38-2	Arsenic	mg/kg	6/6	2.6	22	n	260	n	1.E-01	--	1.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	6/6	15	23	n	300	n	7.E-01	--	5.E-02	--	blood
7439-89-6	Iron	mg/kg	6/6	32,000	55,000	n	720,000	n	6.E-01	--	4.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	6/6	980	1,800	n	23,000	n	5.E-01	--	4.E-02	--	CNS
7440-62-2	Vanadium	mg/kg	6/6	56	550	n	7,200	n	1.E-01	--	8.E-03	--	kidney
							Cumulative Risk/Hazard		2.E+00	7.E-06	2.E-01	2.E-06	

Target Organ Segregation

Total blood HI =	**1.2**	Total blood HI =	0.09
Total CNS HI =	**0.9**	Total CNS HI =	0.07
Total skin HI =	0.1	Total skin HI =	0.01
Total vascular HI =	0.1	Total vascular HI =	0.01
Total kidney HI =	0.1	Total kidney HI =	0.01
Total GI Tract HI =	**0.6**	Total GI Tract HI =	0.04
Total liver HI =	**0.6**	Total liver HI =	0.04

Notes:

mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 4-8
SSA 18 Cumulative HHRS (Total Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	14/14	32,500	77,000	n	990,000	n	4.E-01	--	3.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	14/14	3	0.39	c	1.6	c	--	8.E-06	--	2.E-06	--
7440-38-2	Arsenic	mg/kg	14/14	3	22	n	260	n	1.E-01	--	1.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	14/14	32	23	n	300	n	1.E+00	--	1.E-01	--	blood
7439-89-6	Iron	mg/kg	14/14	37,500	55,000	n	720,000	n	7.E-01	--	5.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	14/14	2,300	1,800	n	23,000	n	1.E+00	--	1.E-01	--	CNS
7440-62-2	Vanadium	mg/kg	14/14	62	550	n	7,200	n	1.E-01	--	9.E-03	--	kidney
							Cumulative Risk/Hazard		4.E+00	8.E-06	3.E-01	2.E-06	

Target Organ Segregation

Total blood HI =	**2**	Total blood HI =	0.16
Total CNS HI =	**2**	Total CNS HI =	0.13
Total skin HI =	0.1	Total skin HI =	0.01
Total vascular HI =	0.1	Total vascular HI =	0.01
Total kidney HI =	0.1	Total kidney HI =	0.01
Total GI Tract HI =	**0.7**	Total GI Tract HI =	0.1
Total liver HI =	**0.7**	Total liver HI =	0.05

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 4-9
SSA 18 Cumulative HHRS (Groundwater)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	Tap Water RSL	C/N	Non Carcinogenic HI	Excess Cancer Risk	Noncarcinogenic Target Organ
67-66-3	Chloroform	ug/L	2/2	18	0.19	C	--	9.E-05	--
14797-79-0	Perchlorate	ug/L	2/2	3.59	25.55	N	1.E-01	--	thyroid
							1.E-01	9.E-05	
Target Organ Segregation						Total thyroid HI =	0.1		

Notes:

µg/L = Microgram Per Kilogram
CAS = Chemical Abstracts Service
MDC = Maximum Detected Concentration
HI = Hazard Index
RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 4-10
SSA 18 SSL Screening Results for Subsurface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	Facility Background [A]	SSL (DAF 20)	Minimum Detected Concentration	Maximum Detected Concentration	# of Samples Above SSL	# of Detections	# of Samples
TAL Metals (mg/kg)								
Aluminum	7429-90-5	40,041	1,100,000	17,700	32,500	0	8	8
Antimony	7440-36-0	--	13.2	0.062	1.3	0	7	8
Arsenic	7440-38-2	15.8	0.026	1	3	**8**	8	8
Barium	7440-39-3	209	6,000	110	150	0	8	8
Beryllium	7440-41-7	1.02	1,160	1.1	1.4	0	8	8
Cadmium	7440-43-9	0.69	--	0.47	1	**--**	8	8
Calcium	7440-70-2	--	--	1,100	15,000	**--**	6	6
Chromium	7440-47-3	65.3	--	26	46	**--**	8	8
Cobalt	7440-48-4	72.3	9.8	8.7	32	**5**	8	8
Copper	7440-50-8	53.5	1,020	11	17.6	0	8	8
Iron	7439-89-6	50,962	12,800	25,300	37,500	**8**	8	8
Lead	7439-92-1	26.8	--	9.1	18	**--**	8	8
Magnesium	7439-95-4	--	--	3,300	12,000	**--**	6	6
Manganese	7439-96-5	2,543	1,140	430	2,300	**2**	8	8
Mercury [1]	7439-97-6	0.13	0.6	0.013	0.053	0	8	8
Nickel	7440-02-0	62.8	960	12.5	18	0	8	8
Potassium	7440-09-7	--	--	1,600	2,000	**--**	6	6
Selenium	7782-49-2	--	19	0.073	0.22	0	6	8
Silver	7440-22-4	--	32	0.041	0.051	0	6	6
Sodium	7440-23-5	--	--	31	150	**--**	6	6
Thallium	7440-28-0	2.11	3.4	0.18	0.27	0	6	8
Vanadium	7440-62-2	108	5,200	50.4	62	0	8	8
Zinc	7440-66-6	202	13,600	58.3	83.5	0	8	8
Pesticides (mg/kg)								
4,4'-DDT	50-29-3	--	1.7E+00	0.0012	0.0012	0	1	6
Endrin Aldehyde [2]	7421-93-4	--	4.6E+00	0.0023	0.0023	0	1	6
VOCs (ug/kg)								
Chloroform	67-66-3	--	1.1E+00	0.4	1.8	0	5	6
Methylene Chloride	75-09-2	--	2.4E+01	3.2	6.5	0	6	6
SVOCs (ug/kg)							0	0
Benzo(a)anthracene	56-55-3	--	2.8E+02	1.6	7.4	0	2	6
Benzo(a)pyrene	50-32-8	--	9.2E+01	5.3	5.3	0	1	6
Benzo(b)fluoranthene	205-99-2	--	9.4E+02	6.6	6.6	0	1	6
Benzo(g,h,i)perylene [3]	191-24-2	--	3.0E+06	2.9	2.9	0	1	6
Benzo(k)fluoranthene	207-08-9	--	9.2E+03	3.3	3.3	0	1	6
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.2E+04	6.1	660	0	6	6
Butyl Benzyl Phthalate	85-68-7	--	1.3E+04	14.5	27	0	2	6
Chrysene	218-01-9	--	2.8E+04	6.1	6.1	0	1	6
Di-n-butyl Phthalate	84-74-2	--	2.2E+05	38	200	0	5	6
Fluoranthene	206-44-0	--	4.2E+06	15	15	0	1	6
Phenanthrene [3]	85-01-8	--	3.0E+06	9	9	0	1	6
Pyrene	129-00-0	--	3.0E+06	12	12	0	1	6
Cyanide (mg/kg)								
Cyanide, Total	57-12-5	--	1.5E+02	0.07525	0.16	0	4	6

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
SSL = Risk-based Soil Screening Level from April 2009 RSL Table
DAF 20 = Dilution Attenuation Factor of 20
-- = No Value Available
[1] = Mercuric chloride soil SSL used
[2] = Endrin soil SSL used
[3] = Pyrene soil SSL used
(A) = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

Table 4-11
SSA 18 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Surface Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Surface Soil	Maximum Concentration Surface Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	14,000	24,000	mg/kg	18SB3A	6/6	1.8 - 1.8	24,000	40,041	N
7440-36-0	Antimony	0.13	0.46	mg/kg	18SB3A	6/6	0.037 - 0.037	0.46	--	NBE
7440-38-2	Arsenic	1.5	2.6	mg/kg	18SB1A	6/6	0.03 - 0.03	2.6	15.8	N
7440-39-3	Barium	110	150	mg/kg	18SB1A	6/6	0.28 - 0.28	150	209	N
7440-41-7	Beryllium	0.79	1.2	mg/kg	18SB6A	6/6	0.035 - 0.035	1.2	1.02	**Y**
7440-43-9	Cadmium	0.64	1.3	mg/kg	18SB2A	6/6	0.24 - 0.24	1.3	0.69	**Y**
7440-47-3	Chromium	26	38	mg/kg	18SB4A	6/6	0.74 - 0.74	38	65.3	N
7440-48-4	Cobalt	11	15	mg/kg	18SB4A	6/6	0.44 - 0.44	15	72.3	N
7440-50-8	Copper	11	19	mg/kg	18SB4A	6/6	0.043 - 0.043	19	53.5	N
7439-89-6	Iron	18,000	32,000	mg/kg	18SB6A	6/6	0.47 - 0.47	32,000	50,962	N
7439-92-1	Lead	14	26	mg/kg	18SB2A	6/6	0.049 - 0.049	26	26.8	N
7439-96-5	Manganese	600	980	mg/kg	18SB5A	6/6	0.21 - 0.21	980	2,543	N
7439-97-6	Mercury	0.017	0.039	mg/kg	18SB3A	6/6	0.0093 - 0.0093	0.039	0.13	N
7440-02-0	Nickel	9.3	16	mg/kg	18SB2A	6/6	0.025 - 0.025	16	62.8	N
7782-49-2	Selenium	0.18	0.36	mg/kg	18SB1A	6/6	0.049 - 0.049	0.36	--	NBE
7440-22-4	Silver	0.043	0.069	mg/kg	18SB4A	6/6	0.011 - 0.011	0.069	--	NBE
7440-28-0	Thallium	0.17	0.28	mg/kg	18SB4A	6/6	0.0061 - 0.0061	0.28	2.11	N
7440-62-2	Vanadium	32	56	mg/kg	18SB2A	6/6	0.032 - 0.065	56	108	N
7440-66-6	Zinc	54	71	mg/kg	18SB4A	6/6	0.79 - 0.79	71	202	N

Table 4-11
SSA 18 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Total Soil	Maximum Concentration Total Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	14,000	32,500	mg/kg	18SB5B DUP AVG	14/14	1.8 - 180	32,500	40,041	N
7440-36-0	Antimony	0.062	1.3	mg/kg	ATK-SUB-SB08	13/14	0.037 - 0.037	1.3	--	NBE
7440-38-2	Arsenic	1	3	mg/kg	ATK-SS-SB08	14/14	0.03 - 0.03	3	15.8	N
7440-39-3	Barium	110	150	mg/kg	18SB1A	14/14	0.28 - 0.28	150	209	N
7440-41-7	Beryllium	0.79	1.4	mg/kg	18SB5B DUP AVG	14/14	0.035 - 0.035	1.4	1.02	**Y**
7440-43-9	Cadmium	0.47	1.3	mg/kg	18SB2A	14/14	0.24 - 0.24	1.3	0.69	**Y**
7440-47-3	Chromium	26	46	mg/kg	18SB5B DUP AVG	14/14	0.74 - 0.74	46	65.3	N
7440-48-4	Cobalt	8.7	32	mg/kg	18SB2B	14/14	0.44 - 0.44	32	72.3	N
7440-50-8	Copper	11	19	mg/kg	18SB4A	14/14	0.043 - 0.043	19	53.5	N
7439-89-6	Iron	18,000	37,500	mg/kg	18SB5B DUP AVG	14/14	0.47 - 230	37,500	50,962	N
7439-92-1	Lead	9.1	26	mg/kg	18SB2A	14/14	0.049 - 0.049	26	26.8	N
7439-96-5	Manganese	430	2,300	mg/kg	18SB2B	14/14	0.21 - 21	2,300	2,543	N
7439-97-6	Mercury	0.013	0.053	mg/kg	18SB5B DUP AVG	14/14	0.0093 - 0.0093	0.053	0.13	N
7440-02-0	Nickel	9.3	18	mg/kg	18SB1B	14/14	0.025 - 0.025	18	62.8	N
7782-49-2	Selenium	0.073	0.36	mg/kg	18SB1A	12/14	0.049 - 0.049	0.36	--	NBE
7440-22-4	Silver	0.041	0.069	mg/kg	18SB4A	12/12	0.011 - 0.011	0.069	--	NBE
7440-28-0	Thallium	0.17	0.28	mg/kg	18SB4A	12/14	0.0061 - 0.0061	0.28	2.11	N
7440-62-2	Vanadium	32	62	mg/kg	18SB1B	14/14	0.032 - 0.065	62	108	N
7440-66-6	Zinc	54	84	mg/kg	18SB5B DUP AVG	14/14	0.79 - 0.79	84	202	N

Notes:

CAS = Chemical Abstracts Service
TAL = Target Analyte List
NBE = No Background Estimate Available
mg/kg = Milligram Per Kilogram
[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

5.0 SSA 72 OLEUM PLANT ACIDIC WASTEWATER SUMP

5.1 SITE BACKGROUND – ENVIRONMENTAL SETTING

5.1.1 Site Description

SSA 72, the Oleum Plant Acidic Wastewater Sump, is located in the northwest section of the MMA approximately 400 to 600 ft east of the New River (Figure 1-1). Acidic wastewater generated in TNT manufacturing was conveyed by underground sewers to the acidic wastewater sump (SSA 72). Wastewater collected in the sump was then discharged by gravity sewer to the SAR Wastewater Treatment Facility (see Section 4.0) for treatment.

Figure 5-1 shows the layout of the SSA 72 area which encompasses approximately 0.1 acre. The acidic wastewater sump is located near the northwest corner of Building 4429 within the SAR Plant area. Sump dimensions are approximately 9.5 ft long, 5 ft wide and 6 ft deep. The inside of the reinforced concrete sump is lined with 2-inch thick acid resistant brick. Design plans indicate that the top elevation of the concrete sump is 1,747.17 ft msl. The top of the sump has a manhole for access with the remaining portions covered with grates. Twelve inch diameter acid sewer lines enter the sump. Acidic wastewater discharges from the sump via a 6-inch diameter, gravity acid sewer line (at 6.63% grade), which runs 260 ft north to the SAR Acidic Wastewater Treatment Plant (SSA 18). The sewer daylights through a headwall and discharges into the steel, aboveground wastewater surge tank at SSA 18. Sewer profiles indicate an invert elevation of 1,742.17 ft msl for the 6-inch line exiting the sump and an invert elevation of 1,726.3 ft msl where the line enters the surge tank (Figure 5-2). A site photographic log for SSA 72 is included in Appendix B.

5.1.2 Site History

The SAR Plant and the associated acid wastewater collection system (including SSA 79) operated from 1976 until 1987, when these facilities were rendered inactive due to TNT manufacturing operations ceasing at RFAAP in 1986.

Plant wastewater utilities, acid area, and environmental personnel were consulted to determine if any spills or cleanup actions have occurred at SSA 72. No employees recalled any chemical or wastewater spills or cleanup actions from these facilities during their years of operation.

Aerial photographs of the SSA 72 area for 1949, 1962, 1971, 1986, and 1990 are presented on Figures 5-3, 5-4, 5-5, 5-6, and 5-7, respectively. Photographs from 1949 and 1962 show the site area is undeveloped and surrounding by storage buildings related to manufacturing operations. The 1971 photograph shows the SAR Plant under construction and the SSA 72 area developed. More recent aerial photographs from 1986 and 1990 show the SSA 72 area in their general current configuration.

5.1.3 Surface Water

The closest natural surface water body to SSA 72 is the New River, which is located approximately 400 to 600 ft west/northwest of the site. SSA 72 is located at elevations above the 100 year floodplain of the New River (USHUD 1978).

Stormwater drains or catch basins are not associated with the SSA 72. The top of the sump is raised above the ground surface so that stormwater runoff will not flow into the sump. Water is present in the sump and water samples have been collected from the sump during previous investigations conducted at the Oleum Plant in 2004 and 2007 as discussed in Section 5.2. The limited water present in the sump is likely an accumulation of rainwater due to the grated opening atop the sump. During the dry season when rainfall accumulations are minimal, the sump does not contain water.

5.1.4 Soil

According to the *Soil Survey of Montgomery County, Virginia* (USDA 1985), the area of SSA 72 is underlain by Unison-Urban Land complex soil. This soil has moderate permeability and medium-to-

strong acidity. Soil classification is not practical in urban land areas because the original soil has been physically altered or obscured. A typical profile of undisturbed Unison soil consists of a 15-inch thick surface layer of dark brown loam and a 43-inch thick subsoil of yellowish-red, sticky plastic clay underlain by a red sandy clay loam to a depth of 58 inches. In general, permeability is moderate in Unison soil, natural fertility is low, and organic matter content is low to moderate.

5.1.5 Geology

Geologic conditions were previously investigated in the Oleum Plant and surrounding areas for an EBS conducted by EEI in 2007 (EEI 2007). This investigation indicated that the site area is underlain by approximately 25 to 30 ft of alluvial terrace deposits consisting of ML/CL to depths up to 19 ft bgs underlain by SM. Limestone/dolomite bedrock of the Elbrook Formation is present at approximate depths of 25 to 30 ft. Appendix D.2.2 includes boring logs for the EBS investigation conducted by EEI. Three shallow soil borings (8 to 10 ft bgs) were completed for the SSP investigation and confirmed the presence of fine-grained alluvial deposits (silt) to the depths explored. Appendix D.2.1 includes boring logs for the SSP investigation.

5.1.6 Hydrogeology

Six monitoring wells were installed for the EBS conducted in the Oleum Plant and surrounding areas by EEI (EEI 2007). Figure 5-8 shows the locations of the monitoring wells. Groundwater monitoring well construction and water level measurement data from the EBS are summarized in Table 4-1. Groundwater was encountered under water table conditions within the lower portion of the alluvium in the area of SSA 18, where measured static water levels were approximately 24 to 26 ft bgs. South of SSA 18 at higher elevations in the SAR Plant area groundwater was encountered within bedrock but not alluvium with potentiometric levels greater than 30 ft bgs. In the EBS Report, EEI indicated an implied groundwater flow direction of approximately 15 degrees north of west based on triangulation of potentiometric data from the three monitoring wells screened within bedrock. A similar groundwater flow direction was implied for groundwater within the alluvium. Appendix D.2.2 includes boring logs and construction data for monitoring wells installed for the EBS.

5.2 PREVIOUS INVESTIGATIONS

5.2.1 RCRA Facility Assessment – USEPA 1987

An assessment was conducted at SSA 72 (listed as Unit 72 in RFA) to evaluate potential hazardous waste or hazardous chemical releases and implement corrective actions, as necessary. The assessment consisted of a preliminary review and evaluation of available site information, personnel interviews, and a visual inspection of the site. Environmental samples were not collected at SSA 72 as part of the inspection. The RFA indicated that no visible signs of releases were observed during the site inspection.

5.2.2 Acid Sewer Survey

From 1998 to 2000, an Acid Sewer Survey and Investigation was conducted on the entire RFAAP acid sewer infrastructure to determine the condition of the sewers. Videotaping of the interior lines was conducted and submitted to the USEPA. An assessment of the 260 ft long 6-inch diameter plastic, gravity acid sewer line that extends from the acidic wastewater sump (SSA 72) to the SAR wastewater treatment plant (SSA 18) was not conducted as part of the acid sewer survey. Deteriorated or broken sections of sewer lines were repaired or replaced within active areas. No actions were undertaken in the area of SSA 72 due to the inactive status of the SAR Plant wastewater system and treatment facility.

5.2.3 Oleum Plant Site Screening Investigation - Draper Aden Associates 2004

In June 2004, Draper Aden Associates advanced four soil borings (B-1, B-2, B-3, and B-4) within the vicinity of the process sewers in the Oleum Plant. Soil samples were collected from the surface and the approximate depth of the sewer invert (6 ft bgs). The soil samples were analyzed for TCL VOCs, TCL SVOCs, PAHs, explosives, and TAL inorganics by SW-846 Methods. One surface soil sample (B-4) also

was analyzed for TCL pesticides and TCL PCBs by SW-846 Methods. Samples B-1, B-2, and B-4 were collected near sumps not associated with SSA 72 and are therefore not applicable to the site. Boring B-3 which was completed adjacent to the Oleum Plant Acidic Wastewater Sump (SSA 72) is presented on Figure 5-8. In addition, one water sample (B-3 Drain) was collected from the acidic wastewater sump and analyzed for perchlorate by USEPA Method 314.0.

Detected results for B-3 surface and subsurface soil samples collected at SSA 72 are summarized in Table 5-1. VOCs, SVOCs, and metals were detected these soil samples. Organic constituents detected in B-3 samples above their adjusted R-RSLs were limited to three PAHs, with benzo(a)pyrene also detected at a concentration above its current adjusted I-RSL. Detected metals concentrations were below their adjusted R-RSLs or their facility background point estimates. Perchlorate was not detected in the water sample collected from the acidic wastewater sump (Table 5-2).

5.2.4 Oleum Plant Environmental Baseline Study – Ecology and Environment, Inc. 2007

The study area for this EBS was focused on the Oleum Plant area and included the collection of soil and groundwater samples from a study area encompassing SSA 18 (see Section 4.0) and a water sample from the acidic wastewater sump at SSA 72. Water samples were analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, TLC pesticides, explosives, TAL metals, nitrate/nitrite, and perchlorate. The groundwater samples reflect general conditions at the Oleum Plant. The groundwater results are discussed previously in Section 4.2.3.

Detected results from the water sample collected from the acidic wastewater sump at SSA 72 are summarized in Table 5-2. VOCs, SVOCs, pesticides, explosives, and metals were detected in this sample. Alpha-BHC and heptachlor were detected above their adjusted T-RSLs in addition to nine metals. Arsenic and antimony were detected at concentrations above their MCLs and lead was detected at a concentration above its action level.

5.3 WORK PLAN DATA GAP ANALYSIS

The data gap analysis presented in WPA 028 indicated that limited soil sampling and analyses had occurred at SSA 72 (URS 2009). The data gap analysis completed for SSA 72 identified data gaps for characterizing releases to surface soil and subsurface soil, and characterizing physical and geotechnical properties of site soil.

5.3.1 Release Assessment to Surface Soil

At SSA 72, the surface soil sample collected adjacent to SSA 72 as part of the Oleum Plant Site Screening Investigation (Draper Aden 2004) was not analyzed for TCL PCBs or pesticides. This data gap was filled by collecting another surface sample from this location for analysis of PCBs and pesticides. Field investigation activities are discussed in Section 5.4.

5.3.2 Release Assessment to Subsurface Soil

At SSA 72, the subsurface sample B-3 collected by Draper Aden adjacent to the acidic water sump was collected below the invert depth of the sewer leaving the sump but not significantly below the depth of the sump bottom (Draper Aden 2004). In addition, subsurface sampling had not been conducted along the sewer running from SSA 72 to SSA 18. These data gaps were filled by completing additional soil borings to evaluate potential releases to subsurface soil in these areas and collecting subsurface soil samples for chemical analysis. Field investigations activities are discussed in Section 5.4.

5.3.3 Release Assessment to Groundwater

Release assessments to groundwater were conducted by evaluating subsurface soil data and comparing these data to USEPA Region III soil-to-groundwater SSLs.

5.3.4 Physical Soil Testing

Physical samples were collected at adjacent site SSA 18, which has the same soil type and characteristics as SSA 72.

5.3.5 Summary of Data Gaps

The following table summarizes these identified data gaps and the completion plan to fill the data gaps from WPA 028 (URS 2009).

SSA 72 - Summary of Data Gap Analysis and Completion Plan

DATA GAPS			COMPLETION PLAN
Item	**Physical**	**Chemical**	
Releases to Soil	Surface Soil Samples	Chemical Data –PCBs, pesticides	Collect surface soil sample adjacent to SSA 72 for chemical analysis
	Subsurface Soil Samples	Chemical Data –VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect subsurface soil samples from area of SSA 72 for chemical analysis.
Sewer Pipe Integrity	No Closed Circuit Television (CCTV) of Sewer Line	Not applicable	Complete CCTV inspection of sewer line to evaluate line integrity.
Releases to Groundwater	Subsurface Soil Samples	Use subsurface soil sample data and existing groundwater data	Compare subsurface soil data to soil-to-groundwater SSLs.

5.4 SSP FIELD ACTIVITIES

Three borings were advanced in and around the site to evaluate for the presence or absence of chemicals in soil potentially associated with historical activities at the sites (Figure 5-9). Borings were advanced using a skid steer-mounted, direct-push Geoprobe® unit. Discrete samples were collected from surface and/or intermediate intervals for the borings as summarized below.

SSAs 72 Sample and Boring Information

Boring ID	Total Depth of Boring (ft bgs)	Surface Sample ID	Sample Depth (ft bgs)	Intermediate Sample ID	Sample Depth (ft bgs)
72SB1	10	72SB1A	0-1	72SB1B	8-10
72SB2	10	--	--	72SB2B	8-10
72SB3	8	--	--	72SB3B	6-8

One surface soil sample was collected from the following location to evaluate potential releases at SSA 72:

- Sample 72SB1A was collected adjacent to the acidic wastewater sump at the previous Draper Aden sample location for PCB and pesticide analysis.

Three subsurface soil samples were collected from the following locations to evaluate potential releases at SSA 72:

- Sample 72SB1B was collected from a direct push boring completed at the location of surface soil sample 72SB1A at a depth of 8 to 10 ft bgs; and
- Samples 72SB2B and 72SB3B were collected from direct push borings completed along the sewer alignment between SSA 72 and SSA 18 at depths of 2 to 4 ft below the bottom of the sewer pipe.

Soil samples were analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, TCL pesticides, explosives (including nitroglycerin and PETN), and TAL inorganics. Surface soil sample 72SB1A was collected adjacent to the acidic wastewater sump at the previous Draper Aden sample location and analyzed for TCL PCBs and TCL pesticides. Analytical results (detected chemicals) used for the SSP are summarized in Table 5-3. Physical samples were collected at adjacent site SSA 18, which has the same soil type and characteristics as SSA 72.

During field sampling activities, modifications to the Work Plan were necessary to adjust for field conditions. During the CCTV inspection of the 6-inch acid sewer line, a blockage was noted 3 feet into the line so the CCTV inspection of the line could not be completed. Therefore, subsurface samples (72SB2B and 72SB3B) were collected from the sample locations as presented in WPA 028 (URS 2009), as shown on Figure 5-9 of this report.

5.5 CONCEPTUAL SITE MODEL (CSM)

A CSM for SSA 72 is presented on Figure 5-10. The site is located on an alluvial terrace approximately 400 to 600 ft east of the New River. Approximately 30 ft of alluvial terrace deposits overlies limestone/dolomite bedrock at the site. Groundwater is present within the lower portion of the alluvium and within underlying bedrock at depths of approximately 25 to 26 ft bgs.

Potential constituent sources at the site are related to handling of acidic wastewater in the sewer system. Potentially affected media at the site include:

- Subsurface soil from any constituents released to surface soil;
- Subsurface soil from possible leaks from below ground sumps, wastewater drains or wastewater lines; and
- Groundwater via leaching of constituents from subsurface soil.

Although current and likely future land-use scenarios are limited to industrial operations, both residential and industrial scenarios will be evaluated in the SSP human health screening (USEPA 2001).

SSA 72 is exclusively an upland habitat that lacks wetland and significant onsite drainage features. Therefore, soil represents the potential exposure medium for ecological receptors. An ECSM is provided in Section 3.0, Figure 3-1.

5.6 HUMAN HEALTH RISK SCREENING

5.6.1 Identification of COPCs

Tables 5-4 and 5-5 present the results of the COPC evaluations for surface soil and total soil, respectively. COPCs identified for surface soil and total soil included:

TAL metals: aluminum, arsenic, cobalt, iron, manganese, thallium, vanadium;

TCL Pesticides: none;

TCL PCBs: Aroclor 1254;

TCL VOCs: none;

TAL SVOCs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene; and

Explosives: none.

Release assessment to groundwater was conducted by evaluating subsurface soil data and comparing these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table (USEPA 2009; Section 5.6.4).

5.6.2 Cumulative Risk Screen

The cumulative risk screening for surface soil is presented on Table 5-6. The cumulative risk screening for total soil is presented on Table 5-7. A summary of the screening results is presented below:

Cumulative Human Health Risk Screening Results for Soil

	Surface Soil			Total Soil		
	Above/ Below/ Equal	**Risk/ Hazard**	**Drivers**	**Above/ Below/ Equal**	**Risk/ Hazard**	**Drivers**
Residential Risk	Above	4.E-05	Arsenic, Benzo(a)pyrene	Above	4.E-05	Arsenic, Benzo(a)pyrene
Industrial Risk	Below	4.E-06	--	Below	5.E-06	--
Residential Hazard	Above	2	Aluminum, Cobalt, Iron, Manganese	Above	3	Aluminum, Cobalt, Iron, Manganese, Aroclor 1254
Industrial Hazard	Below	0.2	--	Below	0.2	--

*Note: Above, below, or equal to established SSP risk and hazard levels.

The cumulative human health risk screens were above the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the residential scenario for surface and total soil. Cumulative risk screenings were below the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the industrial scenarios. The risk/hazard drivers identified in the table above are those chemicals that primarily contribute to HIs or risks greater than the established SSP hazard level of 1 or risk level of 1E-05, respectively.

Due to multiple chemicals contributing to a residential HI greater than 1, as presented on Table 5-6 (surface soil) and Table 5-7 (total soil), the HIs have been segregated based on primary target organs for chronic exposure. The HI segregation for surface soil resulted in values equal to or higher than the cumulative SSP HI target organ threshold of 0.5 for the following target organs: blood, CNS, GI tract, and liver. The HI segregation for total soil resulted in values equal to or higher than the cumulative SSP HI target organ threshold of 0.5 for the following target organs: blood, CNS, GI tract, liver, and eyes.

5.6.3 Lead and Iron Screening

Detected lead concentrations at the site were below 400 mg/kg; therefore, lead modeling was not conducted for the site.

Since iron concentrations in soil result in an HQ of greater than 0.5, further assessment is required. This assessment consists of a "margin of exposure evaluation" where the estimated intake of iron is compared to the RDA and concentrations known to cause adverse health effects in children (NCEA 2006). Appendix E.2 presents the margin of exposure evaluation for surface soil and total soil. A summary of the results for SSA 72 is presented below.

Iron Margin of Exposure Evaluation – Future Child Resident

	Surface Soil			Total Soil		
	Above/ Below	**Estimated Site Intake**	**Exposure Screening Level**	**Above/ Below**	**Estimated Site Intake**	**Exposure Screening Level**
RDA Screen (mg/day)	Below	7	10	Below	7	10
Provisional Reference Dose (RfD) Screen (mg/kg-day)	Below	0.5	0.7	Below	0.5	0.7

The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 72.

5.6.4 SSL Comparison - Soil

5.6.4.1 Generic SSLs (Soil-to-groundwater Risk-based Screening Levels)

An SSL screening was conducted for detected chemicals in subsurface soil to evaluate the potential for leaching of chemicals from soil to groundwater. As presented in Table 5-8, the detected concentrations for each chemical in subsurface soil were compared to their USEPA risk-based SSLs included in the Regional Screening Table (USEPA 2009), if available. The comparisons of subsurface soil concentrations to generic SSLs (DAF 20) for detected chemicals indicated that arsenic, cobalt, iron, Aroclor 1254, benzo(a)pyrene, and nitrobenzene were above their SSLs (Table 5-8).

5.6.4.2 Site-specific SSL Comparison

If organic chemicals are detected at concentrations greater than generic soil-to-groundwater screening levels, they may be evaluated utilizing site-specific SSLs calculated using site-specific physical soil characteristics. Physical testing results for samples collected at SSA 18 would be appropriate for use for SSA 72 due to the close proximity and soil characteristics (Table 2-1). Site specific SSLs were not calculated for the SSA 72 due to the average fraction of organic carbon in soil (0.002) being equivalent to the value used for default SSL calculation.

5.6.5 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPCs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). No metals, identified as COPCs in surface soil and total soil, were above their background point estimates (Table 5-9).

5.6.6 Human Health Risk Screening Summary

Soil COPCs with screening values were limited to metals, PCBs, and SVOCs. The soil cumulative human health risk screens were above the established SSP risk and hazard levels of 1E-05 and 1.0, respectively, for the residential scenario for surface and total soil. Cumulative risk screenings were below the established SSP risk and hazard levels of 1E-05 and 1.0, respectively, for the industrial scenario.

The results of the carcinogenic residential risk screening were above the established SSP threshold (1E-05) for surface soil and total soil primarily due to benzo(a)pyrene. As presented on Table 5-10 (surface soil) and Table 5-11 (total soil), the potential site-related risk, when excluding metals risk drivers detected below background (arsenic) in surface and total soil, is 3E-05 which is above the SSP risk threshold of 1E-05 primarily due to benzo(a)pyrene.

The noncarcinogenic residential hazard screening was above the established SSP threshold (HI=1) for surface soil primarily due to metals at concentrations below background (Table 5-9) and is therefore not considered a concern for the site. Although uncertainties in assessing risk increase when using a single surface soil sample thereby potentially overestimating or underestimating risk at the site, utilizing the MDCs for the screening and calculations is conservative and could likely lead to a low-to-moderate overestimation of risk. Therefore, based on the use of an MDC in the risk screening and calculations, the small size of the site (0.1 acre), the lack of potential surface soil releases due to the nature of previous activities at the SSA (acid conveyance via subsurface sump and sewer line), the low level detections of PAHs in the sample, and the industrial screening resulting in risks/hazards below SSP thresholds, no additional assessment of surface soil in the area is proposed.

The noncarcinogenic residential hazard screening was above the established SSP threshold (HI=1) for total soil primarily due to metals and Aroclor 1254. As presented in Table 5-11, when taking background and target organs into account, the HI segregation for total soil resulted in a value equal to the cumulative SSP HI target organ threshold of 0.5 for eyes due to Aroclor 1254.

Detected lead concentrations at the site were below 400 mg/kg; therefore, lead modeling was not conducted for the site. The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 72.

The comparisons of subsurface soil to generic risk-based SSLs (DAF 20) for detected chemicals indicated that arsenic, cobalt, iron, Aroclor 1254, benzo(a)pyrene, and nitrobenzene were above their SSLs (Table 5-8). Although arsenic, cobalt, and iron were above their SSLs, detected concentrations were below their background point estimates and are not considered a concern at the site. Site specific SSLs were not calculated for the SSA 72 due to the average fraction of organic carbon in soil (0.002) being equivalent to the value used for default SSL calculation. While SSL exceedances indicate a theoretical potential for impact to groundwater, the groundwater data collected from monitoring wells MW-3 and MW-4 located downgradient of SSA 72 reflecting general conditions at the Oleum Plant (Figure 4-8) did not result in detectable levels of Aroclor 1254, benzo(a)pyrene, and nitrobenzene (Table 4-3); therefore, the migration of these chemicals to groundwater is not considered a concern at the site.

5.7 ECOLOGICAL RISK SCREENING

Although a limited number of surface soil samples were collected (one sample) at the site, an ecological risk assessment was not conducted for the site considering the small size of the site (0.1 acre), the nature of previous activities at the site (acid conveyance via subsurface sump and subsurface sewer line), and the lack of potential surface soil releases due to the nature of previous activities at the site. Based on these factors, the potential for ecological risk is considered negligible.

5.8 CONCLUSIONS AND RECOMMENDATION

No further action beyond the implementation of land use controls to maintain this site as industrial precluding residential use is recommended for SSA 72 based on the following results of the SSP screening:

- Cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards;
- Cumulative risk and hazard screening results for residential scenarios are equal to or above SSP thresholds for target risk and hazards;
- The MDC for lead is below the SSP screening level of 400 mg/kg;
- The iron exposure assessment results for the hypothetical future child resident are below the applicable iron margin of exposure screening criteria;
- Chemicals at concentrations above their generic SSLs are limited to metals at concentrations below background and organic chemicals not detected in groundwater. Therefore they are not considered a concern at the site; and
- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the SSA on the basis of ecological risk.

Institutional controls (ICs) are being implemented at the site (SSA 72 – Oleum Plant Acidic Wastewater Sump) within the boundaries depicted on Figure 5-1. The objective of the ICs is to maintain the site in its current industrial/commercial state as a closed solid waste management unit and to prevent any future residential use. Specifically the site has been incorporated into plant management manual to ensure long-term protection of human health and the environment. The management manual provides for advance notice, assessment, and approval of intrusive work that may occur within the plant with a general digging prohibition at sites such as this. In the event the property is transferred or leased, equivalent ICs will be put into terms and conditions of the deed or lease, which are no less restrictive than the IC objectives described above. Furthermore, the transferee or lessee will be responsible for ensuring IC compliance by any future users. However, the Army acknowledges the responsibility for all original liability under CERCLA and its right and responsibility to enforce ICs.

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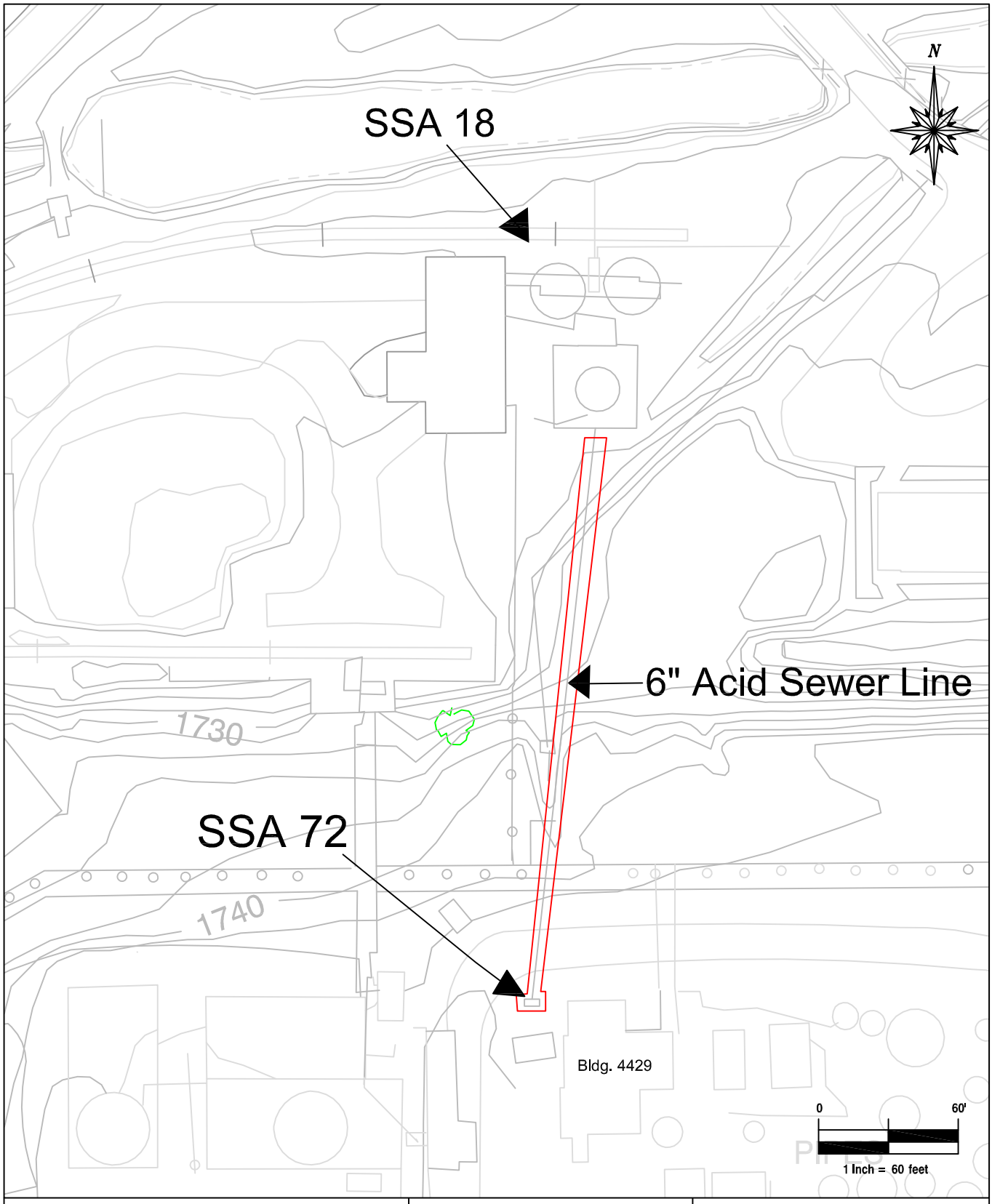

Legend

- Approximate SSA Boundary
- Topographic Contour
- Vegetation
- Fence
- Aboveground Piping

FIGURE 5-1

Site Layout - SSA 72

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 60 feet	File Name: Fig.4-1 SiteLayout

SSP Report for SSAs 18, 72, 30, 79, 60, and 77
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Radford, Virginia

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Suite 201
Richmond, Virginia 23230

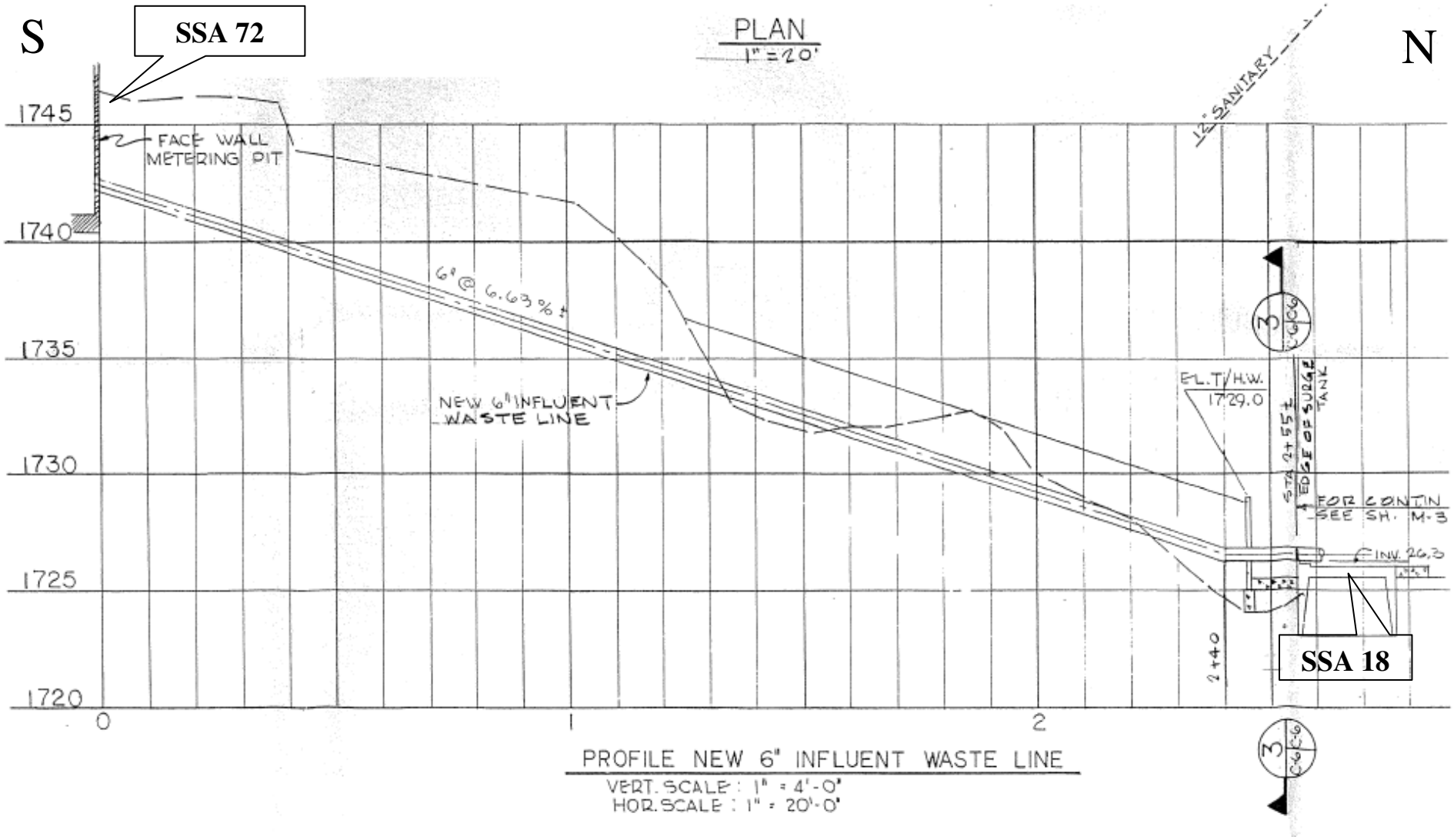

FIGURE 5-2

Sewer Profile from SSA 72 to SSA 18

Date: January 2010	URS Project #: 11655490
Prepared by: MRF	Approved by: JOS
Scale: 1" = 2000'	File Name: Fig5-2 Sewer Prof.

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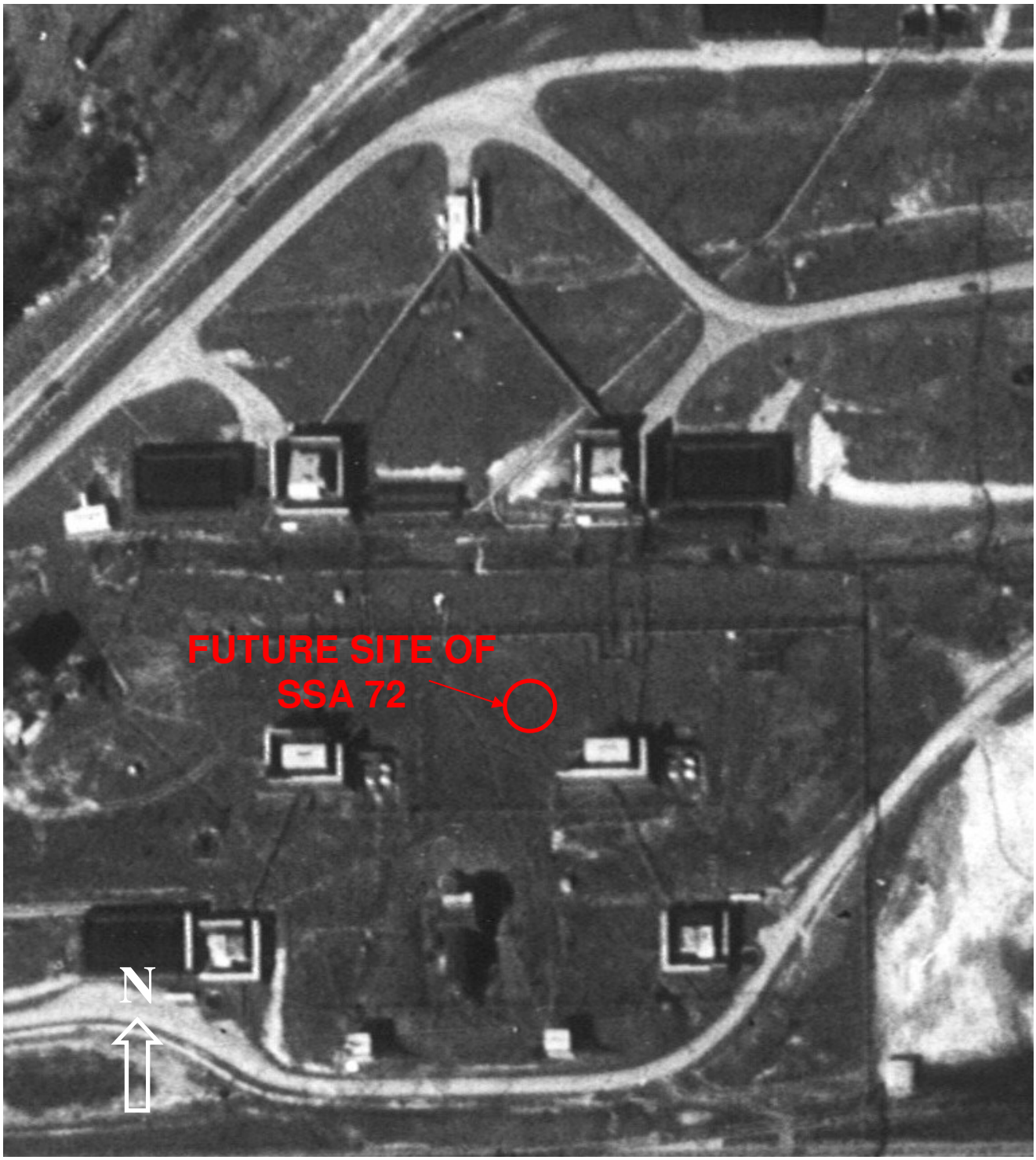


SSA 72
AERIAL PHOTOGRAPH – 1949

FIGURE 5-3

Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

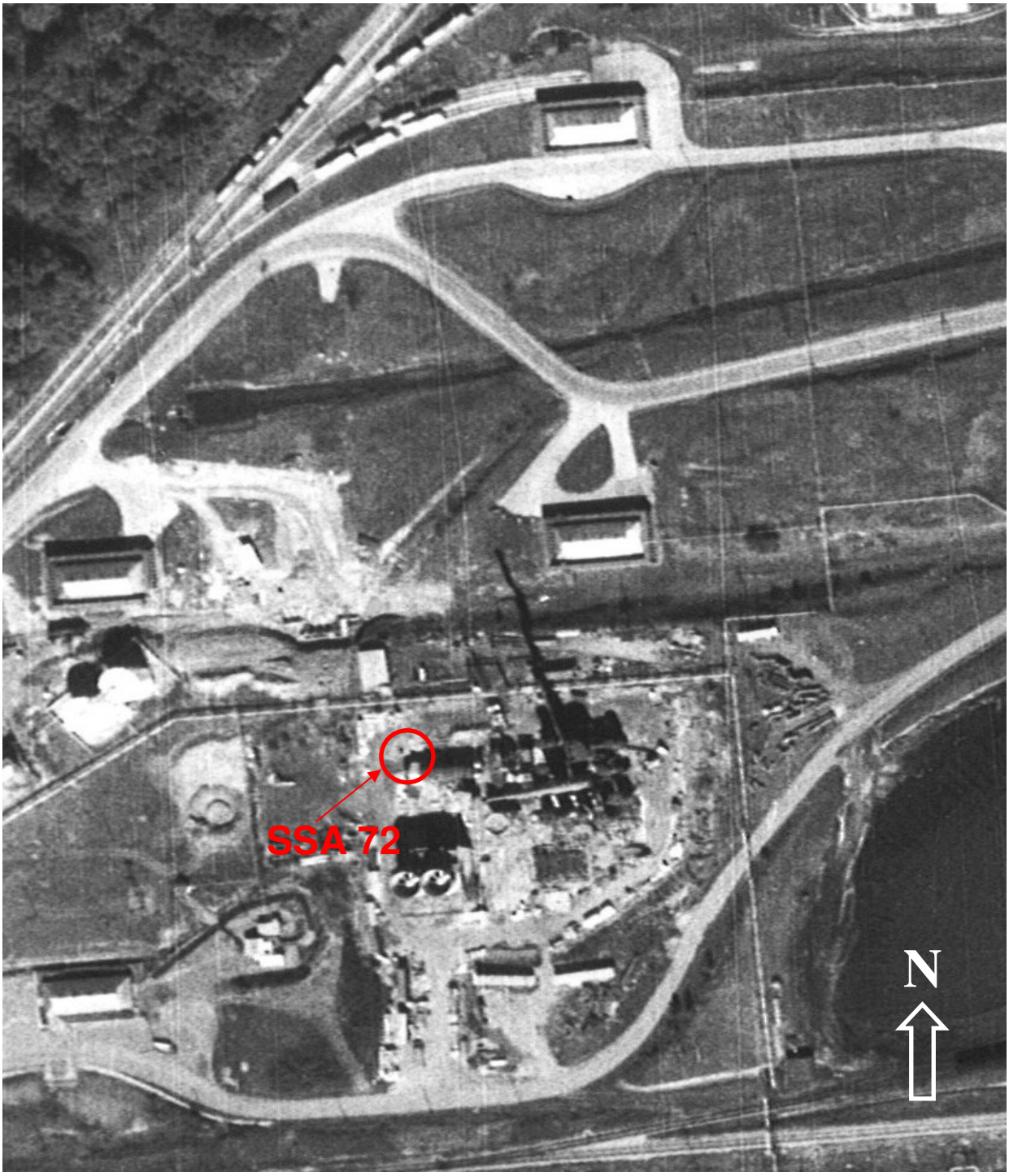
SSP Report for SSAs 18, 72, 30, 79, 60, and 77

SSA 72
AERIAL PHOTOGRAPH – 1962

FIGURE 5-4

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



SSA 72
AERIAL PHOTOGRAPH – 1971

FIGURE 5-5

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*

SSA 72
AERIAL PHOTOGRAPH – 1986

FIGURE 5-6

Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

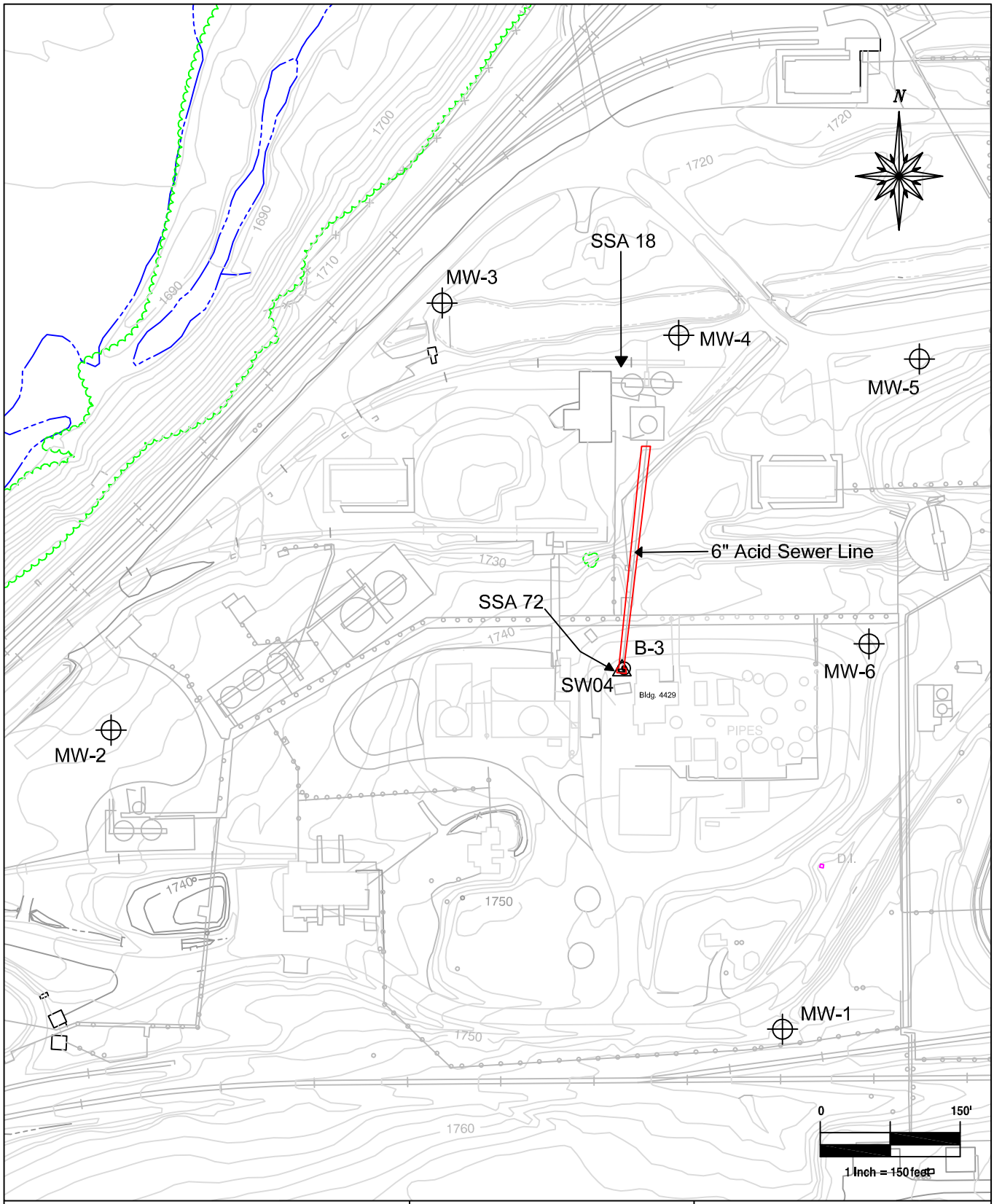
SSP Report for SSAs 18, 72, 30, 79, 60, and 77

SSA 72
AERIAL PHOTOGRAPH – 1990

FIGURE 5-7

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



Legend

- Monitoring Well Location
- Ecology and Environmental Sample Location
- Draper Aden Sample Location
- Approximate SSA Boundary
- Topographic Contour
- Vegetation
- Fence
- Aboveground Piping

FIGURE 5-8

Previous Investigations - SSA 72

Date: January 2010	URS Project #: 11657490
Prepared by: DBC	Approved by: JOS
Scale: 1 inch = 150 feet	File Name: Fig.5-8 Prev Invest

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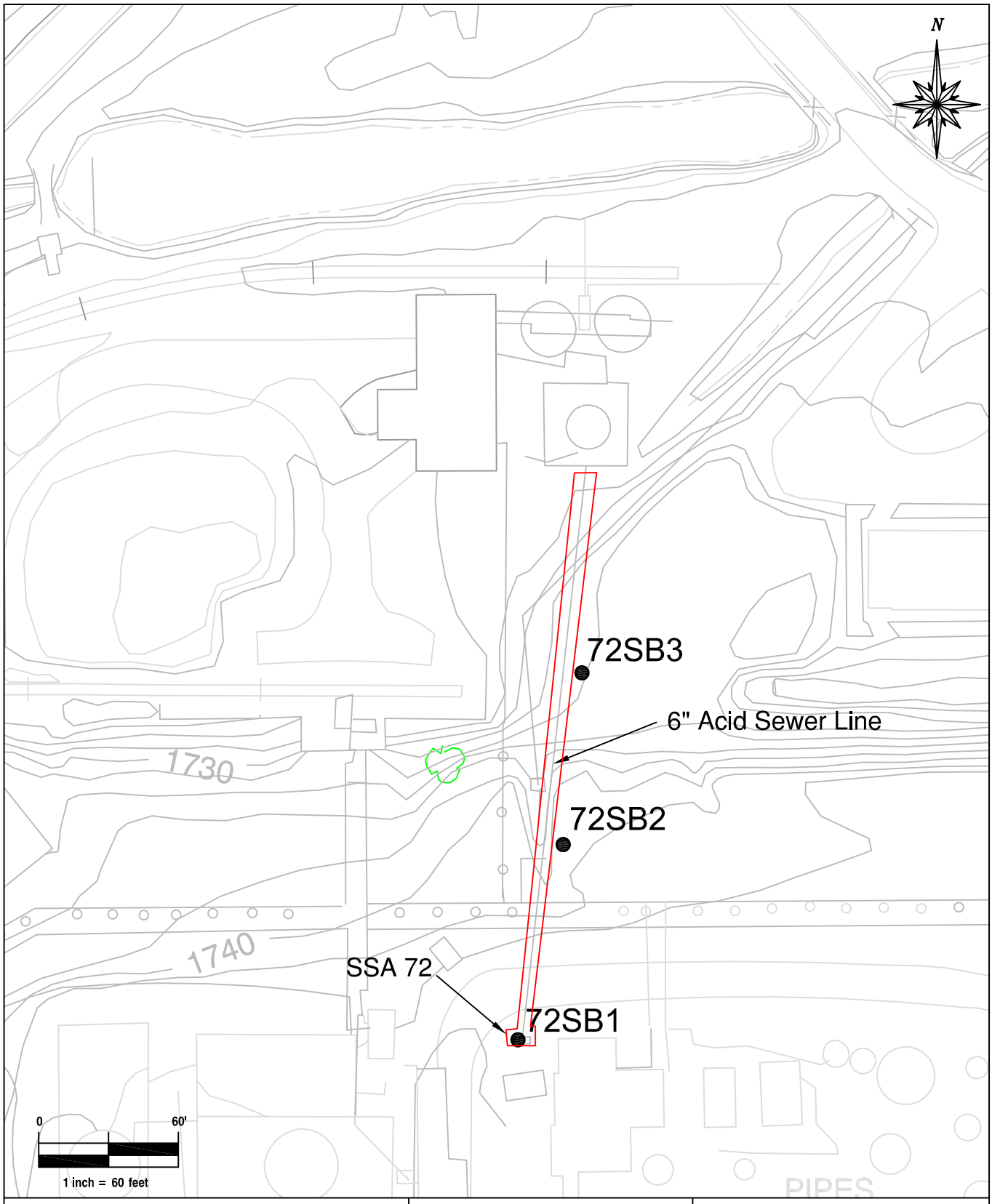

Legend

- SSP Sample Location
- Approximate SSA Boundary
- Topographic Contour
- Fence
- Approximate SWMU Boundary

FIGURE 5-9

SSP Sample Locations - SSA 72

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 60 feet	File Name: Fig.5-9 SSP Samp.

SSP for SSAs 18, 72, 30, 79, 60, and 77
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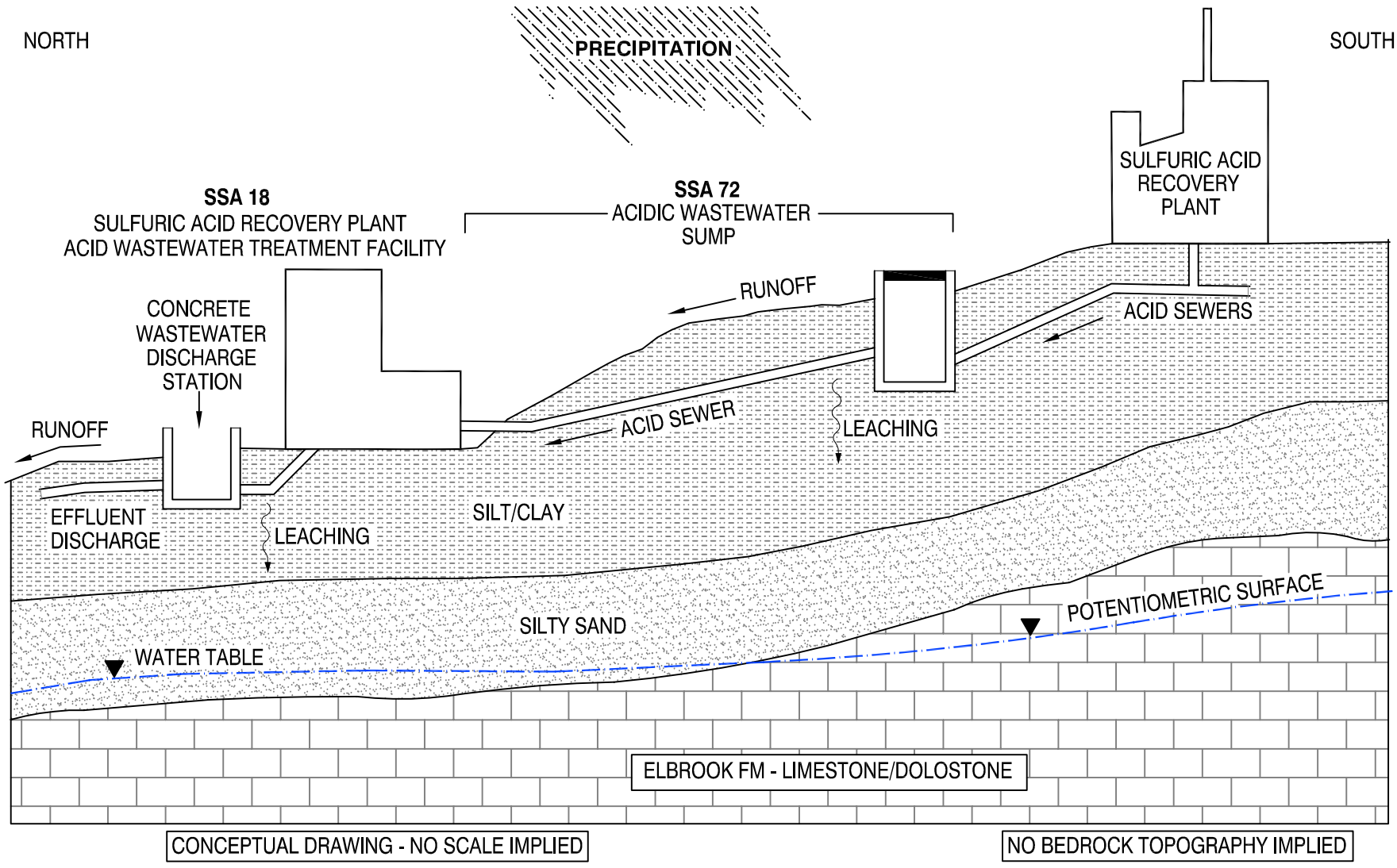

FIGURE 5-10

Conceptual Site Model - SSA 72

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: Not to Scale	File Name: Fig. 5-10

SSP Report for SSAs 18, 72, 30, 79, 60 and 77

Radford Army Ammunition Plant

Radford, Virginia

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Table 5-1
Summary of Historical Analytical Data For Soil Samples Collected at SSA 72
Modified from Previous Investigations
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

					Draper Aden Investigation 2004 Acidic Wastewater Sump SSA 72	
Sample ID Sample Date Sample Depth (ft bgs)	CAS	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Adjusted Soil RSL (Industrial)	B-3 Surface 25-Jun-04 0-1	B-3 (D=6') 25-Jun-04 6
TAL Inorganics (mg/kg)						
Aluminum	7429-90-5	40,041	7,700	99,000	24,000	19,400
Antimony	7440-36-0	--	3.1	41	0.81	0.6
Arsenic	7440-38-2	15.8	0.39	1.6	**2.9**	**2.6**
Barium	7440-39-3	209	1,500	19,000	91	94.1
Beryllium	7440-41-7	1.02	16	200	1.2	1.2
Chromium	7440-47-3	65.3	280	1,400	26.5	21.9
Cobalt	7440-48-4	72.3	2.3	30	13.9	21.1
Copper	7440-50-8	53.5	310	4,100	15.3	15.9
Iron	7439-89-6	50,962	5,500	72,000	37,200	33,000
Lead [1]	7439-92-1	26.8	400	800	13.2	13.1
Manganese	7439-96-5	2,543	180	2,300	518	697
Mercury	7439-97-6	0.13	0.67	2.8	ND	0.027
Nickel	7440-02-0	62.8	160	2,000	14.4	13.5
Selenium	7782-49-2	--	39	510	0.58	0.72
Thallium	7440-28-0	2.11	0.51	6.6	1.1	1.3
Vanadium	7440-62-2	108	55	720	75.2	65.6
Zinc	7440-66-6	202	2,300	31,000	53.3	64.9
VOCs (ug/kg)						
Acetone	67-64-1	--	6,100,000	61,000,000	16	31
Carbon Disulfide	75-15-0	--	67,000	300,000	6	20
Ethylbenzene	100-41-4	--	5,700	29,000	2	ND
Isopropylbenzene	98-82-8	--	220,000	1,100,000	1	ND
SVOCs (ug/kg)						
Anthracene	120-12-7	--	1,700,000	17,000,000	100	1.2
Benzo(a)anthracene	56-55-3	--	150	2,100	290	9.2
Benzo(a)pyrene	50-32-8	--	15	210	**430**	9.6
Benzo(b)fluoranthene	205-99-2	--	150	2,100	210	6.5
Benzo(g,h,i)perylene [2]	191-24-2	--	170,000	1,700,000	380	11
Benzo(k)fluoranthene	207-08-9	--	1,500	21,000	120	3.7
bis(2-ethylhexyl)phthalate	117-81-7	--	35,000	120,000	390	610
Chrysene	218-01-9	--	15,000	210,000	280	9.4
Fluorene	86-73-7	--	230,000	2,200,000	80	ND
Fluoranthene	206-44-0	--	230,000	2,200,000	410	11
Indeno(1,2,3-cd)pyrene	193-39-5	--	150	2,100	130	ND
Phenanthrene [2]	85-01-8	--	170,000	1,700,000	190	3.9
Pyrene	129-00-0	--	170,000	1,700,000	790	17

Notes:
USEPA = U.S. Environmental Protection Agency
CAS = Chemical Abstracts Service
ft bgs = Feet Below Ground Surface
mg/kg = Milligram per Kilogram
ug/kg = Microgram per Kilogram
TAL = Target Analyte List
VOC = Volatile Organic Compound
SVOC = Semivolatile Organic Compound
RSL = Regional Screening Level
USEPA Regional Screening Level (RSL) values from the October 2008 Regional Screening Table as presented in Work Plan Addendum 028 (URS 2009)
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = Not Available
ND = Not Detected

[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

= Concentration Exceeds Soil Residential RSL

bold = Concentration Exceeds Soil Industrial RSL

underline = Concentration Exceeds Background Point Estimate

[1] = Lead criteria are Action Levels; see USEPA Region III guidance
[2] = RSL value for pyrene was used for these compounds

Table 5-2
Historical Analytical Data for Sump Water Samples Collected at SSA 72
Modified from Previous Investigations
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

				Draper Aden Investigation 2004	Ecology and Environment 2007
Sample ID Sample Date	CAS	Adjusted Tap Water RSL	MCL	B-3 Drain 25-Jun-04	ATK-SW-04 9-May-07
TAL Inorganics (ug/L)					
Aluminum	7429-90-5	3,700	--	NT	12,300
Antimony	7440-36-0	1.5	6	NT	**18.8**
Arsenic	7440-38-2	0.045	10	NT	**32.7**
Barium	7440-39-3	730	2,000	NT	124
Chromium (1)	7440-47-3	5,500	100	NT	77.7
Cobalt	7440-48-4	1.1	--	NT	5.2
Copper	7440-50-8	150	1,300	NT	134
Iron	7439-89-6	2,600	--	NT	26,600
Lead (2)	7439-92-1	15	--	NT	4050
Manganese	7439-96-5	180	--	NT	211
Mercury	7439-97-6	0.063	2	NT	0.45
Nickel	7440-02-0	73	--	NT	53.7
Vanadium	7440-62-2	26	--	NT	28.3
Zinc	7440-66-6	1,100	--	NT	154
Pesticides (ug/L)					
4,4'-DDT	50-29-3	0.2	--	NT	0.0096
alpha-BHC	319-84-6	0.011	--	NT	0.032
alpha-chlordane (3)	5103-71-9	0.19	--	NT	0.0064
Endrin aldehyde (4)	7421-93-4	1.1	--	NT	0.0064
Heptachlor	76-44-8	0.015	0.4	NT	0.022
Methoxyclor	72-43-5	18	40	NT	0.013
VOCs (ug/L)					
Acetone	67-64-1	2,200	--	NT	14
Carbon Disulfide	75-15-0	100	--	NT	0.11
SVOCs (ug/L)					
Di-n-butylphthalate	84-74-2	370	--	NT	3.2
Fluoranthene	206-44-0	150	--	NT	1.5
Phenanthrene (5)	85-01-8	110	--	NT	2.1
Pyrene	129-00-0	110	--	NT	1.4
Perchlorate (ug/L)					
Perchlorate	14797-73-0	2.6	--	ND	0.386

Notes:

USEPA = U.S. Environmental Protection Agency
CAS = Chemical Abstracts Service
MCL = Maximum Contaminant Level
ug/L = Microgram Per Liter
TAL = Target Analyte List
VOC = Volatile Organic Compound
SVOC = Semivolatile Organic Compound
RSL = Regional Screening Level
USEPA Regional Screening Level (RSL) values from the October 2008 Regional Screening Table as presented in Work Plan Addendum 028 (URS 2009)
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = Not Available
ND = Not Detected
NT = Not Tested

= Concentration Exceeds Adj. Tap Water RSL

bold = Concentration Exceeds MCL

(1) = Chromium III RSL used
(2) = Lead criteria are Action Levels
(3) = Chlordane RSL used
(4) = Endrin RSL used
(5) = RSL value for pyrene was used for these compounds

Table 5-3
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 72
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	B-3 Surface/72SB1A 6-25-04/8-12-09 0-1		MDL	RL	72SB1B 8/12/2009 8-10		MDL	RL	72SB1B-DUP (DUP-2) 8/12/2009 8-10		MDL	RL	72SB2B 11/11/2009 8-10		MDL	RL	72SB3B 11/11/2009 6-8		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																											
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	24,000		2.8	24.4	26,000		1.8	10	24,000		1.8	10	25,000		1.7	9.2	19,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.81	B,J,a	0.28	7.3	0.12	J	0.037	0.2	0.13	J	0.037	0.2	0.18	J	0.037	0.2	0.14	J	0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***2.9***		0.49	1.2	***1.5***	,L,m	0.03	0.1	***1.5***	,L,m	0.03	0.1	***2.2***	,L,m	0.027	0.091	***1.7***	,L,m	0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	91		0.18	24.4	100		0.28	1	98		0.28	1	91	,K,m	0.26	0.92	98	,K,m	0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	1.2		0.038	0.61	1.5		0.035	1	1.5		0.035	1	0.44	J	0.032	0.92	0.67	J	0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	<0.16	U	0.028	0.61	0.73	J	0.24	2	0.59	J	0.24	2	1.5	J	0.22	1.8	1.4	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	1,510		18.3	609	1,000	,J,f	8.7	50	2,800	,J,f	8.7	50	930		8	46	1,100		8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	26.5		0.15	1.2	32	,J,s	0.74	5	31	,J,s	0.74	5	28		0.68	4.6	24		0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	***13.9***		0.12	6.1	***16***	,L,m	0.44	2	***15***	,L,m	0.44	2	***13***		0.41	1.8	***12***		0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	15.3		0.19	3	17		0.043	0.2	17		0.043	0.2	14	,L,m	0.039	0.18	13	,L,m	0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***37,200***		5.2	12	***38,000***		0.47	10	***38,000***		0.47	10	***31,000***		0.43	9.2	***30,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	13.2		0.28	0.37	15	,L,m	0.049	0.2	16	,L,m	0.049	0.2	12		0.045	0.18	19		0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	2,260		2.8	609	3,100		4.4	50	3,600		4.4	50	2,100		4.1	46	2,500		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	518		0.38	1.8	650		0.21	1	610		0.21	1	510		0.2	0.92	500		0.21	1
Mercury [1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	<0.12	U	0.02	0.12	0.014	J	0.0093	0.05	0.014	J	0.0093	0.05	0.066		0.008	0.05	0.037	J	0.008	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	14.4		0.21	4.9	15		0.025	0.1	15		0.025	0.1	15		0.023	0.091	13		0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	1,490		4.4	609	1,800		6.8	50	1,800		6.8	50	1,500		6.3	46	1,600		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.58	B,J	0.33	0.61	0.21	,B,x	0.049	0.2	0.28	,B,x	0.049	0.2	<0.18	U,UL,m	0.045	0.18	<0.2	U,UL,m	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	ND				0.052	J,B,o	0.011	0.1	0.041	J,B,o	0.011	0.1	0.044	J,L,m	0.0099	0.091	0.041	J,L,m	0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	ND				35	J	5.4	100	36	J	5.4	100	27	J,L,o	4.9	92	22	J,L,o	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	1.1	B,J,b	0.43	1.2	0.21		0.0061	0.1	0.21		0.0061	0.1	0.23		0.0056	0.091	0.21		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	75.2		0.13	6.1	68		0.065	0.2	67		0.065	0.2	63	,L,m	0.059	0.18	55	,L,m	0.065	0.2
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	53.3		1.1	2.4	66		0.79	5	64		0.79	5	56		0.72	4.6	57		0.79	5
Pesticides (mg/kg)																											
4,4'-DDE	72-55-9	--	1.4	c	5.1	c	1.2	<0.019	U	0.00028	0.019	<0.021	U	0.00031	0.021	<0.021	U	0.00031	0.021	<0.022	U	0.00032	0.022	0.026	,J,g	0.0003	0.02
PCBs (ug/kg)																											
Aroclor 1254 [2]	11097-69-1	--	110	n	740	c*	102	<37	U	6.7	37	<41	U	7.3	41	<40	U	7.2	40	<42	U	7.5	42	***550***	,J,c	14	78
VOCs (ug/kg)																											
Acetone	67-64-1	--	6.1E+06	n	6.1E+07	nms	8.8E+04	16	J	7	19	<25	U	3.9	25	<25	U	3.8	25	8.5	J	4	25	<21	U	3.4	21
Carbon Disulfide	75-15-0	--	6.7E+04	ns	3.0E+05	ns	5.4E+03	6		1	5	<6.2	U	0.42	6.2	<6.1	U	0.42	6.1	<6.4	U	0.43	6.4	<5.4	U	0.36	5.4
Ethylbenzene	100-41-4	--	5.7E+03	c	2.9E+04	c	3.8E+01	2	J	1	5	<6.2	U	0.19	6.2	<6.1	U	0.19	6.1	<6.4	U	0.2	6.4	<5.4	U	0.16	5.4
Isopropylbenzene	98-82-8	--	2.2E+05	ns	1.1E+06	ns	2.6E+04	1	J	1	5	<6.2	U	0.24	6.2	<6.1	U	0.24	6.1	<6.4	U	0.25	6.4	<5.4	U	0.21	5.4
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	ND				3.6	J,B,z	1.5	25	3.7	J,B,z	1.5	25	<25	U	1.6	25	<21	U	1.3	21
SVOCs (ug/kg)																											
Acenaphthylene [3]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	ND				<21	U	2.1	21	<21	U	2	21	<22	U	2.1	22	78		2	20
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	100		7	66	<21	U	3.1	21	<21	U	3.1	21	<22	U	3.3	22	18	J	3	20
Benzaldehyde	100-52-7	--	7.8E+05	ns	1.0E+07	nms	1.9E+04	<420	U	42	420	<210	U,R,l	7.6	210	<210	U,R,l	7.6	210	<220	U	7.9	220	18	J	7.3	200
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	***290***		17	83	1.6	J	1.4	21	<21	U	1.4	21	<22	U	1.4	22	170		1.3	20
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	***430***		26	170	<21	U	1.7	21	<21	U	1.7	21	<22	U	1.8	22	***120***		1.7	20
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	210		33	170	<21	U	3.6	21	<21	U	3.6	21	<22	U	3.7	22	160		3.5	20
Benzo(g,h,i)perylene [3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	380		33	170	<83	U	1.2	83	<82	U	1.1	82	<85	U	1.2	85	62	J	1.1	79
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	120		17	83	<21	U	1.6	21	<21	U	1.6	21	<22	U	1.6	22	50		1.5	20
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	390		120	210	8.6	J,B,z	5.7	210	12	J,B,z	5.7	210	14	J	5.9	220	36	J	5.5	200
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	ND				<210	U	6	210	6.9	J	6	210	<220	U	6.2	220	<200	U	5.8	200
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	280		25	170	<21	U	4.3	21	<21	U	4.3	21	<22	U	4.4	22	150		4.1	20
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	ND				<83	U	9.5	83	<82	U	9.4	82	<85	U	9.8	85	12	J	9.1	79
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	410		17	68	<21	U	0.94	21	<21	U	0.93	21	<22	U	0.97	22	210		0.9	20
Fluorene	86-73-7	--	2.3E+05	n	2.2E+06	n	6.6E+05	80	J	50	330	<41	U	8.5	41	<40	U	8.4	40	<42	U	8.8	42	8.7	J	8.1	39
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	130	J	42	170	<83	U	4.5	83	<82	U	4.5	82	<85	U	4.7	85	51	J	4.3	79
Phenanthrene [3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	190		25	170	<21	U	1.3	21	<21	U	1.3	21	<22	U	1.3	22	79		1.2	20
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	790		58	330	<21	U	1.5	21	<21	U	1.5	21	<22	U	1.5	22	330		1.4	20
Explosives (mg/kg)																											
Nitrobenzene	98-95-3	--	4.4E+00	c*	2.2E+01	c*	1.4E-03	ND				<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	***0.079***	J	0.045	2.5	***0.1***	J	0.045	2.5
Cyanide (mg/kg)																											
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	NT				0.16	J	0.082	0.37	0.29	J	0.082	0.37	<0.38	U	0.085	0.38	0.088	J	0.079	0.35
Total Organic Carbon, TOC (%)																											
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT				NT				NT			
Percent Solids (%)																											
Percent Solids	--	--	--	--	--	--	--	88		0.1	0.1	81		0.1	0.1	82		0.1	0.1	78		0.1	0.1	85		0.1	0.1

Table 5-3
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 72
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Notes:

CAS = Chemical Abstracts Service
ft bgs = Feet Below Ground Surface
mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
ND = Not Detected
NT = Not Tested

[1] = Mercuric chloride soil RSLs value used
[2] = Aroclor 1254 Unadjusted Soil Residential RSL used
[3] = Pyrene soil RSLs used

[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
* = where: n SL < 100X c SL
** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = No Screening Value Available

= Concentration Exceeds Adjusted Soil Residential RSL

= Concentration Exceeds Adjusted Soil Industrial RSL

underline = Concentration Exceeds Facility Background Point Estimate

bold italic = Concentration Exceeds Soil-to-Groundwater Risk-based SSL (DAF 20)

Data Qualifiers:

Laboratory Qualifiers

B	Analyte found in associated blank as well as in the sample.
J	Analyte present. Reported value may not be accurate or precise.
U	The compound was analyzed for but not detected. The reporting limit will be adjusted to reflect any dilution, and for soil, the percent moisture.

Validation Qualifiers

B	Not detected substantially above the level reported in laboratory or field blanks.
J	Analyte present. Reported value may not be accurate or precise.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
R	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
UL	Not detected, quantitation limit is probably higher.

Reason Codes

GC/MS Organics

l	MS/MSD recovery failure
z	Method blank and/or storage blank contamination

Inorganics and Conventionals

a	Matrix spike/matrix spike duplicate recovered low
b	Blank contamination in the calibration blank; result <5x blank contamination
f	Field duplicate imprecision
o	Calibration blank contamination
m	MS/MSD recovery failure
s	Serial dilution failure
x	CRDL standard recovery failure

GC and HPLC Organics

c	Calibration failure; poor or unstable (%D) response
g	Dual column confirmation imprecision

Table 5-4
SSA 72 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil		**TAL Metals**														
	7429-90-5	Aluminum	24,000	24,000	mg/kg	B-3 Surface/72SB1A	1/1	2.8 - 2.8	24,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.81	0.81	mg/kg	B-3 Surface/72SB1A	1/1	0.28 - 0.28	0.81	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	2.9	2.9	mg/kg	B-3 Surface/72SB1A	1/1	0.49 - 0.49	2.9	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	91	91	mg/kg	B-3 Surface/72SB1A	1/1	0.18 - 0.18	91	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	1.2	1.2	mg/kg	B-3 Surface/72SB1A	1/1	0.038 - 0.038	1.2	16	n	200	n	IND	N	BSL
	7440-70-2	Calcium	1,510	1,510	mg/kg	B-3 Surface/72SB1A	1/1	18.3 - 18.3	1,510	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	26.5	26.5	mg/kg	B-3 Surface/72SB1A	1/1	0.15 - 0.15	26.5	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	13.9	13.9	mg/kg	B-3 Surface/72SB1A	1/1	0.12 - 0.12	13.9	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	15.3	15.3	mg/kg	B-3 Surface/72SB1A	1/1	0.19 - 0.19	15.3	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	37,200	37,200	mg/kg	B-3 Surface/72SB1A	1/1	5.2 - 5.2	37,200	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	13.2	13.2	mg/kg	B-3 Surface/72SB1A	1/1	0.28 - 0.28	13.2	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	2,260	2,260	mg/kg	B-3 Surface/72SB1A	1/1	2.8 - 2.8	2,260	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	518	518	mg/kg	B-3 Surface/72SB1A	1/1	0.38 - 0.38	518	180	n	2,300	n	IND	Y	**ARES**
	7440-02-0	Nickel	14.4	14.4	mg/kg	B-3 Surface/72SB1A	1/1	0.21 - 0.21	14.4	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	1,490	1,490	mg/kg	B-3 Surface/72SB1A	1/1	4.4 - 4.4	1,490	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.58	0.58	mg/kg	B-3 Surface/72SB1A	1/1	0.33 - 0.33	0.58	39	n	510	n	IND	N	BSL
	7440-28-0	Thallium	1.1	1.1	mg/kg	B-3 Surface/72SB1A	1/1	0.43 - 0.43	1.1	0.51	n	6.6	n	IND	Y	**ARES**
	7440-62-2	Vanadium	75.2	75.2	mg/kg	B-3 Surface/72SB1A	1/1	0.13 - 0.13	75	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	53.3	53.3	mg/kg	B-3 Surface/72SB1A	1/1	1.1 - 1.1	53	2,300	n	31,000	nm	IND	N	BSL
		VOCs														
	67-64-1	Acetone	1.6E-02	1.6E-02	mg/kg	B-3 Surface/72SB1A	1/1	0.007 - 0.007	1.6E-02	6.1E+03	n	6.1E+04	nms	IND	N	BSL
	75-15-0	Carbon Disulfide	6.0E-03	6.0E-03	mg/kg	B-3 Surface/72SB1A	1/1	0.001 - 0.001	6.0E-03	6.7E+01	ns	3.0E+02	ns	IND	N	BSL
	100-41-4	Ethylbenzene	2.0E-03	2.0E-03	mg/kg	B-3 Surface/72SB1A	1/1	0.001 - 0.001	2.0E-03	5.7E+00	c	2.9E+01	c	IND	N	BSL
	98-82-8	Isopropylbenzene	1.0E-03	1.0E-03	mg/kg	B-3 Surface/72SB1A	1/1	0.001 - 0.001	1.0E-03	2.2E+02	ns	1.1E+03	ns	IND	N	BSL
		SVOCs														
	120-12-7	Anthracene	1.0E-01	1.0E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.007 - 0.007	1.0E-01	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	56-55-3	Benzo(a)anthracene	2.9E-01	2.9E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.017 - 0.017	2.9E-01	1.5E-01	c	2.1E+00	c	IND	Y	**ARES**
	50-32-8	Benzo(a)pyrene	4.3E-01	4.3E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.026 - 0.026	4.3E-01	1.5E-02	c	2.1E-01	c	IND	Y	***ARES/IND***
	205-99-2	Benzo(b)fluoranthene	2.1E-01	2.1E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.033 - 0.033	2.1E-01	1.5E-01	c	2.1E+00	c	IND	Y	**ARES**
	191-24-2	Benzo(g,h,i)perylene [1]	3.8E-01	3.8E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.033 - 0.033	3.8E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	1.2E-01	1.2E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.017 - 0.017	1.2E-01	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	3.9E-01	3.9E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.12 - 0.12	3.9E-01	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	218-01-9	Chrysene	2.8E-01	2.8E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.025 - 0.025	2.8E-01	1.5E+01	c	2.1E+02	c	IND	N	BSL
	206-44-0	Fluoranthene	4.1E-01	4.1E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.017 - 0.017	4.1E-01	2.3E+02	n	2.2E+03	n	IND	N	BSL
	86-73-7	Fluorene	8.0E-02	8.0E-02	mg/kg	B-3 Surface/72SB1A	1/1	0.05 - 0.05	8.0E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	1.3E-01	1.3E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.042 - 0.042	1.3E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	85-01-8	Phenanthrene [1]	1.9E-01	1.9E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.025 - 0.025	1.9E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	7.9E-01	7.9E-01	mg/kg	B-3 Surface/72SB1A	1/1	0.058 - 0.058	7.9E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
c* = where: n SL < 100X c SL
c** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = Not Available

[1] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 5-5
SSA 72 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Total Soil		**TAL Metals**														
	7429-90-5	Aluminum	19,000	25,000	mg/kg	72SB1B DUP AVG	4/4	1.7 - 2.8	25,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.125	0.81	mg/kg	B-3 Surface/72SB1A	4/4	0.037 - 0.28	0.81	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	1.5	2.9	mg/kg	B-3 Surface/72SB1A	4/4	0.027 - 0.49	2.9	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	91	99	mg/kg	72SB1B DUP AVG	4/4	0.18 - 0.28	99	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	0.44	1.5	mg/kg	72SB1B DUP AVG	4/4	0.032 - 0.038	1.5	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.66	1.5	mg/kg	72SB2B	3/4	0.028 - 0.24	1.5	7	n	80	n	IND	N	BSL
	7440-70-2	Calcium	930	1,900	mg/kg	72SB1B DUP AVG	4/4	8 - 18.3	1,900	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	24	31.5	mg/kg	72SB1B DUP AVG	4/4	0.15 - 0.74	31.5	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	12	15.5	mg/kg	72SB1B DUP AVG	4/4	0.12 - 0.44	15.5	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	13	17	mg/kg	72SB1B DUP AVG	4/4	0.039 - 0.19	17	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	30,000	38,000	mg/kg	72SB1B DUP AVG	4/4	0.43 - 5.2	38,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	12	19	mg/kg	72SB3B	4/4	0.045 - 0.28	19	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	2,100	3,350	mg/kg	72SB1B DUP AVG	4/4	2.8 - 4.4	3,350	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	500	630	mg/kg	72SB1B DUP AVG	4/4	0.2 - 0.38	630	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.014	0.066	mg/kg	72SB2B	3/4	0.008 - 0.02	0.066	2.3	ns	31	ns	IND	N	BSL
	7440-02-0	Nickel	13	15	mg/kg	72SB1B DUP AVG	4/4	0.023 - 0.21	15	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	1,490	1,800	mg/kg	72SB1B DUP AVG	4/4	4.4 - 6.8	1,800	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.245	0.58	mg/kg	B-3 Surface/72SB1A	2/4	0.045 - 0.33	0.58	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.041	0.0465	mg/kg	72SB1B DUP AVG	3/4	0.0099 - 0.011	0.0465	39	n	510	n	IND	N	BSL
	7440-23-5	Sodium	22	35.5	mg/kg	72SB1B DUP AVG	3/4	4.9 - 5.4	36	--	--	625,700	--	RDA	N	BSL
	7440-28-0	Thallium	0.21	1.1	mg/kg	B-3 Surface/72SB1A	4/4	0.0056 - 0.43	1.1	0.51	n	6.6	n	IND	Y	**ARES**
	7440-62-2	Vanadium	55	75.2	mg/kg	B-3 Surface/72SB1A	4/4	0.059 - 0.13	75.2	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	53.3	65	mg/kg	72SB1B DUP AVG	4/4	0.72 - 1.1	65	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	72-55-9	4,4'-DDE	2.6E-02	2.6E-02	mg/kg	72SB3B	1/4	0.00028 - 0.00032	2.6E-02	1.4E+00	c	5.1E+00	c	IND	N	BSL
		PCBs														
	11097-69-1	Aroclor 1254 [2]	5.5E-01	5.5E-01	mg/kg	72SB3B	1/4	0.0067 - 0.014	5.5E-01	1.1E-01	n	7.4E-01	c*	IND	Y	**ARES**
		VOCs														
	67-64-1	Acetone	8.5E-03	1.6E-02	mg/kg	B-3 Surface/72SB1A	2/4	0.0034 - 0.007	1.6E-02	6.1E+03	n	6.1E+04	nms	IND	N	BSL
	75-15-0	Carbon Disulfide	6.0E-03	6.0E-03	mg/kg	B-3 Surface/72SB1A	1/4	0.00036 - 0.001	6.0E-03	6.7E+01	ns	3.0E+02	ns	IND	N	BSL
	100-41-4	Ethylbenzene	2.0E-03	2.0E-03	mg/kg	B-3 Surface/72SB1A	1/4	0.00016 - 0.001	2.0E-03	5.7E+00	c	2.9E+01	c	IND	N	BSL
	98-82-8	Isopropylbenzene	1.0E-03	1.0E-03	mg/kg	B-3 Surface/72SB1A	1/4	0.00021 - 0.001	1.0E-03	2.2E+02	ns	1.1E+03	ns	IND	N	BSL
	75-09-2	Methylene Chloride	3.7E-03	3.7E-03	mg/kg	72SB1B DUP AVG	1/4	0.0013 - 0.0016	3.7E-03	1.1E+01	c	5.4E+01	c	IND	N	BSL
		SVOCs														
	208-96-8	Acenaphthylene [3]	7.8E-02	7.8E-02	mg/kg	72SB3B	1/4	0.002 - 0.0021	7.8E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
	120-12-7	Anthracene	1.8E-02	1.0E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.003 - 0.007	1.0E-01	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	100-52-7	Benzaldehyde	1.8E-02	1.8E-02	mg/kg	72SB3B	1/4	0.0073 - 0.042	1.8E-02	7.8E+02	ns	1.0E+04	nms	IND	N	BSL
	56-55-3	Benzo(a)anthracene	1.2E-03	2.9E-01	mg/kg	B-3 Surface/72SB1A	3/4	0.0013 - 0.017	2.9E-01	1.5E-01	c	2.1E+00	c	IND	Y	**ARES**
	50-32-8	Benzo(a)pyrene	1.2E-01	4.3E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0017 - 0.026	4.3E-01	1.5E-02	c	2.1E-01	c	IND	Y	***ARES/IND***
	205-99-2	Benzo(b)fluoranthene	1.6E-01	2.1E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0035 - 0.033	2.1E-01	1.5E-01	c	2.1E+00	c	IND	Y	**ARES**
	191-24-2	Benzo(g,h,i)perylene [3]	6.2E-02	3.8E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0011 - 0.033	3.8E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	5.0E-02	1.2E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0015 - 0.017	1.2E-01	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	1.0E-02	3.9E-01	mg/kg	B-3 Surface/72SB1A	4/4	0.0055 - 0.12	3.9E-01	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	5.0E-03	5.0E-03	mg/kg	72SB1B DUP AVG	1/4	0.0058 - 0.0062	5.0E-03	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	1.5E-01	2.8E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0041 - 0.025	2.8E-01	1.5E+01	c	2.1E+02	c	IND	N	BSL
	53-70-3	Dibenz(a,h)anthracene	1.2E-02	1.2E-02	mg/kg	72SB3B	1/4	0.0091 - 0.0098	1.2E-02	1.5E-02	c	2.1E-01	c	IND	N	BSL
	206-44-0	Fluoranthene	2.1E-01	4.1E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0009 - 0.017	4.1E-01	2.3E+02	n	2.2E+03	n	IND	N	BSL
	86-73-7	Fluorene	8.7E-03	8.0E-02	mg/kg	B-3 Surface/72SB1A	2/4	0.0081 - 0.05	8.0E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	5.1E-02	1.3E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0043 - 0.042	1.3E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	85-01-8	Phenanthrene [3]	7.9E-02	1.9E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0012 - 0.025	1.9E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	3.3E-01	7.9E-01	mg/kg	B-3 Surface/72SB1A	2/4	0.0014 - 0.058	7.9E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
		Explosives														
	98-95-3	Nitrobenzene	7.9E-02	1.0E-01	mg/kg	72SB3B	2/4	0.045 - 0.045	1.0E-01	4.4E+00	c*	2.2E+01	c*	IND	N	BSL
		Cyanide														
	57-12-5	Cyanide, Total	8.8E-02	2.3E-01	mg/kg	72SB1B DUP AVG	2/3	0.079 - 0.085	2.3E-01	1.6E+02	n	2.0E+03	n	IND	N	BSL

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
c* = where: n SL < 100X c SL
c** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = Not Available

[1] = Mercuric chloride soil RSLs value used
[2] = Aroclor 1254 Noncancer Soil Residential RSL used
[3] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 5-6
SSA 72 Cumulative HHRS (Surface Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	1/1	24,000	77,000	n	990,000	n	3.E-01	--	2.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	1/1	2.9	0.39	c	1.6	c	--	7.E-06	--	2.E-06	--
7440-38-2	Arsenic	mg/kg	1/1	2.9	22	n	260	n	1.E-01	--	1.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	1/1	13.9	23	n	300	n	6.E-01	--	5.E-02	--	blood
7439-89-6	Iron	mg/kg	1/1	37,200	55,000	n	720,000	n	7.E-01	--	5.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	1/1	518	1,800	n	23,000	n	3.E-01	--	2.E-02	--	CNS
7440-62-2	Vanadium	mg/kg	1/1	75	550	n	7,200	n	1.E-01	--	1.E-02	--	kidney
	TCL SVOCs												
56-55-3	Benzo(a)anthracene	mg/kg	1/1	0.29	0.15	c	2.1	c	--	2.E-06	--	1.E-07	--
50-32-8	Benzo(a)pyrene	mg/kg	1/1	0.43	0.015	c	0.21	c	--	3.E-05	--	2.E-06	--
205-99-2	Benzo(b)fluoranthene	mg/kg	1/1	0.21	0.15	c	2.1	c	--	1.E-06	--	1.E-07	--
							Cumulative Risk/Hazard		2.E+00	4.E-05	2.E-01	4.E-06	

Target Organ Segregation

Total blood HI =	**1.3**	Total blood HI =	0.10
Total CNS HI =	**0.6**	Total CNS HI =	0.05
Total skin HI =	0.1	Total skin HI =	0.01
Total vascular HI =	0.1	Total vascular HI =	0.01
Total kidney HI =	0.1	Total kidney HI =	0.01
Total GI Tract HI =	**0.7**	Total GI Tract HI =	0.05
Total liver HI =	**0.7**	Total liver HI =	0.05

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
MDC = Maximum Detected Concentration
SVOC = Semivolatile Organic Compound
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 5-7
SSA 72 Cumulative HHRS (Total Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	4/4	25,000	77,000	n	990,000	n	3.E-01	--	3.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	4/4	2.9	0.39	c	1.6	c	--	7.E-06	--	2.E-06	--
7440-38-2	Arsenic	mg/kg	4/4	2.9	22	n	260	n	1.E-01	--	1.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	4/4	15.5	23	n	300	n	7.E-01	--	5.E-02	--	blood
7439-89-6	Iron	mg/kg	4/4	38,000	55,000	n	720,000	n	7.E-01	--	5.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	4/4	630	1,800	n	23,000	n	4.E-01	--	3.E-02	--	CNS
7440-62-2	Vanadium	mg/kg	4/4	75	550	n	7,200	n	1.E-01	--	1.E-02	--	kidney
	PCBs												
11097-69-1	Aroclor 1254	mg/kg	1/4	0.55	0.22	c	0.74	c	--	3.E-06	--	7.E-07	--
11097-69-1	Aroclor 1254	mg/kg	1/4	0.55	1.1	n	11	n	5.E-01	--	5.E-02	--	eyes
	TCL SVOCs												
56-55-3	Benzo(a)anthracene	mg/kg	3/4	0.29	0.15	c	2.1	c	--	2.E-06	--	1.E-07	--
50-32-8	Benzo(a)pyrene	mg/kg	2/4	0.43	0.015	c	0.21	c	--	3.E-05	--	2.E-06	--
205-99-2	Benzo(b)fluoranthene	mg/kg	2/4	0.21	0.15	c	2.1	c	--	1.E-06	--	1.E-07	--
							Cumulative Risk/Hazard		3.E+00	4.E-05	2.E-01	5.E-06	

Target Organ Segregation

Total blood HI =	**1**	Total blood HI =	0.10
Total CNS HI =	**1**	Total CNS HI =	0.05
Total skin HI =	0.1	Total skin HI =	0.01
Total vascular HI =	0.1	Total vascular HI =	0.01
Total kidney HI =	0.1	Total kidney HI =	0.01
Total GI Tract HI =	**0.7**	Total GI Tract HI =	0.1
Total liver HI =	**0.7**	Total liver HI =	0.05
Total eyes HI =	**0.5**	Total eyes HI =	0.05

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 5-8
SSA 72 SSL Screening Results for Subsurface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	Facility Background [A]	SSL (DAF 20)	Minimum Detected Concentration	Maximum Detected Concentration	# of Samples Above SSL	# of Detections	# of Samples
TAL Metals (mg/kg)								
Aluminum	7429-90-5	40,041	1,100,000	19,000	25,000	0	3	3
Antimony	7440-36-0	--	13.2	0.125	0.18	0	3	3
Arsenic	7440-38-2	15.8	0.026	1.5	2.2	**3**	3	3
Barium	7440-39-3	209	6,000	91	99	0	3	3
Beryllium	7440-41-7	1.02	1,160	0.44	1.5	0	3	3
Cadmium	7440-43-9	0.69	--	0.66	1.5	**--**	3	3
Calcium	7440-70-2	--	--	930	1,900	**--**	3	3
Chromium	7440-47-3	65.3	--	24	31.5	**--**	3	3
Cobalt	7440-48-4	72.3	9.8	12	15.5	**3**	3	3
Copper	7440-50-8	53.5	1,020	13	17	0	3	3
Iron	7439-89-6	50,962	12,800	30,000	38,000	**3**	3	3
Lead	7439-92-1	26.8	--	12	19	**--**	3	3
Magnesium	7439-95-4	--	--	2,100	3,350	**--**	3	3
Manganese	7439-96-5	2,543	1,140	500	630	0	3	3
Mercury [1]	7439-97-6	0.13	0.6	0.014	0.066	0	3	3
Nickel	7440-02-0	62.8	960	13	15	0	3	3
Potassium	7440-09-7	--	--	1,500	1,800	**--**	3	3
Selenium	7782-49-2	--	19	0.245	0.245	0	1	3
Silver	7440-22-4	--	32	0.041	0.0465	0	3	3
Sodium	7440-23-5	--	--	22	35.5	**--**	3	3
Thallium	7440-28-0	2.11	3.4	0.21	0.23	0	3	3
Vanadium	7440-62-2	108	5,200	55	67.5	0	3	3
Zinc	7440-66-6	202	13,600	56	65	0	3	3
Pesticides (mg/kg)								
4,4'-DDE	72-55-9	--	1.2E+00	0.026	0.026	0	1	3
PCBs (ug/kg)								
Aroclor 1254	11097-69-1	--	1.0E+02	550	550	**1**	1	3
VOCs (ug/kg)								
Acetone	67-64-1	--	8.8E+04	8.5	8.5	0	1	3
Methylene Chloride	75-09-2	--	2.4E+01	3.65	3.65	0	1	3
SVOCs (ug/kg)								
Acenaphthylene	208-96-8	--	3.0E+06	78	78	0	1	3
Anthracene	120-12-7	--	9.0E+06	18	18	0	1	3
Benzaldehyde	100-52-7	--	1.9E+04	18	18	0	1	3
Benzo(a)anthracene	56-55-3	--	2.8E+02	1.15	170	0	2	3
Benzo(a)pyrene	50-32-8	--	9.2E+01	120	120	**1**	1	3
Benzo(b)fluoranthene	205-99-2	--	9.4E+02	160	160	0	1	3
Benzo(g,h,i)perylene [2]	191-24-2	--	3.0E+06	62	62	0	1	3
Benzo(k)fluoranthene	207-08-9	--	9.2E+03	50	50	0	1	3
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.2E+04	10.3	36	0	3	3
Butyl Benzyl Phthalate	85-68-7	--	1.3E+04	4.95	4.95	0	1	3
Chrysene	218-01-9	--	2.8E+04	150	150	0	1	3
Dibenz(a,h)anthracene	53-70-3	--	3.0E+02	12	12	0	1	3
Fluoranthene	206-44-0	--	4.2E+06	210	210	0	1	3
Fluorene	86-73-7	--	6.6E+05	8.7	8.7	0	1	3
Indeno(1,2,3-cd)pyrene	193-39-5	--	3.2E+03	51	51	0	1	3
Phenanthrene [2]	85-01-8	--	3.0E+06	79	79	0	1	3
Pyrene	129-00-0	--	3.0E+06	330	330	0	1	3
Explosives (mg/kg)								
Nitrobenzene	98-95-3	--	1.4E-03	0.079	0.1	**2**	2	3
Cyanide (mg/kg)								
Cyanide, Total	57-12-5	--	1.5E+02	0.088	0.225	0	2	3

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
SSL = Risk-based Soil Screening Level from April 2009 RSL Table
DAF 20 = Dilution Attenuation Factor of 20
-- = No Value Available
[1] = Mercuric chloride soil SSL used
[2] = Pyrene soil SSL used
[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

Table 5-9
SSA 72 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Surface Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Surface Soil	Maximum Concentration Surface Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	24,000	24,000	mg/kg	B-3 Surface/72SB1A	1/1	2.8 - 2.8	24,000	40,041	N
7440-36-0	Antimony	0.81	0.81	mg/kg	B-3 Surface/72SB1A	1/1	0.28 - 0.28	0.81	--	NBE
7440-38-2	Arsenic	2.9	2.9	mg/kg	B-3 Surface/72SB1A	1/1	0.49 - 0.49	2.9	15.8	N
7440-39-3	Barium	91	91	mg/kg	B-3 Surface/72SB1A	1/1	0.18 - 0.18	91	209	N
7440-41-7	Beryllium	1.2	1.2	mg/kg	B-3 Surface/72SB1A	1/1	0.038 - 0.038	1.2	1.02	**Y**
7440-47-3	Chromium	26.5	26.5	mg/kg	B-3 Surface/72SB1A	1/1	0.15 - 0.15	26.5	65.3	N
7440-48-4	Cobalt	13.9	13.9	mg/kg	B-3 Surface/72SB1A	1/1	0.12 - 0.12	13.9	72.3	N
7440-50-8	Copper	15.3	15.3	mg/kg	B-3 Surface/72SB1A	1/1	0.19 - 0.19	15	53.5	N
7439-89-6	Iron	37,200	37,200	mg/kg	B-3 Surface/72SB1A	1/1	5.2 - 5.2	37,200	50,962	N
7439-92-1	Lead	13.2	13.2	mg/kg	B-3 Surface/72SB1A	1/1	0.28 - 0.28	13.2	26.8	N
7439-96-5	Manganese	518	518	mg/kg	B-3 Surface/72SB1A	1/1	0.38 - 0.38	518	2,543	N
7440-02-0	Nickel	14.4	14.4	mg/kg	B-3 Surface/72SB1A	1/1	0.21 - 0.21	14.4	62.8	N
7782-49-2	Selenium	0.58	0.58	mg/kg	B-3 Surface/72SB1A	1/1	0.33 - 0.33	0.58	--	NBE
7440-28-0	Thallium	1.1	1.1	mg/kg	B-3 Surface/72SB1A	1/1	0.43 - 0.43	1.1	2.11	N
7440-62-2	Vanadium	75.2	75.2	mg/kg	B-3 Surface/72SB1A	1/1	0.13 - 0.13	75.2	108	N
7440-66-6	Zinc	53.3	53.3	mg/kg	B-3 Surface/72SB1A	1/1	1.1 - 1.1	53	202	N

Table 5-9
SSA 72 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Total Soil	Maximum Concentration Total Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	19,000	25,000	mg/kg	72SB1B DUP AVG	4/4	1.7 - 2.8	25,000	40,041	N
7440-36-0	Antimony	0.125	0.81	mg/kg	B-3 Surface/72SB1A	4/4	0.037 - 0.28	0.81	--	NBE
7440-38-2	Arsenic	1.5	2.9	mg/kg	B-3 Surface/72SB1A	4/4	0.027 - 0.49	2.9	15.8	N
7440-39-3	Barium	91	99	mg/kg	72SB1B DUP AVG	4/4	0.18 - 0.28	99	209	N
7440-41-7	Beryllium	0.44	1.5	mg/kg	72SB1B DUP AVG	4/4	0.032 - 0.038	1.5	1.02	**Y**
7440-43-9	Cadmium	0.66	1.5	mg/kg	72SB2B	3/4	0.028 - 0.24	1.5	0.69	**Y**
7440-47-3	Chromium	24	31.5	mg/kg	72SB1B DUP AVG	4/4	0.15 - 0.74	31.5	65.3	N
7440-48-4	Cobalt	12	15.5	mg/kg	72SB1B DUP AVG	4/4	0.12 - 0.44	15.5	72.3	N
7440-50-8	Copper	13	17	mg/kg	72SB1B DUP AVG	4/4	0.039 - 0.19	17	53.5	N
7439-89-6	Iron	30,000	38,000	mg/kg	72SB1B DUP AVG	4/4	0.43 - 5.2	38,000	50,962	N
7439-92-1	Lead	12	19	mg/kg	72SB3B	4/4	0.045 - 0.28	19	26.8	N
7439-96-5	Manganese	500	630	mg/kg	72SB1B DUP AVG	4/4	0.2 - 0.38	630	2,543	N
7439-97-6	Mercury	0.014	0.066	mg/kg	72SB2B	3/4	0.008 - 0.02	0.066	0.13	N
7440-02-0	Nickel	13	15	mg/kg	72SB1B DUP AVG	4/4	0.023 - 0.21	15	62.8	N
7782-49-2	Selenium	0.245	0.58	mg/kg	B-3 Surface/72SB1A	2/4	0.045 - 0.33	0.58	--	NBE
7440-22-4	Silver	0.041	0.0465	mg/kg	72SB1B DUP AVG	3/4	0.0099 - 0.011	0.0465	--	NBE
7440-28-0	Thallium	0.21	1.1	mg/kg	B-3 Surface/72SB1A	4/4	0.0056 - 0.43	1.1	2.11	N
7440-62-2	Vanadium	55	75.2	mg/kg	B-3 Surface/72SB1A	4/4	0.059 - 0.13	75.2	108	N
7440-66-6	Zinc	53.3	65	mg/kg	72SB1B DUP AVG	4/4	0.72 - 1.1	65	202	N

Notes:

CAS = Chemical Abstracts Service
TAL = Target Analyte List
NBE = No Background Estimate Available
mg/kg = Milligram Per Kilogram
(A) = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

Table 5-10
SSA 72 Cumulative HHRS (Surface Soil Excluding Metals within Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TCL SVOCs												
56-55-3	Benzo(a)anthracene	mg/kg	1/1	0.29	0.15	c	2.1	c	--	2.E-06	--	1.E-07	--
50-32-8	Benzo(a)pyrene	mg/kg	1/1	0.43	0.015	c	0.21	c	--	3.E-05	--	2.E-06	--
205-99-2	Benzo(b)fluoranthene	mg/kg	1/1	0.21	0.15	c	2.1	c	--	1.E-06	--	1.E-07	--
							Cumulative Risk/Hazard		0.E+00	3.E-05	0.E+00	2.E-06	

Target Organ Segregation

Total blood HI =	0.0	Total blood HI =	0.00
Total CNS HI =	0.0	Total CNS HI =	0.00
Total skin HI =	0.0	Total skin HI =	0.00
Total vascular HI =	0.0	Total vascular HI =	0.00
Total kidney HI =	0.0	Total kidney HI =	0.00
Total GI Tract HI =	0.0	Total GI Tract HI =	0.00
Total liver HI =	0.0	Total liver HI =	0.00

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
MDC = Maximum Detected Concentration
SVOC = Semivolatile Organic Compound
HI = Hazard Index

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 5-11
SSA 72 Cumulative HHRS (Total Soil Excluding Metals within Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	PCBs												
11097-69-1	Aroclor 1254	mg/kg	1/4	0.55	0.22	c	0.74	c	--	3.E-06	--	7.E-07	--
11097-69-1	Aroclor 1254	mg/kg	1/4	0.55	1.1	n	11	n	5.E-01	--	5.E-02	--	eyes
	TCL SVOCs												
56-55-3	Benzo(a)anthracene	mg/kg	3/4	0.29	0.15	c	2.1	c	--	2.E-06	--	1.E-07	--
50-32-8	Benzo(a)pyrene	mg/kg	2/4	0.43	0.015	c	0.21	c	--	3.E-05	--	2.E-06	--
205-99-2	Benzo(b)fluoranthene	mg/kg	2/4	0.21	0.15	c	2.1	c	--	1.E-06	--	1.E-07	--
							Cumulative Risk/Hazard		5.E-01	3.E-05	5.E-02	3.E-06	
Target Organ Segregation													
							Total eyes HI =	0.5			Total eyes HI =	0.05	

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

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6.0 SSA 30 ASBESTOS DISPOSAL TRENCH NO. 1 AND SSA 79 ASBESTOS DISPOSAL TRENCH NO. 2

6.1 SITE BACKGROUND – ENVIRONMENTAL SETTING

6.1.1 Site Description

Asbestos Disposal Trench No. 1 (SSA 30) and Asbestos Disposal Trench No. 2 (SSA 79) are located in the southeastern horseshoe area of RFAAP (Figure 1-1). SSA 30 and SSA 79 are parallel trenches orientated in continuous line approximately 450 ft long with long axis (northwest to southeast) parallel to SWMU 51, TNT waste neutralization pit (Figure 6-1). The trench areas are reportedly 15 ft wide with a maximum depth of 15 ft (USEPA 1987). The asbestos trench areas have been filled to grade and vegetated with grass. A fence surrounds the site area and aboveground power lines cross the middle of the site. The closest structures are storage magazine buildings located north (Building 4601-13), east (Building 4601-13), and west (Building 4601-12) of SSA 30 and SSA 79.

SSA 30 and SSA 79 are located within an elevated plateau area of the horseshoe area. Ground surface in the site area slopes from east to west from a maximum elevation of approximately 1,834 ft msl to a minimum elevation of 1,824 ft msl. A local topographic high exists between the site area and landfill areas (closed sanitary landfill areas SWMU 26 and 52 and hazardous waste landfill SWMU 16) east of the site. A site photographic log for SSA 30 and SSA 79 is included in Appendix B.

6.1.2 Site History

Asbestos Disposal Trench No. 1 (SSA 30) and Asbestos Disposal Trench No. 2 (SSA 79) were used for disposal of asbestos containing material from 1982 to 1987 (USEPA 1987). The trenches received 250 to 500 pounds of double bagged asbestos material per day, 3 to 5 days per week, when asbestos removal activities were ongoing at RFAAP. Daily soil cover was placed on the double bagged asbestos material. The total volume of asbestos materials placed in the trench areas is unknown. Based on the SSP investigation, a minimum of 1 foot of soil cover is present over the asbestos trenches.

Aerial photographs of SSA 30 and SSA 79 area for 1971, 1986, and 1990 are presented as Figures 6-2, 6-3, and 6-4, respectively. The 1971 photograph shows the site area before excavation of the trenches for asbestos disposal and the recently backfilled and re-vegetating area of SWMU 51 located adjacent to and west of the future trench areas. In 1986, the aerial photograph clearly shows the location of the active and backfilled portions of an asbestos trench in the eastern half of the SSA 30 and SSA 79 area. The northern half of the eastern trench is active and white objects (likely double bagged asbestos material) are apparent in the bottom middle of the trench area. The remaining area is backfilled to grade with soil. The closed trench area of SWMU 51 is clearly visible on the 1986 aerial photograph as a rectangular dark green vegetated area adjacent to the asbestos trench area. In 1990, the aerial photograph shows that the area of the eastern asbestos trench has been backfilled and re-vegetated. Perimeter fences around the area of SWMU 51 and the area of SSA 30 and SSA 79 are visible in the area of the photograph. A cinder road is visible east of SWMU 51 and the asbestos trench area.

6.1.3 Surface Water

Surface water bodies, drainage ditches, manholes, catch basins, or preferential flow paths for surface water flow are not located in the area of former asbestos disposal trenches. Overland flow of stormwater across the site is expected to follow topographic slope (east to west). The closest surface water body to the site is the New River located approximately 1,200 ft south of the sites.

6.1.4 Soil

According to the *Soil Survey of Montgomery County, Virginia* (USDA 1985), the site area is underlain by the Braddock Loam with gentle slopes of 2 to 7%. Reaction of Braddock soils ranges from very strongly acid to strongly acid. The organic matter content of this soil is moderately low and permeability is

moderate. Available water capacity of the Braddock soil is moderate and surface runoff is medium. The Braddock soil does not have a seasonally high water table within 60 inches of the surface. A typical profile of the Braddock soil consists of a seven-inch thick surface layer of dark yellowish brown loam underlain by a minimum 60-inch thick subsoil of yellowish-red clay and red clay. Depth to bedrock is greater than 60 inches.

Physical data for four soil samples collected from monitoring well borings 51MW1 and 51MW2 installed for a 1992 RFI conducted at SWMU 51 (Dames & Moore, 1992b) adjacent to SSA 30 and SSA 79 are summarized in the following table. Monitoring well locations are shown on Figure 6-5.

Summary of Physical Soil Data (Dames & Moore, 1992)

Sample No.	Sample Depth (ft bgs)	Moisture (%)	Grain Size Distribution			Atterberg Limits (LL/PL)	USCS Classification
			Gravel (%)	Sand (%)	Fines (%)		
51MW1	10-11.3	8.6	65.8	22.0	12.2	38/18	SC
51MW1	30-32	125	5.3	17.0	77.7	60/26	MH
51MW2	10-12	21.9	0.0	77.5	22.5	32/8	SM
51MW2	25-27	18.6	12.0	66.9	21.1	36/13	SC

Notes: Gravel = retained on #4 sieve, Sand = passed #4 sieve and retained on #200 sieve, Fines = passed #200 sieve., LL = liquid limit, PL = plastic limit, MH = elastic silt, SC = clayey sand, SM = silty sand.

In addition, two physical samples were collected as part of the SSP investigation in 2009 (79SB2A and 79SB2B). The results for these samples are provided in Table 2-1.

6.1.5 Geology

Geologic conditions were previously investigated in the area of SSA 30 and SSA 79 for RFIs conducted at adjacent SWMU 51. Soil and rock borings also were completed adjacent to the site for monitoring wells C1 and 16-4 associated with adjacent landfills SWMU 26, SWMU 52, and HWMU 16 (Figure 6-5). These investigations indicate that the site area is underlain by approximately 40 to 50 ft of unconsolidated deposits consisting of alluvial terrace material and underlying residual soil weathered from underlying bedrock. Alluvial terrace deposits are typically 30 to 35 ft thick and consist of upper layers of silt/clay (ML/CL), silty sand (SM), and clayey sand (SC), and a lower layer of silty gravel (river jack). Residual soil weathered from underlying bedrock is typically clay or silt saprolite containing relict shale or siltstone structure. Coring of bedrock at borings 51MW2, 16-4, and C1 indicated interbedded green shale, siltstone, and dolomite/limestone bedrock of the Cambrian Age Elbrook Formation. The uppermost intervals of bedrock are typically variably weathered with a moderate to high degree of fracturing.

Appendix D.2.3 includes several geologic cross-sections developed by Shaw for the SWMU 51 RFI/CMS Report (Shaw 2008b) illustrating subsurface conditions in the site area and boring logs for monitoring wells 51MW1, 51MW2, C1, and 16-4.

Six soil borings were completed to a depth of 18 ft bgs for the SSP investigation. Soil encountered in these borings confirmed the presence of alluvial terrace deposits to the depths explored. Appendix D.2.1 includes SSP boring logs for SSA 30 and SSA 79.

6.1.6 Hydrogeology

Hydrogeology in the area of SSA 30 and SSA 79 has been previously characterized by the installation of two groundwater monitoring wells for the SWMU 51 RFI (51MW1 and 51MW2) and the installation of two groundwater monitoring wells (C1 and 16-4) to monitor groundwater conditions upgradient of the

SWMU 26 and 52 landfills and the HWMU 16 landfill. Construction and hydrogeologic data for these wells are summarized below.

Monitoring Well Construction Data – Area of SSA 30 and SSA 79

Well ID	Installation Date	Total Depth (ft)	Screen Depth Interval (ft bgs)	Unit Monitored	Slug Test Result (cm/sec)
51MW1	09/24/91	35.0	25.0-35.0	UA	--
51MW2	09/09/91	53.0	43.0-53.0	UA/Bedrock	4.17E-05*
C1	07/29/80	70.0	55.0-70.0	Bedrock	--
16-4	11/02/84	80.0	45.0-80.0	Bedrock	--

Note: UA = unconsolidated alluvium, cm/sec = centimeters per second. * Rising head slug test conducted by Dames & Moore (1992).

These investigations indicate that groundwater in the site area is present within bedrock with measured water levels in wells near the top of competent bedrock. At 51MW2, groundwater also is present within the overburden overlying bedrock. Groundwater studies conducted in the horseshoe area by Shaw (2005, 2006, and 2007) indicate that precipitation infiltrates in high areas of the horseshoe area and recharges the bedrock aquifer with groundwater flow through the bedrock aquifer to the floodplain of the New River and into the New River. The SWMU 51 RFI (Shaw 2008b) conducted by Shaw indicated that groundwater flow in the site area is radial outward toward the west and south. Select groundwater elevation data and a groundwater contour map from the SWMU 51 RFI/CMS Report illustrating these conditions are included Appendix D.2.3.

Potentiometric measurements were obtained from wells C-1, 16-4, 51MW1, and 51MW2 sampled during the SSP as summarized in the following table. This table also includes groundwater measurement data from the RFI conducted at adjacent SWMU 51 that was used by Shaw to develop the groundwater contour map in Appendix D.2.3. Note that the groundwater depths are below the depth of the waste asbestos material (approximately 15 ft bgs).

Groundwater Measurement Data – Area of SSA 30 and SSA 79

		Shaw SWMU 51 RFI		URS SSP SSA 30 and SSA 79	
Well ID	Elevation TOC (ft msl)	DTW (ft TOC) 4/2006	Water Elevation (ft msl)	DTW (ft TOC) 8/2009	Water Elevation (ft msl)
51MW1	1823.13	33.08	1790.05	31.60	1791.53
51MW2	1834.77	50.07	1784.70	44.68	1790.09
C1	1840.14	50.78	1789.36	47.40	1792.74
16-4	1836.76	52.91	1783.85	49.41	1787.35

Notes: TOC = top of casing, msl = mean sea level: datum is NVGD 1929.

6.2 PREVIOUS INVESTIGATION

6.2.1 RCRA Facility Assessment – USEPA 1987

An assessment was conducted at SSA 30 (listed as Unit 30 in RFA) and SSA 79 (listed as Unit 79 in RFA) to evaluate potential hazardous waste or hazardous chemical releases and implement corrective actions, as necessary. The assessment consisted of a preliminary review and evaluation of available site information, personnel interviews, and a visual inspection of the site. Environmental samples were not collected at SSA 30 or SSA 70 as part of the inspection. The assessment indicated that the closure status of SSA 30 was "uncertain due to the active status" of SSA 79. The RFA indicated that no data indicating releases had been collected.

6.2.2 Installation Assessment – USEPA 1992

The Environmental Photographic Interpretation Center (EPIC), under the direction of USEPA, performed an assessment of multiple SWMUs at RFAAP using selected aerial photographs from 1937 to 1986 (USEPA 1992a). The photogeologic analysis was performed to locate waste management areas, identify the location of sinkholes that existed prior to the construction of the RFAAP, and map fracture traces. A specific assessment was not conducted for the asbestos disposal trenches; however, an assessment was conducted for adjacent SWMU 51. The aerial photographic analysis of SWMU 51 indicated that activity was first noted at SWMU 51 in 1975, where an empty trench was visible on the photograph. By 1981, the trench had been filled and a re-vegetating ground scar was the sole remaining feature.

6.2.3 RCRA Facility Investigation at SWMU 51 - Dames & Moore 1992

In 1992, Dames & Moore reported the results of an RFI conducted at SWMU 51 located adjacent to SSA 30 and SSA 79. The RFI focused on evaluating potential releases to groundwater in the area of SWMU 51 and at adjacent landfill areas to the east and north of the site. Monitoring wells sampled around the periphery of the SSA 30 and SSA 79 area included 51MW1, 51MW2, C1, and 16-4 (Figure 6-5). Groundwater samples collected from these wells were analyzed for VOCs, SVOCs, explosives, dissolved metals, TOC, total organic halogens (TOX), and pH. Sample results are summarized in Table 6-1 for detected constituents. Bis(2-ethylhexyl)phthalate and 2,6-dinitrotoluene were detected in wells 16-4 and 51MW2 (2,6-dinitrotoluene only) at concentrations above their USEPA Region III adjusted T-RSLs. The concentration of bis(2-ethylhexyl)phthalate detected in 16-4 also was above its MCL.

6.2.4 Geophysical Survey at SWMU 51 – Argonne National Laboratory 2002

A geophysical survey was conducted in the SWMU 51 area in 2002 to characterize the lateral and vertical extent of the former TNT neutralization-sludge disposal trench. Surface geophysical surveys performed included electromagnetic (EM) 31/34 terrain-conductivity mapping, two-dimensional electrical resistivity imaging (2D-ERI), and seismic refraction tomography. Downhole seismic velocity profiling and electrical logging was conducted at wells 51MW1, 51MW2, and 16-4 to assist in constraining the resistivity models. A copy of the Argonne National Laboratory geophysical report is included in Appendix D.2.3.

The geophysical survey showed a high conductivity anomaly for EM-31 and low resistivity anomaly along profile L-4 in the general trench area shown on the 1986 photograph (Figures B-5 and B-6 in the geophysical report provided in Appendix D.2.3).

6.2.5 Eastern Horseshoe Area Groundwater Sampling – Shaw 2006

In 2006, Shaw reported the results of area wide groundwater sampling in the eastern horseshoe area including wells 51MW1, 51MW2, C1, and 16-4 located in the area of SSA 30 and SSA 79 (Shaw 2006). Groundwater samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, TCL PCBs, TCL dioxin/furans, PAHs, TAL metals (total), and perchlorate. Sample results in Table 6-2 are summarized for detected constituents. Constituents detected in one or more samples at concentrations above their current adjusted T-RSLs included VOCs methylene chloride (“B” flagged due to blank contamination), tetrachloroethene, and 1,1-dichloroethane, pesticides alpha-chlordane and heptachlor epoxide, and total antimony. Detected concentrations were below MCLs.

6.2.6 RCRA Facility Investigation/Corrective Measures Study at SWMU 51 – Shaw 2008

In 2008, Shaw reported the results of an RFI/CMS conducted at SWMU 51 located adjacent to SSA 30 and SSA 79 (Shaw 2008b). Soil sampling was limited to the immediate area of the SWMU 51 trench. Samples were analyzed for TCL VOCs, TCL SVOCs, pesticides, PCBs, herbicides, explosives, TAL metals, and dioxin/furans. The soil samples were not analyzed for asbestos. Existing 2006 groundwater data from the Eastern Horseshoe Area groundwater sampling for 51MW1, 51MW2, C1, and 16-4 were used in the RFI assessment.

6.3 WORK PLAN DATA GAP ANALYSIS

As presented in WPA 028, the data gap analysis completed for SSA 30 and SSA 79 identified data gaps for delineating asbestos trench areas, evaluating potential releases to soil and groundwater from asbestos disposal activities, and characterizing physical and geotechnical properties of site soil (URS 2009).

6.3.1 Delineation of Trench Areas

The precise limits of the asbestos trench area had not been delineated at the site and subsurface investigations specific to the trenches had not been conducted. This data gap was filled by completing surface geophysical investigations across the site area where the trenches are located. Soil borings were completed within the site area to confirm and supplement the geophysical results. Field investigation activities are discussed in Section 6.4.

6.3.2 Soil Release Assessment

Soil sampling had not been performed at SSA 30 and SSA 79 to evaluate potential releases to soil from previous asbestos waste disposal activities or potential commingling of waste with soil cover. This data gap was filled by collecting surface soil samples from the trench areas for analysis of asbestos, TCL VOCs, TCL SVOCs, TCL PCBs, TCL pesticides, explosives, and TAL inorganics. Subsurface soil samples were not collected from within or directly below the trench areas due to the nature of disposal activities and waste (double bagged asbestos material) and associated risk of inadvertently releasing asbestos into the environment. Data gaps for releases to deeper subsurface soil were filled by completing soil borings adjacent to the trench areas and collecting subsurface soil samples for asbestos analysis at depths below the bottom of the trench. Field investigation activities are discussed in Section 6.4.

6.3.2.1 Groundwater

Groundwater monitoring wells 51MW1, 51MW2, C1, and 16-4 located around the perimeter of SSA 30 and SSA 79 had been sampled to evaluate releases from SWMU 51 and adjacent landfill areas; however, these wells had not been sampled for asbestos to evaluate releases to groundwater from the asbestos disposal trenches. Additional groundwater samples were collected from these wells for analysis of asbestos to evaluate potential releases to groundwater and fill this data gap, as described in Section 6.4.

6.3.2.2 Other

Physical soil testing of soil in the site area was limited to one boring completed within the SWMU 51 area, which penetrated sludge material not considered representative of site soil and four soil samples collected from well borings 51MW1 and 51MW2 for limited parameters (grain size analysis, Atterberg limits, moisture content, and soil classification). Additional physical testing of representative surface soil and surface soil was conducted to fill this data gap and more completely characterize physical and geotechnical properties of site soil, as described in Section 6.4.

6.3.3 Summary of Data Gaps

The following table summarizes these identified data gaps and the completion plan to fill the data gaps from WPA 028 (URS 2009).

SSA 30 and SSA 79 - Summary of Data Gap Analysis and Completion Plan

DATA GAPS			COMPLETION PLAN
Item	**Physical**	**Chemical**	
Delineation of Trench Areas	Geophysical Survey and Soil Borings	Not Applicable	Complete geophysical survey and soil borings
Releases to Soil	Surface Soil Samples	Chemical Data – asbestos, VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect surface soil samples within trench area for chemical analysis
	Subsurface Soil Samples	Chemical Data – asbestos, VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect subsurface soil samples from soil borings completed adjacent to trench areas at depths below trench.
Releases to Groundwater	Groundwater Samples	Chemical Data – Asbestos	Sample existing groundwater monitoring wells 51MW1, 51MW2, C1, and 16-4.
Site-Wide Soil Characteristics	Physical / Geotechnical Properties	pH, TOC, grain size, Atterberg Limits, and moisture content	Collect samples for geotechnical and physical property analysis.

6.4 SSP FIELD ACTIVITIES

An initial surface geophysical survey was conducted at SSAs 30 and 79 in July 2009 by ATS International (ATS) under the direction of URS. Based on the presence of some anomalies in the initial survey, the survey boundaries were expanded and an additional geophysical study was conducted by ATS (Figure 6-6) in September 2009. The expanded survey identified the presence of trench areas surrounding SWMU 51 to the north, east, and west as shown on Figure 6-6. The geophysical survey confirmed previous reports of approximate waste depths up to 15 ft below ground surface. The geophysical survey report prepared by ATS is provided in Appendix D.5.

Fourteen soil borings were advanced in and around the trench areas to evaluate for the presence or absence of chemicals in soil potentially associated with asbestos disposal. Sample and boring information is summarized in the table below and sample locations are shown on Figure 6-7. Six surface soil samples were collected within the trench area located east of SWMU 51 and three soil borings were advanced outside the perimeter of this trench area. Two surface soil samples were collected within the trench area located west of SWMU 51 and two borings were advanced outside the perimeter of this trench area. Surface samples within the trench areas were collected from 0 to 0.5 ft bgs using a hand auger and/or shovel, with the exception of VOC samples which were collected from 0.5 to 1 ft bgs. Outside the perimeter of the trenches, borings were advanced to 3 ft below the bottom of the trenches (approximately 18 ft bgs), as determined from the geophysical survey, using a skid steer-mounted, direct-push Geoprobe® unit. Discrete samples were collected from surface (within the units) or intermediate (outside the perimeter of the trenches) intervals as summarized below.

SSAs 30 and 79 SSP Samples and Boring Information

Boring ID	Location	Total Depth of Boring (ft bgs)	Surface Sample ID	Sample Depth (ft bgs)	Intermediate Sample ID	Sample Depth (ft bgs)
30SS1	Eastern Trench Area	1.0	30SS1	0-1	--	--
30SS2	Eastern Trench Area	1.0	30SS2	0-1	--	--
30SS3	Eastern Trench Area	1.0	30SS3	0-1	--	--
30SB1	Eastern Trench Area	18	--	--	30SB1B	16-18
30SB2	Eastern Trench Area	18	--	--	30SB2B	16-18
30SB3	Eastern Trench Area	18	--	--	30SB3B	16-18
79SS1	Eastern Trench Area	1.0	79SS1	0-1	--	--
79SS2	Eastern Trench Area	1.0	79SS2	0-1	--	--
79SS3	Eastern Trench Area	1.0	79SS3	0-1	--	--
79SS4	Western Trench Area	1.0	79SS4	0-1	--	--
79SS5	Western Trench Area	1.0	79SS5	0-1	--	--
79SB1	Western Trench Area	18	--	--	79SB1B	16-18
79SB2	Eastern Trench Area	18	79SB2A*	0-1	79SB2B	16-18
79SB3	Western Trench Area	18	--	--	79SB3B	16-18

Note: *Sample 79SB2A analyzed for physical soil parameters only.

Soil samples were analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, TCL pesticides, explosives (including nitroglycerin and PETN), TAL inorganics, and asbestos. For the SSP, groundwater samples were collected from monitoring wells 51MW1, 51MW2, C1, and 16-4 and analyzed for asbestos. Analytical results (detected chemicals) used for the SSP are summarized in Tables 6-3 (soil) and 6-4 (groundwater).

Two samples were collected for physical testing (one surface soil sample (79SB2A) and one subsurface soil sample (79SB2B)). Physical testing for each sample included: grain size analysis, Atterberg limits, soil moisture content, TOC, and pH. Analytical results for these samples are summarized in Table 2-1 and the complete results are provided in Appendix D.1.

During field sampling activities, modifications to the Work Plan were necessary to adjust for field conditions. Based on the presence of some anomalies in the initial survey, the survey boundaries were expanded and an additional geophysical study was conducted in September 2009 (Figure 6-6). The expanded survey identified trench areas to the north, east, and west of SWMU 51. Borings 79SB1 and 79SB3 were therefore repositioned to locations adjacent to the western trench areas outside the fence and two additional surface soil samples were collected from the western trench areas (Figure 6-6) that were not identified in WPA 028.

6.5 CONCEPTUAL SITE MODEL (CSM)

A CSM for SSAs 30 and 79 is presented on Figure 6-8. The site is located on the highest level alluvial terrace within the eastern horseshoe area at RFAAP. Approximately 40 to 50 ft of unconsolidated material overlies competent bedrock in the site area. Groundwater occurs near the overburden/bedrock interface and within bedrock at depths of approximately 30 to 40 ft below the bottom of the asbestos trenches. Groundwater flows radially from the site area toward the west and south. Surface water bodies,

drainage ditches, manholes, catch basins, or preferred drainage paths or features are not present at SSA 30 or SSA 79. The heavy tall grass and weed vegetation present on the sites would reduce storm water runoff. Any overland runoff from the site area would follow the approximately 5% topographic slope toward the west.

Potential constituent sources at the site are related to the disposal of double bagged asbestos waste material in the trench areas to depths up to 15 ft. As presented in Section 6.1.2, the total volume of asbestos material placed in the trenches is unknown. Daily soil cover was placed over the disposed bagged material. Potentially affected media at the site include:

- Surface and subsurface soil from asbestos disposal activities;
- Subsurface soil via leaching of asbestos material from the trench areas; and
- Groundwater via leaching of asbestos material from subsurface soil.

Although current and likely future land-use scenarios are limited to industrial operations, both residential and industrial scenarios will be evaluated in the SSP human health screening (USEPA 2001).

SSAs 30 and 79 are exclusively an upland habitat that lacks wetland and significant onsite drainage features. Therefore, soil represents the potential exposure medium for ecological receptors. An ECSM is provided in Section 3.0, Figure 3-1.

6.6 HUMAN HEALTH RISK SCREENING

6.6.1 Identification of COPCs

Tables 6-5 and 6-6 present the results of the COPC evaluations for surface soil and total soil, respectively. COPCs identified for surface soil and total soil included:

TAL metals: aluminum, arsenic, cobalt, iron, manganese, vanadium;

TCL Pesticides: none;

TCL PCBs: none;

TCL VOCs: none;

TAL SVOCs: benzo(a)pyrene, dibenz(a,h)anthracene, dibenzofuran (NSV);

Explosives: none; and

Asbestos: not detected.

As presented in WPA 028, potential releases to groundwater were assessed by evaluating subsurface soil data and comparison of these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table (USEPA 2009; Section 6.6.4). Table 6-2 presents the results for asbestos in groundwater. Asbestos was not detected in groundwater; therefore, asbestos is not a COPC for groundwater. The SWMU 51 RFI (Shaw 2008b) investigation of the groundwater in the same area did not identify groundwater at the sites as a risk to human health or the environment.

6.6.2 Cumulative Risk Screen

The cumulative risk screenings for surface soil and total soil are presented on Tables 6-7 and 6-8, respectively. A summary of the screening results is presented below:

Cumulative Human Health Risk Screening Results for Soil

	Surface Soil			Total Soil		
	Above/ Below/ Equal	**Risk/ Hazard**	**Drivers**	**Above/ Below/ Equal**	**Risk/ Hazard**	**Drivers**
Residential Risk	Equal	1.E-05	Arsenic, PAHs	Equal	1.E-05	Arsenic, PAHs
Industrial Risk	Below	2.E-06	--	Below	3.E-06	--
Residential Hazard	Above	2	Aluminum, Arsenic, Cobalt, Iron, Manganese	Above	3	Aluminum, Arsenic, Cobalt, Iron, Manganese
Industrial Hazard	Below	0.2	--	Below	0.2	--

*Note: Above, below, or equal to established SSP risk and hazard levels.

The cumulative human health risk screens were equal to the established SSP risk level of 1E-05 and above the hazard level of 1 for the residential scenario for surface and total soil. Cumulative risk screenings were below the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the industrial scenarios. The risk/hazard drivers identified in the table above are those chemicals that primarily contribute to HIs or risks greater than the established SSP hazard level of 1 or risk level of 1E-05, respectively.

Due to multiple chemicals contributing to a residential HI greater than 1, as presented on Table 6-7 (surface soil) and Table 6-8 (total soil), the HIs have been segregated based on primary target organs for chronic exposure. The HI segregations for surface soil and total soil resulted in values equal to or higher than the cumulative SSP HI target organ threshold of 0.5 for the following target organs: blood, CNS, GI tract, and liver.

6.6.3 Lead and Iron Screening

Detected lead concentrations at the sites were below 400 mg/kg; therefore, lead modeling was not conducted for the sites.

Since iron concentrations in soil result in an HQ of greater than 0.5, further assessment is required. This assessment consists of a "margin of exposure evaluation" where the estimated intake of iron is compared to the RDA and concentrations known to cause adverse health effects in children (NCEA 2006). Appendix E.3 presents the margin of exposure evaluation for surface soil and total soil. A summary of the results for SSAs 30 and 79 is presented below.

Iron Margin of Exposure Evaluation – Future Child Resident

	Surface Soil			Total Soil		
	Above/ Below	**Estimated Site Intake**	**Exposure Screening Level**	**Above/ Below**	**Estimated Site Intake**	**Exposure Screening Level**
RDA Screen (mg/day)	Below	7	10	Below	8	10
Provisional Reference Dose (RfD) Screen (mg/kg-day)	Below	0.4	0.7	Below	0.6	0.7

The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSAs 30 and 79.

6.6.4 SSL Comparison - Soil

6.6.4.1 Generic SSLs (Soil-to-groundwater Risk-based Screening Levels)

An SSL screening was conducted for detected chemicals in subsurface soil to evaluate the potential for leaching of chemicals from soil to groundwater. As presented in Table 6-9, the detected concentrations for each chemical in subsurface soil were compared to their USEPA risk-based SSLs included in the Regional Screening Table (USEPA 2009), if available. The comparisons of subsurface soil concentrations to generic SSLs (DAF 20) for detected chemicals indicated that arsenic, iron, and nitrobenzene were above their SSLs (Table 6-9).

6.6.4.2 Site-specific SSL Comparison

Site-specific SSLs were not calculated.

6.6.5 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPCs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). No metals identified as COPCs in surface soil and total soil were above their background point estimates (Table 6-10).

6.6.6 Human Health Risk Screening Summary

Soil COPCs with screening values were limited to metals and SVOCs. Asbestos, the primary chemical of concern for the sites, was not detected in soil. The soil cumulative human health risk screens were equal to the established SSP risk level of 1E-05 and above the hazard level of 1 for the residential scenario for surface and total soil. Cumulative risk screenings were below the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the industrial scenario.

The results of the carcinogenic residential risk screenings were equal to the established SSP threshold (1E-05) for surface soil and total soil primarily due to arsenic concentrations below the background point estimate. As presented in Table 6-11 (surface soil) and Table 6-12 (total soil), the site-related risks, when excluding metals risk drivers detected below background (arsenic) in surface and total soil, is 6.E-06 which is below the SSP risk threshold of 1E-05.

The noncarcinogenic residential hazard screenings were above the established SSP threshold (HI=1) for surface and total soil primarily due to metals at concentrations below background (Table 6-10) and are therefore not considered a concern for the sites.

Detected lead concentrations at the sites were below 400 mg/kg; therefore, lead modeling was not conducted for the sites. The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSAs 30 and 79.

The comparisons of subsurface soil to generic risk-based SSLs (DAF 20) for detected chemicals indicated that arsenic, iron, and nitrobenzene were above their SSLs (Table 6-9). Although arsenic and iron were above their SSLs, detected concentrations were below their background point estimates and are not considered a concern at the sites. In addition, nitrobenzene detections were limited to one sample and nitrobenzene was not detected in groundwater at the site.

Asbestos, the primary chemical of concern for the sites, was not detected in groundwater. The SWMU 51 RFI (Shaw 2008b) investigation of the groundwater in the same area did not identify groundwater at the sites as a risk to human health or the environment.

6.7 ECOLOGICAL RISK SCREENING

6.7.1 Ecological Site Characterization

An overview of the site physiography, water resources, soil, and geology for SSAs 30 and 79 is presented in Section 6.1. SSAs 30 and 79 area is an approximate 1.6-acre grass area that provides habitat to wildlife potentially occurring in the area. The closest structures are storage magazine buildings located north (Building 4601-13), east (Building 4601-13), and west (Building 4601-12) of SSA 30 and SSA 79. The sites are bordered by a road to the south.

Observations made during the site reconnaissance indicate that a viable herbaceous vegetation community occurs at the site (Appendix B). Signs of chemical vegetative stress were not observed during the reconnaissance. Based on information from the Installation-Wide Biological Survey and observations made during the site reconnaissance, the grassland vegetative community at the site is typical of other meadow-grassed areas that are regularly maintained at RFAAP. The habitat could support some ecological use (i.e., shelter and foraging) by some smaller common species in the area.

Threatened, rare, or endangered species were not observed during the site reconnaissance. These species are not likely to be present within the boundaries of the site. Threatened, rare, and endangered species information for RFAAP is discussed in Section 3.3.4.

6.7.1.1 Data Organization

The following table identifies the soil samples used for the SLERA. These samples were analyzed for TAL inorganics, TCL pesticides, TCL PCBs, TCL VOCs, TCL SVOCs, explosives (including nitroglycerin and PETN), and asbestos. Refer to Table 2-2 for a detailed list of samples and analytes.

Soil Samples Evaluated for SLERA

SSAs 30 and 79	
30SS1	79SS2
30SS2	79SS3
30SS3	79SS4
79SS1	79SS5

Detected chemical occurrence and distribution tables for surface soil are presented in Table F.3-1. Refer to Table 6-1 for a complete list of results for detected analytes. In addition, to evaluate the adequate sensitivity of the MDL for the necessary screening levels, Table F.3-2 provides a screening of the maximum MDL versus available ecological screening values for non-detected chemicals in surface soil.

6.7.1.2 Ecological Conceptual Site Model (ECSM)

The terrestrial ECSM is presented on Figure 3-1. Surface soil is a potential exposure medium of concern based on historical activities at the site. Based on the site characterization and data, the terrestrial receptor exposure to surface soil pathway exists.

6.7.2 Preliminary Exposure Estimate and Ecological Effects Evaluation

The preliminary exposure estimate and ecological effects evaluation considers the most conservative risk scenario. Highly conservative assumptions are used to estimate COPEC exposure to terrestrial receptors for pathways to be quantitatively evaluated. Conservative TRVs are used to evaluate the ecological effects of exposure using the two approaches discussed below.

6.7.2.1 Direct Contact Approach

The MDC for detected chemicals are used as the preliminary exposure estimate concentrations to develop a conservative risk scenario for the direct contact pathway to soil invertebrates and terrestrial plants. The results of the preliminary exposure assessments for plants and invertebrates are provided below.

Terrestrial Plants

Preliminary direct contact HQs calculated for plants are presented in Table F.3-6 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of aluminum, chromium, manganese, and vanadium resulted in HQ values that were greater than 1.

Soil Invertebrates and Microbial Communities

Preliminary direct contact HQs calculated for invertebrates are presented in Table F.3-8 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of chromium, iron, manganese, mercury, and vanadium resulted in HQ values that were greater than 1.

6.7.2.2 Dose Rate Modeling Approach

Quantitative risk characterization for terrestrial wildlife is limited to direct ingestion of biota and incidental ingestion of soil. The preliminary risks for detected bioaccumulative chemicals are summarized in Table F.3-24 for each terrestrial wildlife receptor and the chemicals with HQs greater than 1 are characterized as follows:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	cadmium	arsenic, selenium
Short-tailed Shrew	arsenic, chromium, Aroclor 1254	cadmium
Red Fox	chromium, lead, selenium, zinc, Aroclor 1254, Aroclor 1260	arsenic, cadmium
American Robin	mercury, selenium	cadmium, chromium, lead, zinc
Red-tailed Hawk	zinc	none

6.7.3 Refined Exposure Estimate and Risk Characterization

6.7.3.1 Direct Contact Approach

The refined exposure estimate for the direct contact pathway to soil invertebrate and microbial communities incorporates the 95% UCL as the exposure concentration for evaluating the COPECs using a conservative yet more realistic exposure assumption than MDCs. Due to the number of samples at the sites, a 95% UCL was not calculated; therefore, a refinement of the direct contact pathway was not conducted.

6.7.3.2 Dose Rate Modeling Approach

The refined exposure estimates and ecological effects are developed for wildlife receptors having complete exposure pathways to be quantitatively evaluated (i.e., omnivorous birds, and carnivorous and herbivorous mammals). In the refined model, an average body weight, average ingestion rate, and a 95% UCL as the EPC are used. Due to the small number of samples at the sites, a 95% UCL was not calculated for the sites and the MDC was used as the EPC for the refinement. Refined receptor-specific exposure parameters are presented on Table F.3-9 (Appendix F.3). In addition, a realistic area use factor ($AF_{refined}$) was calculated as the ratio of the site area to the average home range of the receptor which is also presented in Table F.3-9 (Appendix F.3). A summary of the results of the refined exposure assessment for terrestrial wildlife is provided below.

Terrestrial Wildlife

The refined risk characterization results are presented in Table F.3-24 and summarized below for each of the receptors with chemical HQs greater than 1:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	none	none
Short-tailed Shrew	none	none
Red Fox	none	none
American Robin	chromium (1.1), lead (1.8), zinc (2.8)	none
Red-tailed Hawk	none	none

*Note: (1.1) = NOAEL-based HQ

6.7.4 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPECs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). The comparison of MDCs for metals identified as COPECs in surface soil with their background point estimates resulted in site soil MDCs above background point estimates for cadmium and lead (Table 6-10). Note that a background point estimate is not available for selenium; therefore, a background comparison was not conducted.

6.7.5 Risk Management – Scientific Management Decision Point

The findings of the ecological risk screen including site characterization and risk calculations are used as input to risk management decision-making for the sites. The SMDP reached from the ecological risk screening concludes that one of the following statements is true:

- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the sites on the basis of ecological risk;
- The information is not adequate to make a decision at this point and further refinement of data is needed to augment the ecological risk screening; or
- The information collected and presented indicates that a more thorough assessment is warranted.

Terrestrial plant COPECs with HQs greater than 1 included: aluminum (HQ=620), chromium (HQ=27), manganese (HQ=5.5), and vanadium (HQ=32). Aluminum, chromium, manganese, and vanadium are below background point estimates (Table 6-10); therefore, these chemicals are not considered site-related.

Soil invertebrates and microbial processes COPECs with HQs greater than 1 included chromium (HQ=68), iron (HQ=180), manganese (HQ=2.7), mercury (HQ=1.1), and vanadium (HQ=3.2).

Chromium, iron, manganese, mercury, and vanadium are below background point estimates (Table 6-10); therefore, these chemicals are not considered site-related.

The refined risk characterization for wildlife resulted in the identification of no chemicals with a LOAEL-based HQ greater than 1.

After consideration of the limited metals concentrations above ecological screening levels for plants and invertebrates but below background point estimates and the lack of refined LOAEL-based HQs greater than 1 for terrestrial receptors, the SMDP is the following:

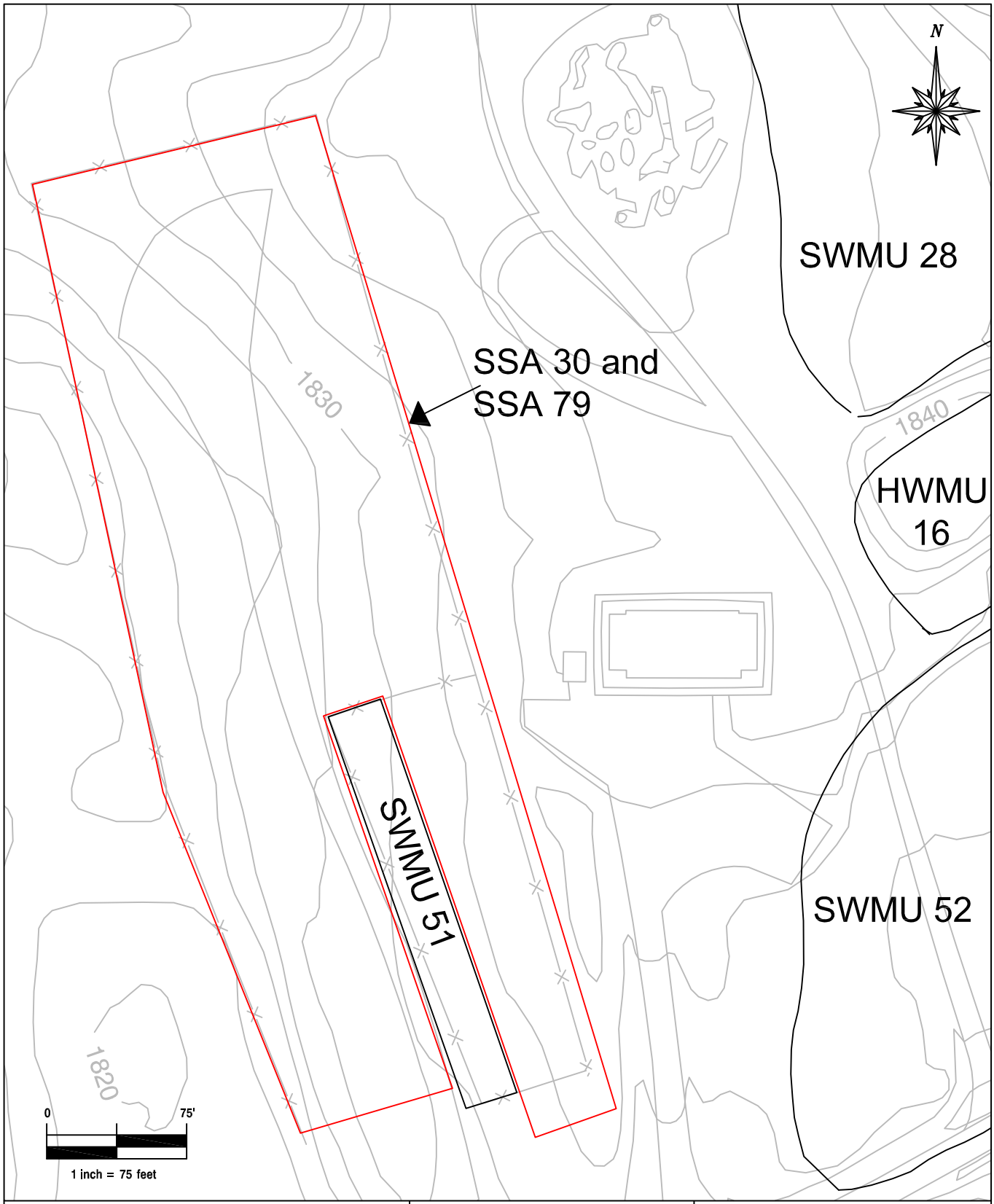
There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the site on the basis of ecological risk.

6.8 CONCLUSIONS AND RECOMMENDATION

No further action beyond the implementation of institutional controls (due to the presence of bagged asbestos containing material at the site within the trenches) is recommended for SSAs 30 and 79 based on the following results of the SSP screening:

- Cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards;
- Site-related cumulative risk and hazard screening results for residential scenarios are below SSP thresholds for target risk and hazards;
- The MDC for lead is below the SSP screening level of 400 mg/kg;
- The iron exposure assessment results for the hypothetical future child resident are below the applicable iron margin of exposure screening criteria;
- Chemicals at concentrations above their generic SSLs are limited to metals at concentrations below background and therefore not considered a concern at the sites;
- Evidence of the release of asbestos outside the trenches was not indicated based on the results of the SSP investigation (asbestos was not detected in any soil or groundwater samples); and
- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at SSAs 30 and 79 based on ecological risk.

Institutional controls (ICs) are being implemented at the sites (SSAs 30 and 79 – Asbestos Disposal Trench No. 1 and No. 2) within the boundaries depicted on Figure 6-1. The objective of the ICs is to maintain the sites in their current industrial/commercial state as a closed solid waste management unit and to prevent any future residential use. Specifically these sites have been incorporated into plant management manual to ensure long-term protection of human health and the environment. The management manual provides for advance notice, assessment, and approval of intrusive work that may occur within the plant with a general digging prohibition at sites such as this. In addition, since bagged asbestos-containing material is known to be buried in the site trenches, the soil cover at these sites will be maintained to prevent erosion and potential exposure of the bags. In the event the property is transferred or leased, equivalent ICs will be put into terms and conditions of the deed or lease, which are no less restrictive than the IC objectives described above. Furthermore, the transferee or lessee will be responsible for ensuring IC compliance by any future users. However, the Army acknowledges the responsibility for all original liability under CERCLA and its right and responsibility to enforce ICs.



Legend

- Approximate SSA Boundary
- Topographic Contour
- Fence
- Approximate SWMU Boundary

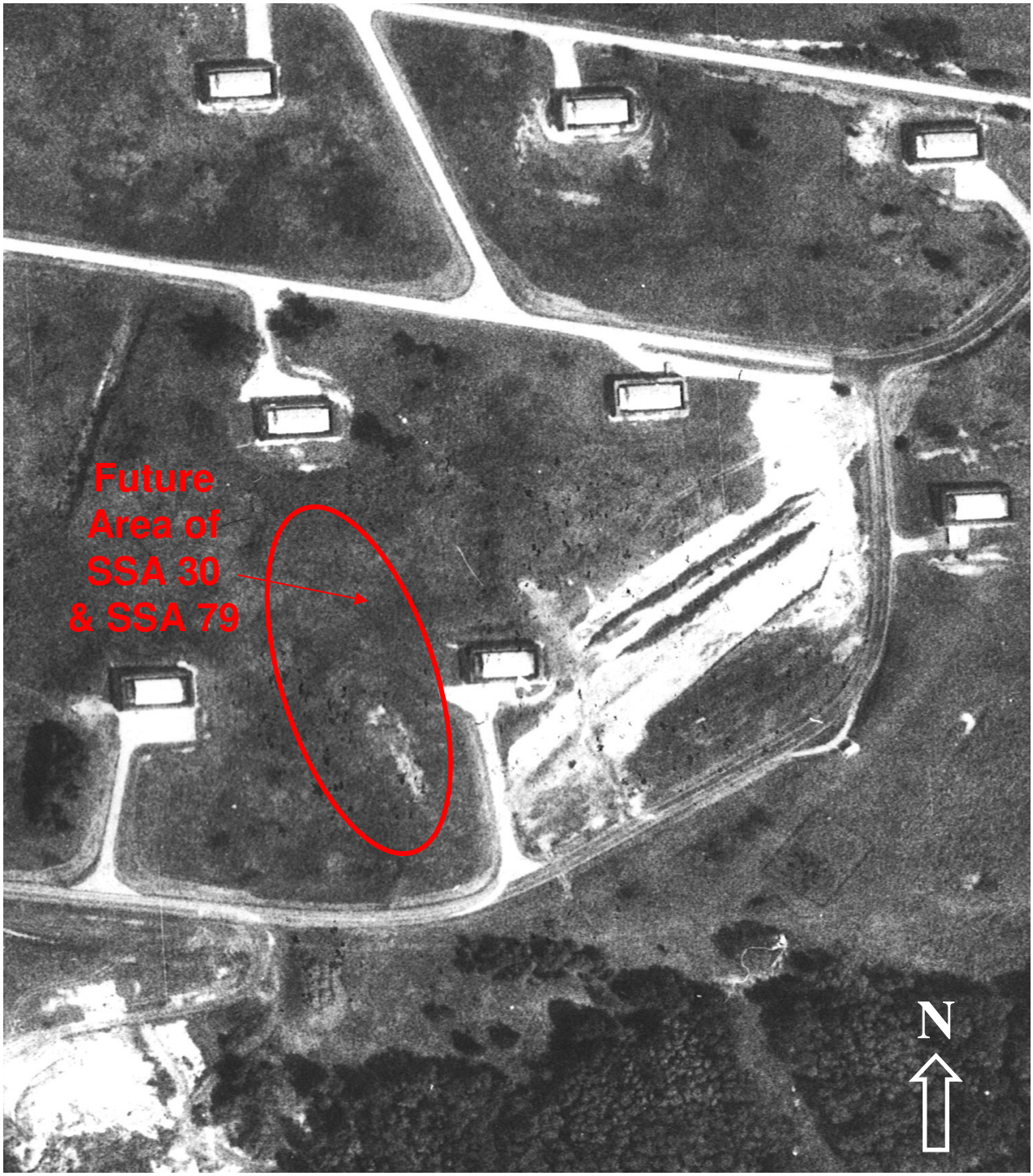
FIGURE 6-1

Site Layout - SSA 30 and SSA 79

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 75 feet	File Name: Fig.6-1 SiteLayout

SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

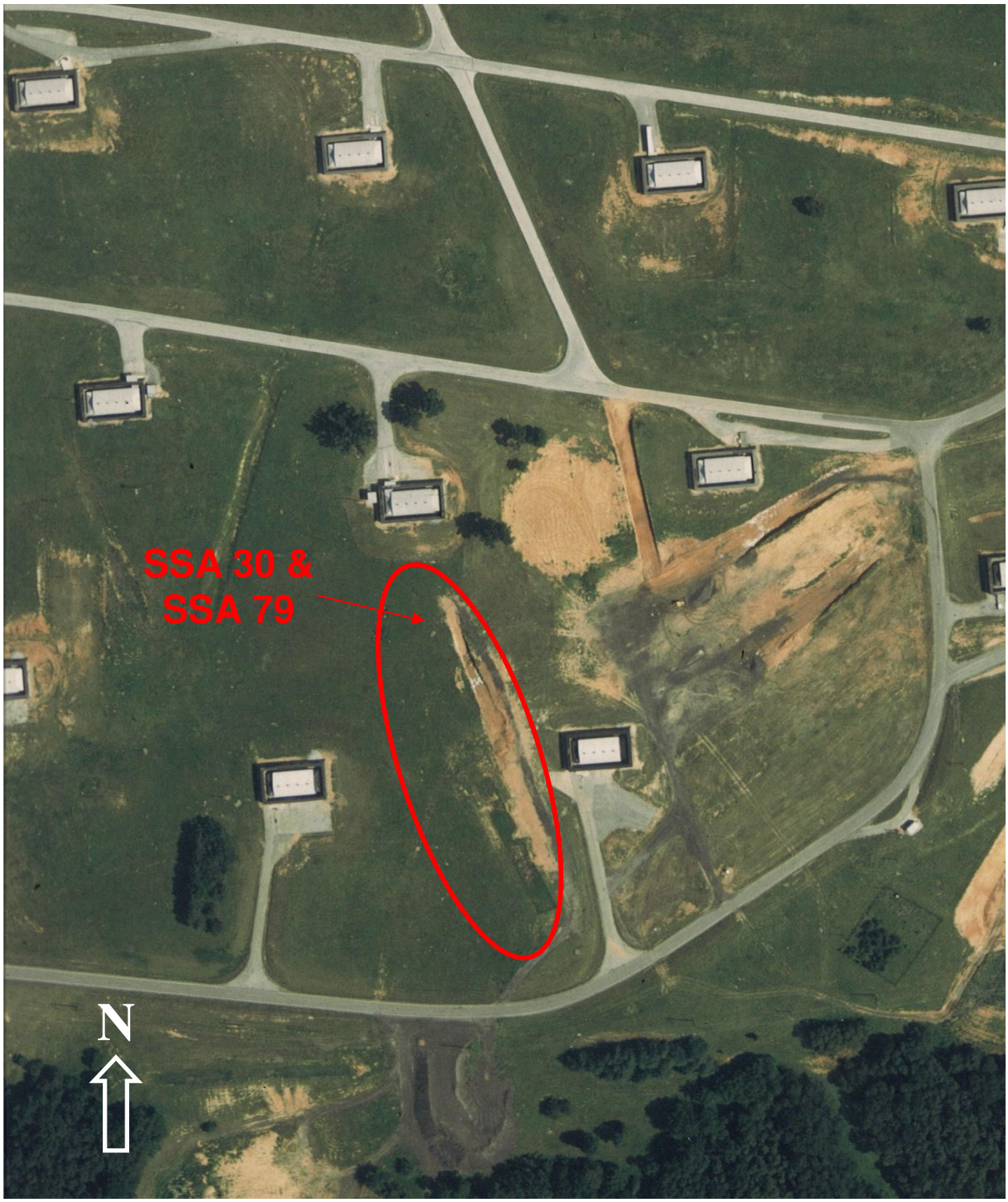


SSA 30 and SSA 79
AERIAL PHOTOGRAPH – 1971

FIGURE 6-2

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*

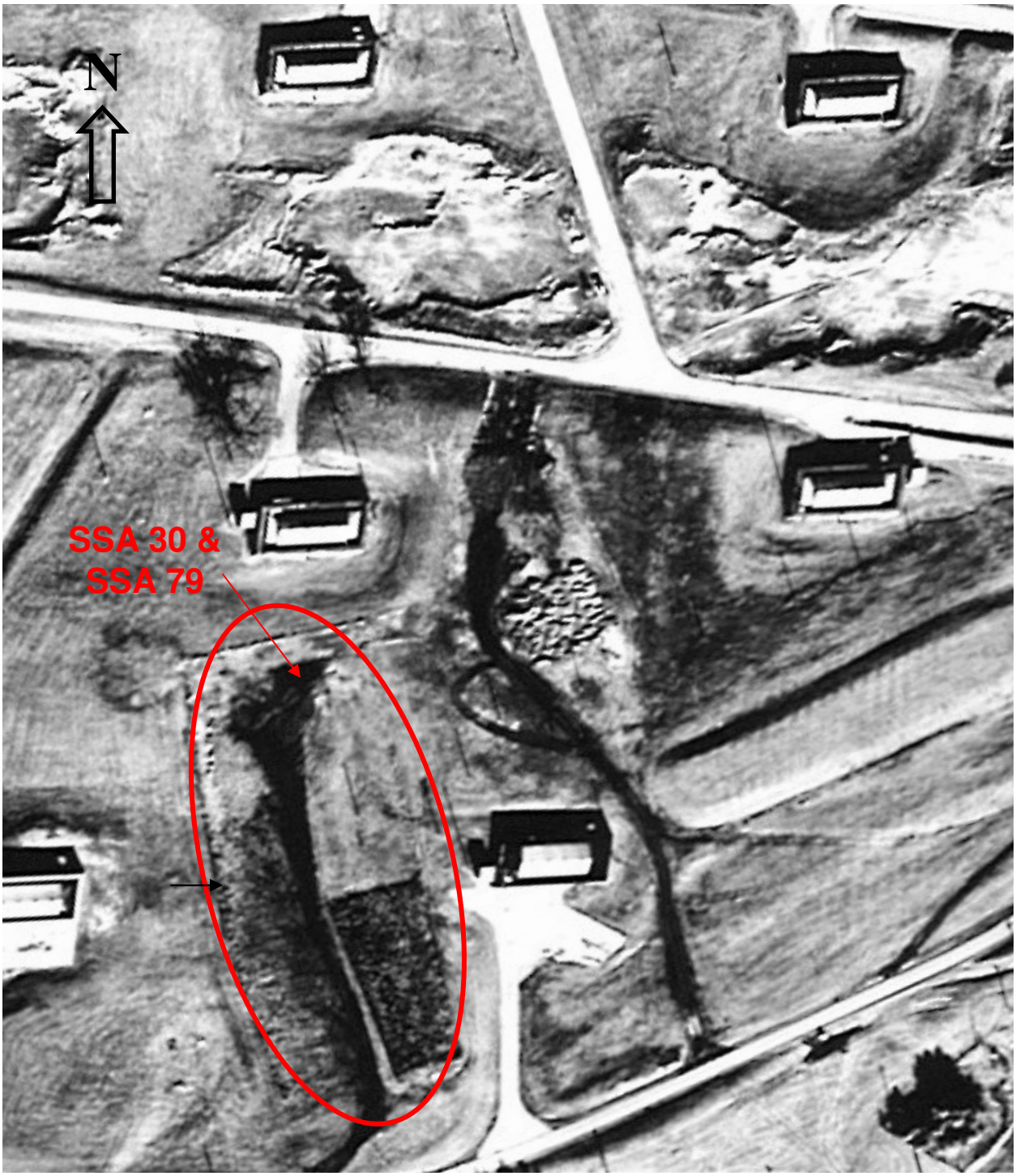


SSA 30 and SSA 79
AERIAL PHOTOGRAPH – 1986

FIGURE 6-3

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*

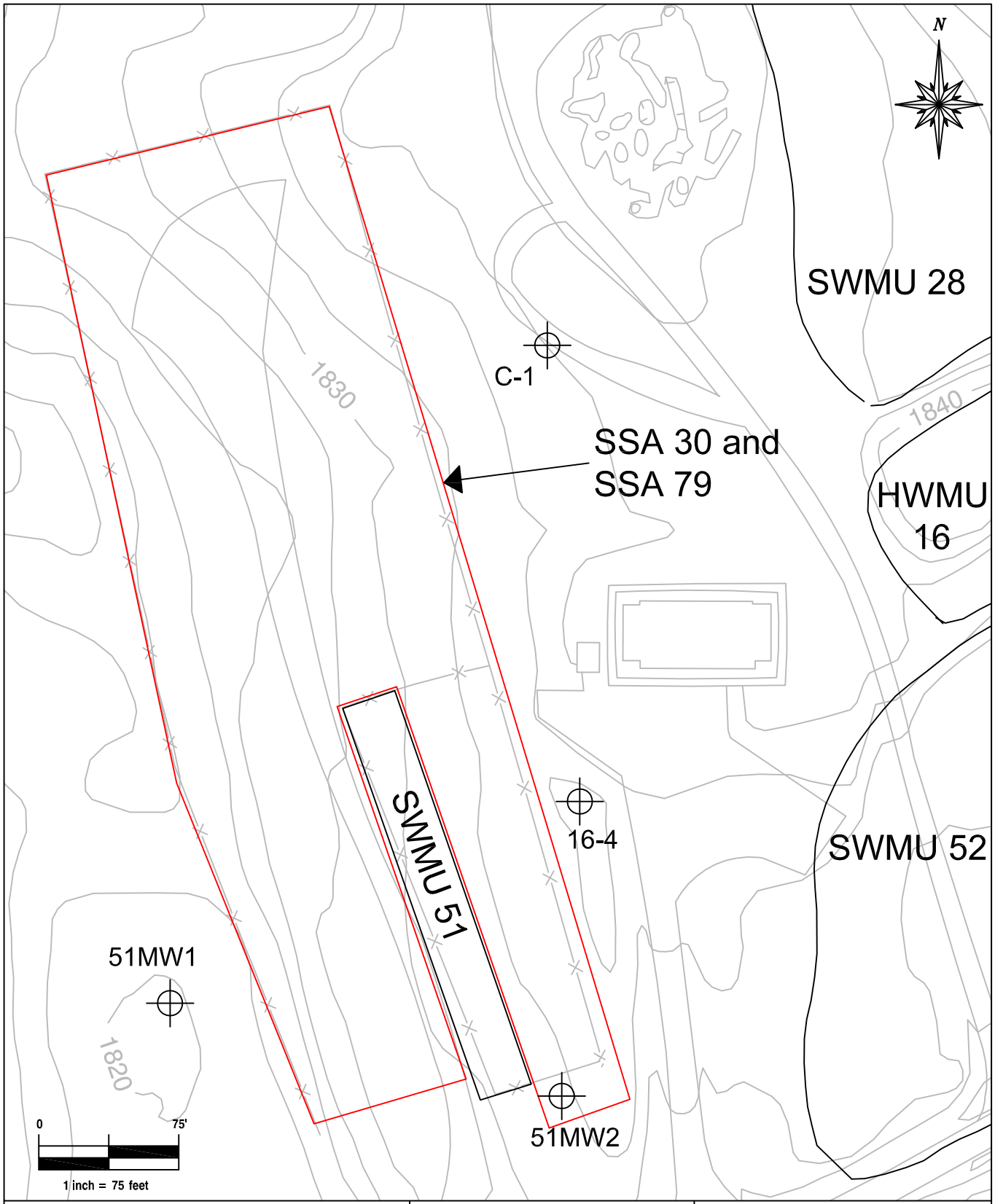


SSA 30 and SSA 79
AERIAL PHOTOGRAPH – 1990

FIGURE 6-4

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*



Legend

- Monitoring Well Location
- Approximate SSA Boundary
- Topographic Contour
- Fence
- Approximate SWMU Boundary

FIGURE 6-5

Previous Investigations -
SSA 30 and SSA 79

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 75 feet	File Name: Fig.6-5 Prev Invest

SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
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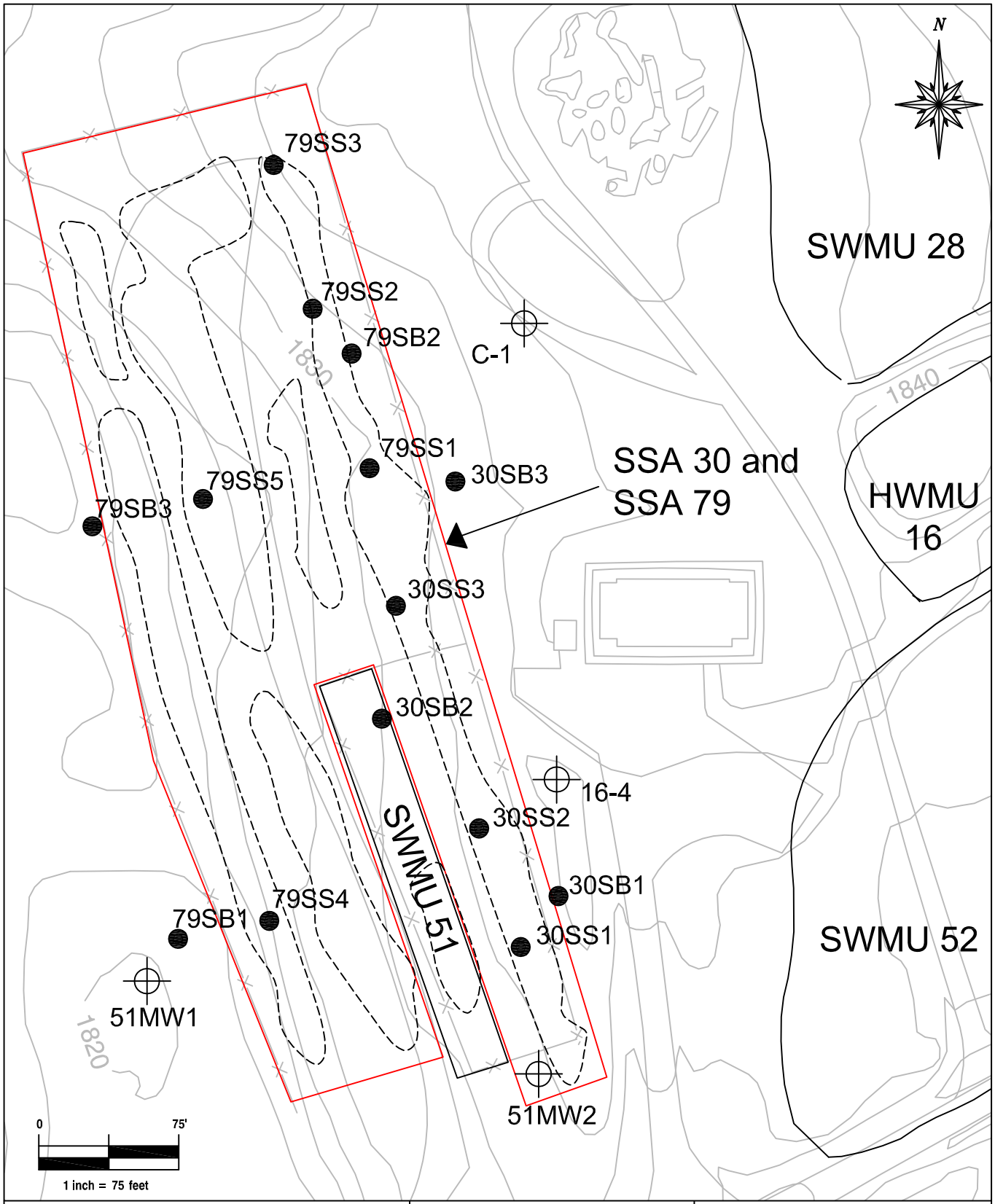
Richmond, Virginia 23230



Legend

- Monitoring Well Location
- SSP Sample Location
- Approximate SSA Boundary
- Topographic Contour
- Fence
- Approximate SWMU Boundary
- Interpreted Buried Material Locations From Geophysical Survey

FIGURE 6-6

Geophysical Survey
SSA 30 and SSA 79

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 75 feet	File Name: Fig.6-6

SSP for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
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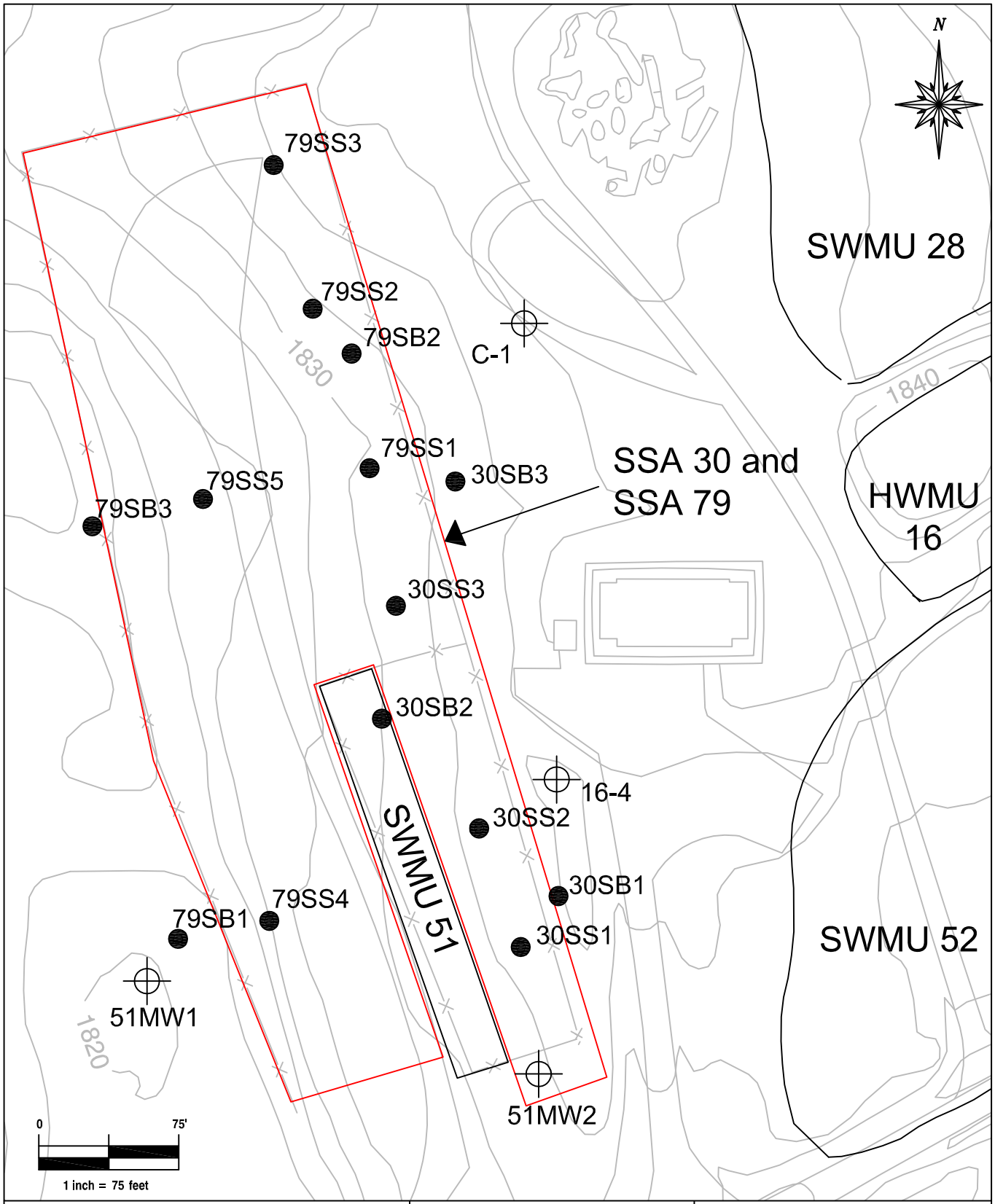


Legend

- Monitoring Well Location
- SSP Sample Location
- Approximate SSA Boundary
- Topographic Contour
- Fence
- Approximate SWMU Boundary

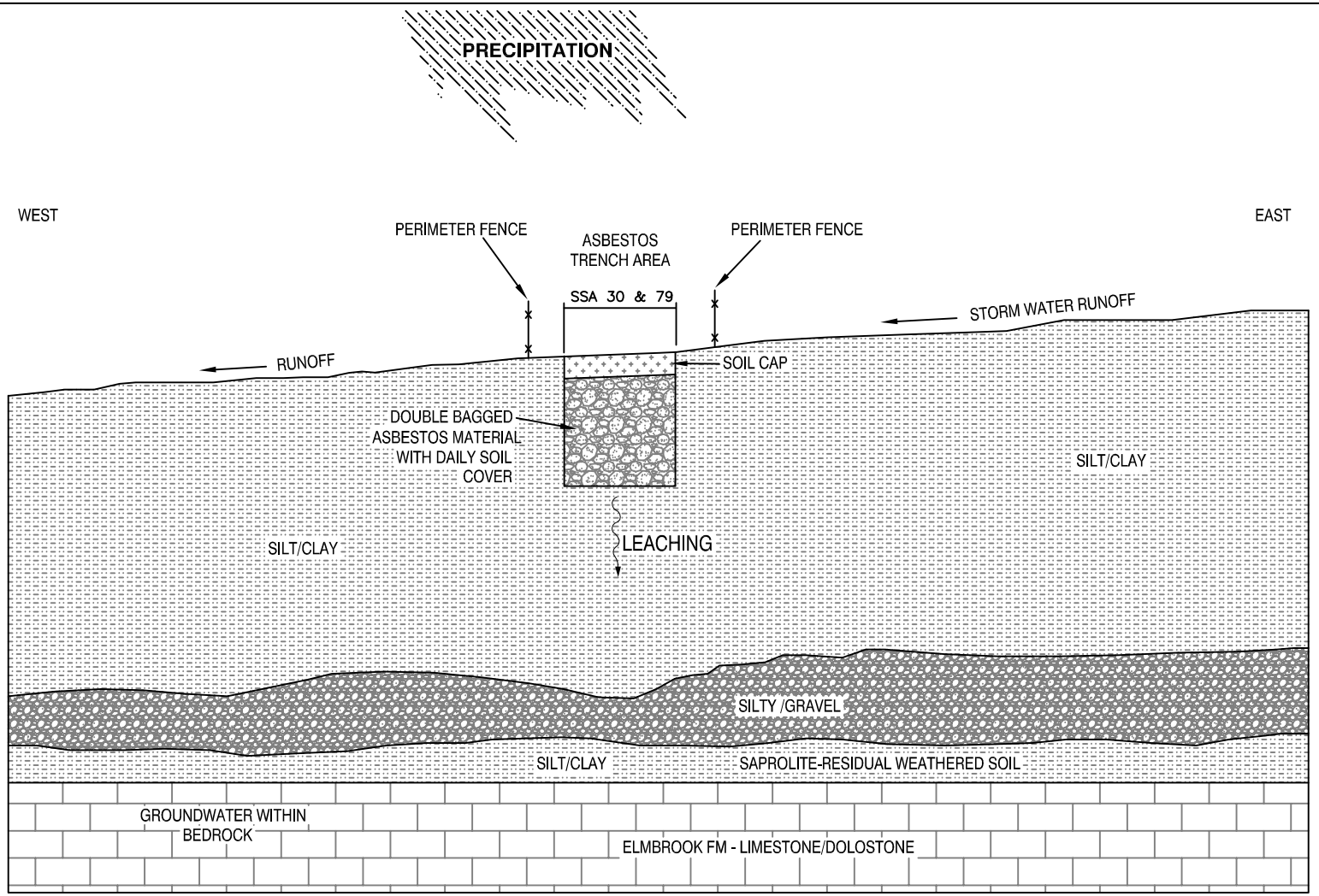
FIGURE 6-7

SSP Sample Locations - SSA 30 and SSA 79

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 75 feet	File Name: Fig.6-7 SSP Samp.

SSP for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230



CONCEPTUAL DRAWING - NO SCALE IMPLIED

NO BEDROCK TOPOGRAPHY IMPLIED

FIGURE 6-8

Conceptual Site Model - SSA 30 and SSA 79

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: Not to Scale	File Name: Fig. 5-7

SSP Report for SSAs 72, 30, 79, 60, and 77

Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

Table 6-1
Historical Groundwater Samples for SSA 30 and SSA 79 Area
Modified from Dames & Moore 1992 RFI Report for SWMUs 13, 17, 28, 51, 52, and O
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date	CAS #	Adjusted Tap Water RSL	MCL	16-4 1/23/92 Result	51MW1 1/28/92 Result	51MW2 1/23/92 Result	C1 1/30/92 Result
VOCs (ug/L)							
1,1,1-Trichloroethane	71-55-6	910	200	<0.5	<0.5	<0.5	4.95
Carbon Disulfide	75-15-0	100	--	<0.5	<0.5	<0.5	1.13
Trichlorofluoromethane	75-69-4	130	--	6.51	<1.4	2.51	9.62
Explosives (ug/L)							
2,6-Dinitrotoluene	606-20-2	3.7	--	0.147	<0.074	0.126	<0.074
2,4/2,6 Dinitrotoluene Mixture	25321-14-6	0.099	--	0.147	<0.074	0.126	<0.074
Metals (ug/L)							
Barium	7440-39-3	730	2,000	113	9.72	11.5	42.7
Iron	7439-89-6	2,600	--	<38.8	41.4	<38.8	<38.8
Lead [(1)]	7439-92-1	15	--	1.41	<1.26	1.52	2.82
Manganese	7439-96-5	88	--	<2.75	3.58	<2.75	<2.75
SVOCs (ug/L)							
Bis(2-ethylhexyl)phthalate	117-81-7	5	6	**8.55**	<4.8	<4.8	<4.8

Notes:

USEPA = U.S. Environmental Protection Agency
MCL = Maximum Contaminant Level
ug/L = Microgram Per Liter
TAL = Target Analyte List
VOC = Volatile Organic Compound
SVOC = Semi-Volatile Organic Compound
RSL = Regional Screening Level
USEPA Regional Screening Level (RSL) values from the October 2008 Regional Screening Table as presented in Work Plan Addendum 028 (URS 2009)
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Risk Criteria Available

[(1)] = Lead Action Level used

= Concentration Exceeds Adj. Tap Water RSL

bold = Concentration Exceeds MCL

Table 6-2
Historical Groundwater Samples for SSA 30 and SSA 79 Area
Modified from Eastern Horseshoe 2006 Groundwater Data Summary Report (Shaw Environmental, Inc.)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date	CAS #	Adjusted Tap Water RSL	MCL	16-4 4/10/06				51MW1 4/11/06				51MW2 4/10/06			
				Result	LQ,VQ	MDL	RL	Result	LQ,VQ	MDL	RL	Result	LQ,VQ	MDL	RL
VOCs (ug/L)															
1,1,1-Trichloroethane	71-55-6	910	200	<1	U	0.5	1	<1	U	0.5	1	<1	U	0.5	1
1,1-Dichloroethane	75-34-3	2.4	--	<1	U	0.5	1	<1	U	0.5	1	<1	U	0.5	1
Chloroethane	75-00-3	2,100	--	<2	U	1	2	<2	U	1	2	<2	U	1	2
Methylene chloride	75-09-2	4.8	5	<5	U	1	5	<5	U	1	5	<5	U	1	5
Tetrachloroethene	127-18-4	0.11	5	<1	U	0.5	1	0.93	J, J	0.5	1	<1	U	0.5	1
Pesticides (ug/L)															
alpha-Chlordane [1]	5103-71-9	0.19	2	0.21		0.013	0.067	<0.066	U	0.013	0.066	<0.063	U	0.013	0.063
Heptachlor epoxide	1024-57-3	0.0074	0.2	0.015	J, J	0.013	0.067	<0.066	U	0.013	0.066	<0.063	U	0.013	0.063
Metals (ug/L)															
Aluminum	7429-90-5	3,700	--	236	, B	16	200	282	, B	16	200	100	J, B	16	200
Antimony	7440-36-0	1.5	6	3.2	J, B	2.2	5	3.6	J, B	2.2	5	<2.2	U	2.2	5
Barium	7440-39-3	730	2,000	149	J, J	0.5	200	45.3	J, J	0.5	200	40.8	J, J	0.5	200
Beryllium	7440-41-7	7.3	4	2	J, B	0.7	4	2	J, B	0.7	4	2.1	J, B	0.7	4
Chromium [2]	7440-47-3	5,500	100	0.74	J, J	0.5	10	0.59	J, J	0.5	10	1.3	J, J	0.5	10
Iron	7439-89-6	2,600	--	174	J, J	7.5	300	547		7.5	300	42.2	J, B	7.5	300
Lead [3]	7439-92-1	15	--	2	J, B	1.2	5	1.3	J, B	1.2	5	<1.2	U	1.2	5
Manganese	7439-96-5	88	--	5.1	J, J	0.2	15	60.6		0.2	15	1.8	J, B	0.2	15
Nickel	7440-02-0	73	--	<1.1	U	1.1	40	1.1	J, J	1.1	40	<1.1	U	1.1	40
Selenium	7782-49-2	18	50	<2.4	U	2.4	10	<2.4	U	2.4	10	<2.4	U	2.4	10
Vanadium	7440-62-2	26	--	0.7	J, B	0.6	50	<0.6	U	0.6	50	<0.6	U	0.6	50
Zinc	7440-66-6	1,100	--	0.91	J, J	0.8	20	3.4	J, J	0.8	20	2.1	J, J	0.8	20

Table 6-2
Historical Groundwater Samples for SSA 30 and SSA 79 Area
Modified from Eastern Horseshoe 2006 Groundwater Data Summary Report (Shaw Environmental, Inc.)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date	CAS #	Adjusted Tap Water RSL	MCL	C1 4/12/06 Result	C1 4/12/06 LQ,VQ	MDL	RL
VOCs (ug/L)							
1,1,1-Trichloroethane	71-55-6	910	200	1.3	J	0.5	1
1,1-Dichloroethane	75-34-3	2.4	--	8.5		0.5	1
Chloroethane	75-00-3	2,100	--	4		1	2
Methylene chloride	75-09-2	4.8	5	8	, B	1	5
Tetrachloroethene	127-18-4	0.11	5	<1	U	0.5	1
Pesticides (ug/L)							
alpha-Chlordane (1)	5103-71-9	0.19	2	<0.063	U	0.013	0.063
Heptachlor epoxide	1024-57-3	0.0074	0.2	<0.063	U	0.013	0.063
Metals (ug/L)							
Aluminum	7429-90-5	3,700	--	57	J, B	16	200
Antimony	7440-36-0	1.5	6	2.6	J, B	2.2	5
Barium	7440-39-3	730	2,000	181	J, J	0.5	200
Beryllium	7440-41-7	7.3	4	1.9	J, B	0.7	4
Chromium (2)	7440-47-3	5,500	100	<0.5	U	0.5	10
Iron	7439-89-6	2,600	--	<7.5	U	7.5	300
Lead (3)	7439-92-1	15	--	<1.2	U	1.2	5
Manganese	7439-96-5	88	--	7.1	J, J	0.2	15
Nickel	7440-02-0	73	--	<1.1	U	1.1	40
Selenium	7782-49-2	18	50	2.8	J, J	2.4	10
Vanadium	7440-62-2	26	--	0.82	J, B	0.6	50
Zinc	7440-66-6	1,100	--	<0.8	U	0.8	20

Notes:

USEPA = U.S. Environmental Protection Agency
CAS = Chemical Abstracts Service
MCL = Maximum Contaminant Level
ug/L = Microgram per Liter
VOC = Volatile Organic Compound
RSL = Regional Screening Level
USEPA Regional Screening Level (RSL) values from the October 2008 Regional Screening Table as presented in Work Plan Addendum 028 (URS 2009)
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Risk Criteria Available

MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier

= Concentration Exceeds Adj. Tap Water RSL
bold = Concentration Exceeds MCL

(1) = Chlordane RSL used

(2) = Chromium III RSL used
(3) = Lead Action Level used

Laboratory Qualifiers:
U = Not detected.
J = The reported value is <MRL and >MDL and considered estimated.
Validation Qualifiers:
B = The analyte detected in the sample and the lab or field blank and considered non-detect.
J = Indicates an estimated value (1) due to QC non-conformance, or (2) concentration >MDL and <MRL. Reported value may not be accurate or precise.
L = Analyte present. Reported value may be biased low due to QC non-conformance.

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Table 6-3
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Areas 30 and 79 - Asbestos Disposal Trenches No. 1 and No. 2
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	30SB1B 8/13/2009 16-18		MDL	RL	30SB1B-DUP (DUP-4) 8/13/2009 16-18		MDL	RL	30SB2B 8/13/2009 16-18		MDL	RL	30SB3B 8/13/2009 16-18		MDL	RL	30SB3B-DUP (DUP-5) 8/13/2009 16-18		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Asbestos (%)																											
Asbestos	--	--	--	--	--	--	--	ND				ND				ND				ND				ND			
TAL Metals (mg/kg)																											
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	14,000		1.8	10	16,000		1.8	10	18,000		1.8	10	19,000		1.8	10	18,000		1.7	9.4
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.05	J	0.037	0.2	0.056	J	0.037	0.2	0.079	J	0.037	0.2	0.14	J	0.037	0.2	0.074	J	0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***0.91***		0.03	0.1	***1***		0.03	0.1	***1.4***		0.03	0.1	***1.3***		0.03	0.1	***1.2***		0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	39	,K,m	0.28	1	41	,K,m	0.28	1	49	,K,m	0.28	1	76	,K,m	0.28	1	53	,K,m	0.27	0.94
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	0.21	J	0.035	1	0.16	J	0.035	1	0.14	J	0.035	1	0.16	J	0.035	1	0.052	J	0.033	0.94
Cadmium	7440-43-9	0.69	7	n	80	n	--	1.1	J,L,o	0.24	2	1.2	J,L,o	0.24	2	1.4	J	0.24	2	1.6	J	0.24	2	1.4	J	0.23	1.9
Calcium	7440-70-2	--	--	--	--	--	--	13	J,B,x	8.7	50	17	J,B,x	8.7	50	97		8.7	50	120		8.7	50	35	J,B,x	8.2	47
Chromium	7440-47-3	65.3	280	c	1,400	c	--	11		0.74	5	12		0.74	5	19		0.74	5	21		0.74	5	15		0.7	4.7
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	9.4		0.44	2	9.7		0.44	2	9		0.44	2	***11***		0.44	2	8.3		0.42	1.9
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	5	,B,x	0.043	0.2	6.4	,B,x	0.043	0.2	6.8	,B,x	0.043	0.2	7.9	,B,x	0.043	0.2	6.5	,B,x	0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***21,000***		0.47	10	***21,000***		0.47	10	***24,000***		0.47	10	***27,000***		0.47	10	***24,000***		0.44	9.4
Lead	7439-92-1	26.8	400	nL	800	nL	--	5.8	,L,m	0.049	0.2	25	,L,m	0.049	0.2	7.9	,L,m	0.049	0.2	10	,L,m	0.049	0.2	8.2	,L,m	0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	1,000		4.4	50	1,000		4.4	50	1,200		4.4	50	1,300		4.4	50	1,100		4.2	47
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	300		0.21	1	290		0.21	1	350		0.21	1	560	,J,f	0.21	1	310	,J,f	0.2	0.94
Mercury[1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.013	J	0.0093	0.05	0.011	J	0.0093	0.05	0.019	J	0.0093	0.05	0.026	J	0.0093	0.05	0.029	J	0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	5.8		0.025	0.1	6.6		0.025	0.1	6.9		0.025	0.1	7.9		0.025	0.1	6.4		0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	990		6.8	50	1,000		6.8	50	1,000		6.8	50	1,100		6.8	50	990		6.4	47
Selenium	7782-49-2	--	39	n	510	n	19	0.064	J,L,o	0.049	0.2	<0.2	U,UL,o	0.049	0.2	<0.2	U	0.049	0.2	0.18	J	0.049	0.2	0.13	J	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.028	J,B,o	0.011	0.1	0.031	J,B,o	0.011	0.1	0.047	J,B,o	0.011	0.1	0.037	J,B,o	0.011	0.1	0.029	J,B,o	0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	6.4	J,B,x	5.4	100	7.6	J,B,x	5.4	100	8.9	J,B,x	5.4	100	11	J,B,x	5.4	100	7.5	J,B,x	5.1	94
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.083	J	0.0061	0.1	0.12		0.0061	0.1	0.11		0.0061	0.1	0.15		0.0061	0.1	0.12		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	31	,L,m	0.032	0.1	35	,L,m	0.032	0.1	34	,L,m	0.032	0.1	41	,L,m	0.032	0.1	36	,L,m	0.032	0.1
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	28	,K,m	0.79	5	30	,K,m	0.79	5	31	,K,m	0.79	5	36	,K,m	0.79	5	33	,K,m	0.74	4.7
Pesticides (mg/kg)																											
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	<0.023	U	0.00034	0.023	<0.023	U	0.00034	0.023	<0.02	U	0.00029	0.02	<0.024	U	0.00035	0.024	<0.02	U	0.0003	0.02
PCBs (ug/kg)																											
Aroclor 1254 [2]	11097-69-1	--	110	n	740	c*	102	<44	U	7.9	44	<44	U	7.9	44	<39	U	6.9	39	<46	U	8.3	46	<39	U	7	39
Aroclor 1260	11096-82-5	--	220	c	740	c	280	<90	U	6.7	90	<90	U	6.7	90	<78	U	5.8	78	<94	U	7	94	<80	U	5.9	80
VOCs (ug/kg)																											
2-Butanone	78-93-3	--	2.8E+06	ns	1.9E+07	nms	3.0E+04	<29	U	3.3	29	<27	U	3.1	27	<27	U	3.1	27	<28	U	3.2	28	<24	U	2.7	24
Acetone	67-64-1	--	6.1E+06	n	6.1E+07	nms	8.8E+04	<29	U	4.6	29	<27	U	4.2	27	<27	U	4.2	27	<28	U	4.4	28	<24	U	3.7	24
Carbon Disulfide	75-15-0	--	6.7E+04	ns	3.0E+05	ns	5.4E+03	<7.3	U	0.5	7.3	<6.7	U	0.45	6.7	<6.8	U	0.46	6.8	<7	U	0.48	7	<5.9	U	0.4	5.9
SVOCs (ug/kg)																											
1,1'-Biphenyl	92-52-4	--	3.9E+05	ns	5.1E+06	ns	4.6E+05	<230	U	1.1	230	<230	U	1.1	230	<200	U	0.97	200	<240	U	1.2	240	<200	U	0.98	200
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	<230	U	0.61	230	<230	U	0.61	230	<200	U	0.53	200	<240	U	0.64	240	<200	U	0.54	200
4-Methylphenol	106-44-5	--	3.1E+04	n	3.1E+05	n	3.8E+03	<230	U	6	230	<230	U	5.9	230	<200	U	5.2	200	<240	U	6.2	240	<200	U	5.3	200
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	<23	U	1	23	<23	U	1	23	<20	U	0.91	20	<24	U	1.1	24	<20	U	0.93	20
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	<23	U	3.4	23	<23	U	3.4	23	<20	U	3	20	<24	U	3.6	24	<20	U	3	20
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	<23	U	1.5	23	<23	U	1.5	23	<20	U	1.3	20	<24	U	1.6	24	<20	U	1.3	20
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	<23	U	1.9	23	<23	U	1.9	23	<20	U	1.6	20	<24	U	2	24	<20	U	1.7	20
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	<23	U	3.9	23	<23	U	3.9	23	<20	U	3.4	20	<24	U	4.1	24	<20	U	3.5	20
Benzo(g,h,i)perylene[3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	<90	U	1.3	90	<90	U	1.3	90	<78	U	1.1	78	<94	U	1.3	94	<80	U	1.1	80
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	<23	U	1.7	23	<23	U	1.7	23	<20	U	1.5	20	<24	U	1.8	24	<20	U	1.5	20
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	8.1	J,B,z	6.3	230	8	J,B,z	6.2	230	12	J,B,z	5.4	200	12	J,B,z	6.5	240	37	J,B,z	5.5	200
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	<230	U	6.6	230	<230	U	6.6	230	5.8	J	5.7	200	<240	U	6.9	240	21	J	5.8	200
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	<23	U	4.7	23	<23	U	4.7	23	<20	U	4.1	20	<24	U	4.9	24	<20	U	4.1	20
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	<230	U	33	230	<230	U	33	230	<200	U	29	200	<240	U	35	240	230	B,B,z	29	200
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	<90	U	10	90	<90	U	10	90	<78	U	9	78	<94	U	11	94	<80	U	9.2	80
Dibenzofuran	132-64-9	--	--	--	--	--	--	<230	U	12	230	<230	U	12	230	<200	U	10	200	<240	U	12	240	<200	U	10	200
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	<230	U	4.7	230	<230	U	4.6	230	5.5	J,B,x	4.1	200	<240	U	4.9	240	<200	U	4.1	200
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	<23	U	1	23	<23	U	1	23	<20	U	0.89	20	<24	U	1.1	24	<20	U	0.91	20
Fluorene	86-73-7	--	2.3E+05	n	2.2E+06	n	6.6E+05	<44	U	9.2	44	<44	U	9.2	44	<39	U	8	39	<46	U	9.6	46	<39	U	8.2	39
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	<90	U	4.9	90	<90	U	4.9	90	<78	U	4.3	78	<94	U	5.1	94	<80	U	4.4	80
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	<23	U	2.8	23	<23	U	2.8	23	<20	U	2.4	20	<24	U	2.9	24	<20	U	2.5	20
Phenanthrene[3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<23	U	1.4	23	<23	U	1.4	23	<20	U	1.2	20	<24	U	1.5	24	<20	U	1.2	20
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	<23	U	1.6	23	<23	U	1.6	23	<20	U	1.4	20	<24	U	1.7	24	<20	U	1.4	20
Explosives (mg/kg)																											
Nitrobenzene	98-95-3	--	4.4E+00	c*	2.2E+01	c*	1.4E-03	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5
Cyanide (mg/kg)																											
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	0.1	J	0.09	0.4	0.095	J	0.089	0.4	<0.35	U	0.078	0.35	<0.42	U	0.094	0.42	<0.36	U	0.079	0.36
Total Organic Carbon, TOC (%)																											
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT				NT				NT			
Percent Solids (%)																											
Percent Solids	--	--	--	--	--	--	--	74		0.1	0.1	75		0.1	0.1	86		0.1	0.1	71		0.1	0.1	84		0.1	0.1

Table 6-3
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Areas 30 and 79 - Asbestos Disposal Trenches No. 1 and No. 2
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	30SS1 8/13/2009 0-1		MDL	RL	30SS2 8/13/2009 0-1		MDL	RL	30SS3 8/13/2009 0-1		MDL	RL	79SB1B 11/11/2009 16-18		MDL	RL	79SB2A 8/13/2009 0-1		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Asbestos (%)																											
Asbestos	--	--	--	--	--	--	--	ND				ND				ND				ND				NT			
TAL Metals (mg/kg)																											
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	17,000		1.8	10	31,000		1.8	10	11,000		370	2,000	15,000		1.8	10	NT			
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.24		0.037	0.2	0.26		0.037	0.2	0.19	J	0.037	0.2	0.11	J	0.037	0.2	NT			
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***2.9***		0.03	0.1	***3.3***		0.03	0.1	***3.1***		0.03	0.1	***1.2***	,L,m	0.03	0.1	NT			
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	120	,K,m	0.28	1	80	,K,m	0.28	1	76	,K,m	0.28	1	58	,K,m	0.28	1	NT			
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	0.46	J	0.035	1	<1	U	0.035	1	0.35	J	0.035	1	1.1		0.035	1	NT			
Cadmium	7440-43-9	0.69	7	n	80	n	--	1.2	J,L,o	0.24	2	2.2		0.24	2	0.65	J,L,o	0.24	2	0.93	J	0.24	2	NT			
Calcium	7440-70-2	--	--	--	--	--	--	1,100		8.7	50	460		8.7	50	660		8.7	50	450		8.7	50	NT			
Chromium	7440-47-3	65.3	280	c	1,400	c	--	22		0.74	5	27		0.74	5	22		0.74	5	28		0.74	5	NT			
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	7.3		0.44	2	4.1		0.44	2	7.1		0.44	2	3.4		0.44	2	NT			
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	7.2	,B,x	0.043	0.2	10	,B,x	0.043	0.2	5.1	,B,x	0.043	0.2	13	,L,m	0.043	0.2	NT			
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***20,000***		0.47	10	***35,000***		0.47	10	12,000		94	2,000	***23,000***		0.47	10	NT			
Lead	7439-92-1	26.8	400	nL	800	nL	--	18	,L,m	0.049	0.2	16	,L,m	0.049	0.2	24	,L,m	0.049	0.2	4.2		0.049	0.2	NT			
Magnesium	7439-95-4	--	--	--	--	--	--	920		4.4	50	1,200		4.4	50	590		4.4	50	1,200		4.4	50	NT			
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	***1,200***		0.21	1	220		0.21	1	420		0.21	1	54		0.21	1	NT			
Mercury[1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.069		0.0093	0.05	0.11		0.0093	0.05	0.041	J	0.0093	0.05	0.04	J	0.008	0.05	NT			
Nickel	7440-02-0	62.8	150	n	2,000	n	960	7.8		0.025	0.1	8.9		0.025	0.1	5.1		0.025	0.1	10		0.025	0.1	NT			
Potassium	7440-09-7	--	--	--	--	--	--	690		6.8	50	1,000		6.8	50	520		6.8	50	830		6.8	50	NT			
Selenium	7782-49-2	--	39	n	510	n	19	0.22	,L,o	0.049	0.2	0.44	,L,o	0.049	0.2	0.24	,L,o	0.049	0.2	0.13	J,L,m	0.049	0.2	NT			
Silver	7440-22-4	--	39	n	510	n	32	0.083	J	0.011	0.1	0.059	J,B,o	0.011	0.1	0.042	J,B,o	0.011	0.1	0.049	J,L,m	0.011	0.1	NT			
Sodium	7440-23-5	--	--	--	--	--	--	14	J,B,x	5.4	100	16	J,B,x	5.4	100	8.1	J,B,x	5.4	100	10	J,L,o	5.4	100	NT			
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.19		0.0061	0.1	0.23		0.0061	0.1	0.16		0.0061	0.1	0.075	J	0.0061	0.1	NT			
Vanadium	7440-62-2	108	55	n	720	n	5,200	33	,L,m	0.032	0.1	63	,L,m	0.065	0.2	28	,L,m	0.032	0.1	41	,L,m	0.032	0.1	NT			
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	32	,K,m	0.79	5	44	,K,m	0.79	5	24	,K,m	0.79	5	32		0.79	5	NT			
Pesticides (mg/kg)																											
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	<0.02	U	0.00029	0.02	<0.021	U	0.00031	0.021	<0.019	U	0.00028	0.019	<0.021	U	0.00031	0.021	NT			
PCBs (ug/kg)																											
Aroclor 1254 [2]	11097-69-1	--	110	n	740	c*	102	<38	U	6.8	38	<40	U	7.2	40	14	J	6.5	36	<41	U	7.3	41	NT			
Aroclor 1260	11096-82-5	--	220	c	740	c	280	<77	U	5.8	77	<82	U	6.1	82	13	J,J,g	5.5	74	<82	U	6.2	82	NT			
VOCs (ug/kg)																											
2-Butanone	78-93-3	--	2.8E+06	ns	1.9E+07	nms	3.0E+04	<27	U	3.1	27	130		3.7	32	<30	U	3.5	30	<28	U	3.2	28	NT			
Acetone	67-64-1	--	6.1E+06	n	6.1E+07	nms	8.8E+04	<27	U	4.3	27	430	E,J,q	5	32	13	J,B,y	4.8	30	<28	U	4.4	28	NT			
Carbon Disulfide	75-15-0	--	6.7E+04	ns	3.0E+05	ns	5.4E+03	<6.9	U	0.47	6.9	2.9	J	0.55	8.1	<7.6	U	0.52	7.6	<7	U	0.47	7	NT			
SVOCs (ug/kg)																											
1,1'-Biphenyl	92-52-4	--	3.9E+05	ns	5.1E+06	ns	4.6E+05	<200	U	0.95	200	<210	U	1	210	<190	U	0.91	190	<210	U	1	210	NT			
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	5	J	0.52	200	<210	U	0.56	210	2.9	J	0.5	190	<210	U	0.56	210	NT			
4-Methylphenol	106-44-5	--	3.1E+04	n	3.1E+05	n	3.8E+03	<200	U	5.1	200	8.2	J,J,l	5.4	210	<190	U	4.9	190	<210	U	5.5	210	NT			
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	<20	U	0.9	20	<21	U	0.96	21	<19	U	0.86	19	<21	U	0.96	21	NT			
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	<20	U	2.9	20	<21	U	3.1	21	<19	U	2.8	19	<21	U	3.1	21	NT			
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	5.8	J	1.3	20	<21	U	1.4	21	2.6	J	1.2	19	2.1	J	1.4	21	NT			
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	4.2	J	1.6	20	<21	U	1.7	21	2.2	J	1.5	19	<21	U	1.7	21	NT			
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	5.8	J	3.4	20	<21	U	3.6	21	3.3	J	3.2	19	<21	U	3.6	21	NT			
Benzo(g,h,i)perylene[3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	3.5	J	1.1	77	<82	U	1.1	82	1.5	J	1	74	<82	U	1.2	82	NT			
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	3.8	J	1.5	20	<21	U	1.6	21	1.8	J	1.4	19	<21	U	1.6	21	NT			
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	10	J,B,z	5.4	200	53	J,B,z	5.7	210	16	J,B,z	5.1	190	32	J	5.7	210	NT			
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	<200	U	5.7	200	<210	U	6	210	<190	U	5.4	190	<210	U	6	210	NT			
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	5.8	J	4	20	<21	U	4.3	21	<19	U	3.8	19	<21	U	4.3	21	NT			
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	31	JB,B,z	29	200	31	JB,B,z	30	210	<190	U	27	190	<210	U	31	210	NT			
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	<77	U	8.9	77	<82	U	9.4	82	<74	U	8.5	74	<82	U	9.5	82	NT			
Dibenzofuran	132-64-9	--	--	--	--	--	--	<200	U	10	200	<210	U	11	210	<190	U	9.6	190	<210	U	11	210	NT			
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	<200	U	4	200	21	J,B,x	4.3	210	<190	U	3.8	190	<210	U	4.3	210	NT			
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	8.1	J	0.88	20	1.2	J	0.93	21	2.6	J	0.84	19	3.3	J	0.94	21	NT			
Fluorene	86-73-7	--	2.3E+05	n	2.2E+06	n	6.6E+05	<38	U	7.9	38	<40	U	8.4	40	<36	U	7.5	36	<41	U	8.5	41	NT			
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	<77	U	4.2	77	<82	U	4.5	82	<74	U	4	74	<82	U	4.5	82	NT			
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	2.7	J	2.4	20	<21	U	2.5	21	<19	U	2.3	19	<21	U	2.6	21	NT			
Phenanthrene[3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	6.2	J	1.2	20	<21	U	1.3	21	2.9	J	1.2	19	<21	U	1.3	21	NT			
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	10	J	1.4	20	<21	U	1.5	21	3.3	J	1.3	19	2.1	J	1.5	21	NT			
Explosives (mg/kg)																											
Nitrobenzene	98-95-3	--	4.4E+00	c*	2.2E+01	c*	1.4E-03	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	***0.11***	J	0.045	2.5	NT			
Cyanide (mg/kg)																											
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	0.27	J	0.077	0.35	<0.37	U	0.082	0.37	0.12	J	0.073	0.33	<0.37	U	0.082	0.37	NT			
Total Organic Carbon, TOC (%)																											
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT				NT				0.85		0.0062	0.2
Percent Solids (%)																											
Percent Solids	--	--	--	--	--	--	--	87		0.1	0.1	82		0.1	0.1	91		0.1	0.1	81		0.1	0.1	NT			

Table 6-3
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Areas 30 and 79 - Asbestos Disposal Trenches No. 1 and No. 2
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	79SB2B 8/13/2009 16-18		MDL	RL	79SB3B 11/11/2009 16-18		MDL	RL	79SS1 8/13/2009 0-1		MDL	RL	79SS2 8/13/2009 0-1		MDL	RL	79SS3 8/13/2009 0-1		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Asbestos (%)																											
Asbestos	--	--	--	--	--	--	--	ND				ND				ND				ND				ND			
TAL Metals (mg/kg)																											
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	8,000		1.8	10	16,000		1.8	10	16,000		1.8	10	21,000		1.8	10	12,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	<0.2	U	0.037	0.2	0.1	J	0.037	0.2	0.2		0.037	0.2	0.2		0.037	0.2	0.12	J	0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***0.92***		0.03	0.1	***3.4***	,L,m	0.03	0.1	***3.3***		0.03	0.1	***2.4***		0.03	0.1	***1.6***		0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	37	,K,m	0.28	1	71	,K,m	0.28	1	76	,K,m	0.28	1	70	,K,m	0.28	1	140	,K,m	0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	0.27	J	0.035	1	0.91	J	0.035	1	0.3	J	0.035	1	0.33	J	0.035	1	0.56	J	0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	0.6	J,L,o	0.24	2	1.8	J	0.24	2	0.9	J,L,o	0.24	2	1.3	J,L,o	0.24	2	1.1	J,L,o	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	<50	U	8.7	50	250		8.7	50	730		8.7	50	2,300		8.7	50	2,000		8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	9.9		0.74	5	34		0.74	5	17		0.74	5	26		0.74	5	20		0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	5.9		0.44	2	7.1		0.44	2	5.7		0.44	2	5.5		0.44	2	7.2		0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	3.2	,B,x	0.043	0.2	37	,L,m	0.043	0.2	6.3	,B,x	0.043	0.2	7.4	,B,x	0.043	0.2	8.5	,B,x	0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	12,000		0.47	10	***43,000***		0.47	10	***16,000***		0.47	10	***22,000***		0.47	10	***19,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	4	,L,m	0.049	0.2	6.7		0.049	0.2	12	,L,m	0.049	0.2	11	,L,m	0.049	0.2	14	,L,m	0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	670		4.4	50	920		4.4	50	750		4.4	50	1,300		4.4	50	2,600		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	210		0.21	1	710		0.21	1	420		0.21	1	370		0.21	1	720		0.21	1
Mercury[1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	<0.05	U	0.0093	0.05	0.025	J	0.008	0.05	0.061		0.0093	0.05	0.075		0.0093	0.05	0.037	J	0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	3.9		0.025	0.1	16		0.025	0.1	5.5		0.025	0.1	6.6		0.025	0.1	8.6		0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	640		6.8	50	1,500		6.8	50	630		6.8	50	1,000		6.8	50	980		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	<0.2	U	0.049	0.2	0.34	,L,m	0.049	0.2	0.12	J	0.049	0.2	0.078	J	0.049	0.2	0.24		0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.018	J,B,o	0.011	0.1	0.057	J,L,m	0.011	0.1	0.05	J,B,o	0.011	0.1	0.057	J,B,o	0.011	0.1	0.039	J,B,o	0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	<100	U	5.4	100	13	J,L,o	5.4	100	11	J,B,x	5.4	100	15	J,B,x	5.4	100	27	J,B,x	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.05	J	0.0061	0.1	0.076	J	0.0061	0.1	0.16		0.0061	0.1	0.18		0.0061	0.1	0.13		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	15	,L,m	0.032	0.1	31	,L,m	0.032	0.1	34	,L,m	0.032	0.1	36	,L,m	0.032	0.1	25	,L,m	0.032	0.1
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	16	,K,m	0.79	5	33		0.79	5	28	,K,m	0.79	5	32	,K,m	0.79	5	59	,K,m	0.79	5
Pesticides (mg/kg)																											
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	<0.019	U	0.00029	0.019	<0.025	U	0.00037	0.025	<0.02	U	0.00029	0.02	<0.02	U	0.00029	0.02	<0.019	U	0.00029	0.019
PCBs (ug/kg)																											
Aroclor 1254 [2]	11097-69-1	--	110	n	740	c*	102	<38	U	6.7	38	<48	U	8.6	48	<38	U	6.8	38	<38	U	6.8	38	<38	U	6.7	38
Aroclor 1260	11096-82-5	--	220	c	740	c	280	<76	U	5.7	76	<97	U	7.3	97	<78	U	5.8	78	<77	U	5.7	77	<77	U	5.7	77
VOCs (ug/kg)																											
2-Butanone	78-93-3	--	2.8E+06	ns	1.9E+07	nms	3.0E+04	<27	U	3.1	27	<38	U	4.4	38	<33	U	3.8	33	<31	U	3.6	31	<28	U	3.2	28
Acetone	67-64-1	--	6.1E+06	n	6.1E+07	nms	8.8E+04	<27	U	4.2	27	13	J	6	38	8.6	J,B,y	5.2	33	<31	U	4.8	31	<28	U	4.3	28
Carbon Disulfide	75-15-0	--	6.7E+04	ns	3.0E+05	ns	5.4E+03	<6.8	U	0.46	6.8	<9.6	U	0.65	9.6	<8.3	U	0.56	8.3	<7.8	U	0.53	7.8	<7	U	0.47	7
SVOCs (ug/kg)																											
1,1'-Biphenyl	92-52-4	--	3.9E+05	ns	5.1E+06	ns	4.6E+05	<190	U	0.94	190	<250	U	1.2	250	<200	U	0.96	200	1.1	J	0.95	200	<190	U	0.95	190
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	<190	U	0.52	190	<250	U	0.66	250	3.1	J	0.53	200	4.6	J	0.52	200	0.76	J	0.52	190
4-Methylphenol	106-44-5	--	3.1E+04	n	3.1E+05	n	3.8E+03	<190	U	5	190	<250	U	6.4	250	<200	U	5.1	200	<200	U	5.1	200	<190	U	5.1	190
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	<19	U	0.89	19	<25	U	1.1	25	<20	U	0.9	20	<20	U	0.9	20	<19	U	0.89	19
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	<19	U	2.9	19	<25	U	3.7	25	<20	U	3	20	<20	U	2.9	20	<19	U	2.9	19
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	<19	U	1.3	19	2.5	J	1.6	25	1.5	J	1.3	20	1.5	J	1.3	20	6.9	J	1.3	19
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	<19	U	1.6	19	<25	U	2	25	<20	U	1.6	20	<20	U	1.6	20	7.2	J	1.6	19
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	<19	U	3.3	19	<25	U	4.2	25	<20	U	3.4	20	<20	U	3.4	20	8.4	J	3.3	19
Benzo(g,h,i)perylene[3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	<76	U	1.1	76	<97	U	1.4	97	1.2	J	1.1	78	<77	U	1.1	77	4.2	J	1.1	77
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	<19	U	1.5	19	<25	U	1.9	25	<20	U	1.5	20	<20	U	1.5	20	5.3	J	1.5	19
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	5.7	J,B,z	5.3	190	43	J	6.8	250	9.3	J,B,z	5.4	200	9.2	J,B,z	5.3	200	9.1	J,B,z	5.3	190
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	6.1	J	5.6	190	<250	U	7.1	250	<200	U	5.7	200	11	J	5.6	200	<190	U	5.6	190
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	<19	U	4	19	<25	U	5.1	25	<20	U	4	20	<20	U	4	20	7.2	J	4	19
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	<190	U	28	190	<250	U	36	250	120	JB,B,z	29	200	200	B,B,z	28	200	<190	U	28	190
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	<76	U	8.8	76	<97	U	11	97	<78	U	8.9	78	<77	U	8.8	77	<77	U	8.8	77
Dibenzofuran	132-64-9	--	--	--	--	--	--	<190	U	10	190	<250	U	13	250	<200	U	10	200	<200	U	10	200	<190	U	10	190
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	<190	U	4	190	<250	U	5	250	<200	U	4	200	<200	U	4	200	<190	U	4	190
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	<19	U	0.87	19	1.5	J	1.1	25	1.9	J	0.88	20	1.1	J	0.87	20	8.4	J	0.87	19
Fluorene	86-73-7	--	2.3E+05	n	2.2E+06	n	6.6E+05	<38	U	7.8	38	<48	U	10	48	<38	U	8	38	<38	U	7.9	38	<38	U	7.9	38
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	<76	U	4.2	76	<97	U	5.3	97	<78	U	4.3	78	<77	U	4.2	77	<77	U	4.2	77
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	<19	U	2.4	19	<25	U	3	25	<20	U	2.4	20	3.1	J	2.4	20	<19	U	2.4	19
Phenanthrene[3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<19	U	1.2	19	2	J	1.5	25	3.5	J	1.2	20	4.2	J	1.2	20	4.6	J	1.2	19
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	<19	U	1.4	19	<25	U	1.7	25	2.3	J	1.4	20	2.3	J	1.4	20	13	J	1.4	19
Explosives (mg/kg)																											
Nitrobenzene	98-95-3	--	4.4E+00	c*	2.2E+01	c*	1.4E-03	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5	<2.5	U	0.045	2.5
Cyanide (mg/kg)																											
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	<0.34	U	0.076	0.34	<0.44	U	0.097	0.44	0.087	J	0.077	0.35	0.092	J	0.077	0.34	<0.34	U	0.076	0.34
Total Organic Carbon, TOC (%)																											
Carbon, Total Organic	--	--	--	--	--	--	--	<0.2	U	0.0062	0.2	NT				NT				NT				NT			
Percent Solids (%)																											
Percent Solids	--	--	--	--	--	--	--	88		0.1	0.1	69		0.1	0.1	86		0.1	0.1	87		0.1	0.1	88		0.1	0.1

Table 6-3
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Areas 30 and 79 - Asbestos Disposal Trenches No. 1 and No. 2
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	79SS4 11/11/2009 0-1		MDL	RL	79SS5 11/11/2009 0-1		MDL	RL	79SS5-DUP (DUP-6) 11/11/2009 0-1		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Asbestos (%)																			
Asbestos	--	--	--	--	--	--	--	ND				ND				ND			
TAL Metals (mg/kg)																			
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	17,000		180	1,000	13,000		1.8	10	14,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.18	J	0.037	0.2	0.25		0.034	0.19	0.27		0.035	0.19
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***2.9***	,L,m	0.028	0.092	***2.9***	,L,m	0.03	0.1	***2.9***	,L,m	0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	87	,K,m	0.28	1	100	,K,m	0.28	1	95	,K,m	0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	0.72	J	0.035	1	0.94	J	0.035	1	0.79	J	0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	1.1	J	0.24	2	1.1	J	0.24	2	1.1	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	860		8.7	50	2,800		8.7	50	3,300		8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	23		0.74	5	20		0.74	5	20		0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	8.9		0.44	2	7.1		0.44	2	6.4		0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	13	,L,m	0.04	0.18	14	,L,m	0.043	0.2	13	,L,m	0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***26,000***		230	5,000	***22,000***		0.47	10	***21,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	16		0.045	0.18	43		0.049	0.2	43		0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	1,800		4.4	50	2,800		4.4	50	3,000		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	630		2.1	10	530		0.21	1	450		0.21	1
Mercury[1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.044	J	0.008	0.05	0.042	J	0.008	0.05	0.039	J	0.008	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	12		0.023	0.092	10		0.025	0.1	10		0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	1,300		6.8	50	1,300		6.8	50	1,200		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.19	,L,m	0.045	0.18	0.25	,L,m	0.049	0.2	0.22	,L,m	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.062	J,L,m	0.0099	0.092	0.063	J,L,m	0.011	0.1	0.06	J,L,m	0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	9.8	J,L,o	5.4	100	27	J,L,o	5.4	100	24	J,L,o	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.2		0.0056	0.092	0.23		0.0061	0.1	0.22		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	43	,L,m	0.06	0.18	31	,L,m	0.032	0.1	33	,L,m	0.032	0.1
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	43		0.79	5	120		0.79	5	100		0.79	5
Pesticides (mg/kg)																			
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	<0.022	U	0.00032	0.022	0.00075	J	0.00031	0.021	<0.022	U	0.00032	0.022
PCBs (ug/kg)																			
Aroclor 1254 [2]	11097-69-1	--	110	n	740	c*	102	<42	U	7.5	42	31	J,J,c	7.3	41	26	J,J,c	7.5	42
Aroclor 1260	11096-82-5	--	220	c	740	c	280	<86	U	6.4	86	<83	U	6.2	83	<86	U	6.4	86
VOCs (ug/kg)																			
2-Butanone	78-93-3	--	2.8E+06	ns	1.9E+07	nms	3.0E+04	<26	U	2.9	26	<27	U	3.1	27	<28	U	3.2	28
Acetone	67-64-1	--	6.1E+06	n	6.1E+07	nms	8.8E+04	<26	U	4	26	16	J	4.2	27	17	J	4.4	28
Carbon Disulfide	75-15-0	--	6.7E+04	ns	3.0E+05	ns	5.4E+03	<6.4	U	0.43	6.4	<6.7	U	0.45	6.7	<7.1	U	0.48	7.1
SVOCs (ug/kg)																			
1,1'-Biphenyl	92-52-4	--	3.9E+05	ns	5.1E+06	ns	4.6E+05	<220	U	1.1	220	7.1	J	1	210	<220	U	1.1	220
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	<220	U	0.58	220	20	J	0.56	210	<220	U	0.58	220
4-Methylphenol	106-44-5	--	3.1E+04	n	3.1E+05	n	3.8E+03	<220	U	5.7	220	<210	U	5.5	210	<220	U	5.7	220
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	<22	U	1	22	60	,J,f	0.96	21	1.7	J,J,f	1	22
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	<22	U	3.3	22	62	,J,f	3.1	21	<22	U	3.3	22
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	8.9	J	1.4	22	230	,J,f	1.4	21	17	J,J,f	1.4	22
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	7.2	J	1.8	22	***110***	,J,f	1.7	21	20	J,J,f	1.8	22
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	8.5	J	3.7	22	190	,J,f	3.6	21	21	J,J,f	3.7	22
Benzo(g,h,i)perylene[3]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	2.5	J	1.2	86	65	J	1.2	83	15	J	1.2	86
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	3.8	J	1.6	22	110	,J,f	1.6	21	16	J,J,f	1.6	22
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	8.5	J	5.9	220	41	J	5.7	210	49	J	5.9	220
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	<220	U	6.3	220	8.8	J	6	210	<220	U	6.3	220
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	8.5	J	4.4	22	170	,J,f	4.3	21	20	J,J,f	4.4	22
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	82	J	32	220	<210	U	31	210	<220	U	32	220
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	<86	U	9.8	86	42	J	9.5	83	<86	U	9.8	86
Dibenzofuran	132-64-9	--	--	--	--	--	--	<220	U	11	220	43	J	11	210	<220	U	11	220
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	<220	U	4.4	220	<210	U	4.3	210	<220	U	4.4	220
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	14	J	0.97	22	440	,J,f	0.94	21	34	,J,f	0.97	22
Fluorene	86-73-7	--	2.3E+05	n	2.2E+06	n	6.6E+05	<42	U	8.8	42	73		8.5	41	<42	U	8.8	42
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	<86	U	4.7	86	96		4.5	83	14	J	4.7	86
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	<22	U	2.7	22	***27***		2.6	21	<22	U	2.7	22
Phenanthrene[3]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	10	J	1.3	22	550	,J,f	1.3	21	26	,J,f	1.3	22
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	16	J	1.5	22	460	,J,f	1.5	21	34	,J,f	1.5	22
Explosives (mg/kg)																			
Nitrobenzene	98-95-3	--	4.4E+00	c*	2.2E+01	c*	1.4E-03	<2.5	U	0.045	2.5	***0.094***	J,J,g	0.045	2.5	***0.093***	J	0.045	2.5
Cyanide (mg/kg)																			
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	<0.38	U	0.085	0.38	0.089	J	0.082	0.37	<0.38	U	0.085	0.38
Total Organic Carbon, TOC (%)																			
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT			
Percent Solids (%)																			
Percent Solids	--	--	--	--	--	--	--	78		0.1	0.1	81		0.1	0.1	78		0.1	0.1

Notes:

CAS = Chemical Abstracts Service
ft bgs = Feet Below Ground Surface
mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
pg/g = Picogram Per Gram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
ND = None Detected
NT = Not Tested

[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
* = where: n SL < 100X c SL
** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = No Screening Value Available

[1] = Mercuric chloride soil RSLs usec
[2] = Aroclor 1254 Unadjusted Soil Residential RSL usec
[3] = Pyrene soil RSLs used

= Concentration Exceeds Adjusted Soil Residential RSL

= Concentration Exceeds Adjusted Soil Industrial RSL

underline = Concentration Exceeds Facility Background Point Estimate

bold italic = Concentration Exceeds Soil-to-Groundwater Risk-based SSL (DAF20)

Data Qualifiers:

Laboratory Qualifiers
- B Analyte found in associated blank as well as in the sample.
- E Concentration exceeded the upper level of the calibration range of the instrument.
- J Analyte present. Reported value may not be accurate or precise.
- U The compound was analyzed for but not detected. The reporting limit will be adjusted to reflect any dilution, and for soil, the percent moisture.

Validation Qualifiers
- B Not detected substantially above the level reported in laboratory or field blanks.
- J Analyte present. Reported value may not be accurate or precise.
- K Analyte present. Reported value may be biased high. Actual value is expected to be lowe
- L Analyte present. Reported value may be biased low. Actual value is expected to be highe
- UL Not detected, quantitation limit is probably higher.

Reason Codes

GC/MS Organics
- f Field duplicate imprecision
- l MS/MSD recovery failure
- q Concentration exceeded the linear range
- x Field and/or equipment blank contamination
- y Trip blank contamination
- z Method blank and/or storage blank contamination

Inorganics and Conventionals
- f Field duplicate imprecision
- o Calibration blank contamination
- m MS/MSD recovery failure
- x CRDL standard recovery failure

GC and HPLC Organics
- c Calibration failure; poor or unstable (%D) response
- g Dual column confirmation imprecision
- x Trip blank contamination

Table 6-4
Summary of Asbestos in Groundwater Analytical Samples
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID	Sample Date	MCL	Units	Asbestos			
				Result	LQ, VQ, r	MDL	RL
51MW1	11/9/2009	7	MFL	<4.8	U	4.90	18
51MW2	11/9/2009	7	MFL	<0.20	U	0.20	0.72
51MW2-DUP (DUP-1)	11/9/2009	7	MFL	<0.20	U	0.20	0.72
C-1	11/9/2009	7	MFL	<0.20	U	0.20	0.72
16-4	11/9/2009	7	MFL	<0.20	U	0.20	0.72
16-4-DUP (DUP-2)	11/9/2009	7	MFL	<0.20	U	0.20	0.72

Notes:
MFL = Million Fibers Per Liter
MDL = Method Detection Limit
RL = Reporting Limit
MCL = Maximum Contaminant Level
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
U = The compound was analyzed for but not detected.

Table 6-5
SSAs 30 and 79 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil		**TAL Metals**														
	7429-90-5	Aluminum	11,000	31,000	mg/kg	30SS2	8/8	1.8 - 370	31,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.12	0.26	mg/kg	30SS2	8/8	0.034 - 0.037	0.26	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	1.6	3.3	mg/kg	30SS2	8/8	0.028 - 0.03	3.3	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	70	140	mg/kg	79SS3	8/8	0.28 - 0.28	140	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	0.3	0.865	mg/kg	79SS5 DUP AVG	7/8	0.035 - 0.035	0.865	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.65	2.2	mg/kg	30SS2	8/8	0.24 - 0.24	2.2	7	n	80	n	IND	N	BSL
	7440-47-3	Chromium	17	27	mg/kg	30SS2	8/8	0.74 - 0.74	27	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	4.1	8.9	mg/kg	79SS4	8/8	0.44 - 0.44	8.9	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	5.1	13.5	mg/kg	79SS5 DUP AVG	8/8	0.04 - 0.043	14	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	12,000	35,000	mg/kg	30SS2	8/8	0.47 - 230	35,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	11	43	mg/kg	79SS5 DUP AVG	8/8	0.045 - 0.049	43	400	nL	800	nL	IND	N	BSL
	7439-96-5	Manganese	220	1,200	mg/kg	30SS1	8/8	0.21 - 2.1	1,200	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.037	0.11	mg/kg	30SS2	8/8	0.008 - 0.0093	0.11	2.3	ns	31	ns	IND	N	BSL
	7440-02-0	Nickel	5.1	12	mg/kg	79SS4	8/8	0.023 - 0.025	12	150	n	2,000	n	IND	N	BSL
	7782-49-2	Selenium	0.078	0.44	mg/kg	30SS2	8/8	0.045 - 0.049	0.44	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.039	0.083	mg/kg	30SS1	8/8	0.0099 - 0.011	0.083	39	n	510	n	IND	N	BSL
	7440-28-0	Thallium	0.13	0.23	mg/kg	30SS2	8/8	0.0056 - 0.0061	0.23	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	25	63	mg/kg	30SS2	8/8	0.032 - 0.065	63	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	24	110	mg/kg	79SS5 DUP AVG	8/8	0.79 - 0.79	110	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	60-57-1	Dieldrin	4.6E-04	4.6E-04	mg/kg	79SS5 DUP AVG	1/8	0.00028 - 0.00032	4.6E-04	3.0E-02	c	1.1E-01	c	IND	N	BSL
		PCBs														
	11097-69-1	Aroclor 1254 [2]	1.4E-02	2.9E-02	mg/kg	79SS5 DUP AVG	2/8	0.0065 - 0.0075	2.9E-02	1.1E-01	n	7.4E-01	c*	IND	N	BSL
	11096-82-5	Aroclor 1260	1.3E-02	1.3E-02	mg/kg	30SS3	1/8	0.0055 - 0.0064	1.3E-02	2.2E-01	c	7.4E-01	c	IND	N	BSL
		VOCs			mg/kg											
	78-93-3	2-Butanone	1.3E-01	1.3E-01		30SS2	1/8	0.0029 - 0.0038	1.3E-01	2.8E+03	ns	1.9E+04	nms	IND	N	BSL
	67-64-1	Acetone	8.6E-03	4.3E-01	mg/kg	30SS2	4/8	0.004 - 0.0052	4.3E-01	6.1E+03	n	6.1E+04	nms	IND	N	BSL
	75-15-0	Carbon Disulfide	2.9E-03	2.9E-03	mg/kg	30SS2	1/8	0.00043 - 0.00056	2.9E-03	6.7E+01	ns	3.0E+02	ns	IND	N	BSL
		SVOCs														
	92-52-4	1,1'-Biphenyl	1.1E-03	3.8E-03	mg/kg	79SS5 DUP AVG	2/8	0.00091 - 0.0011	3.8E-03	3.9E+02	ns	5.1E+03	ns	IND	N	BSL
	91-57-6	2-Methylnaphthalene	7.6E-04	1.0E-02	mg/kg	79SS5 DUP AVG	6/8	0.0005 - 0.00058	1.0E-02	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	106-44-5	4-Methylphenol	8.2E-03	8.2E-03	mg/kg	30SS2	1/8	0.0049 - 0.0057	8.2E-03	3.1E+01	n	3.1E+02	n	IND	N	BSL
	83-32-9	Acenaphthene	3.1E-02	3.1E-02	mg/kg	79SS5 DUP AVG	1/8	0.00086 - 0.001	3.1E-02	3.4E+02	n	3.3E+03	n	IND	N	BSL
	120-12-7	Anthracene	3.2E-02	3.2E-02	mg/kg	79SS5 DUP AVG	1/8	0.0028 - 0.0033	3.2E-02	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	56-55-3	Benzo(a)anthracene	1.5E-03	1.2E-01	mg/kg	79SS5 DUP AVG	7/8	0.0012 - 0.0014	1.2E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	2.2E-03	6.5E-02	mg/kg	79SS5 DUP AVG	5/8	0.0015 - 0.0018	6.5E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	205-99-2	Benzo(b)fluoranthene	3.3E-03	1.1E-01	mg/kg	79SS5 DUP AVG	5/8	0.0032 - 0.0037	1.1E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [3]	1.2E-03	4.0E-02	mg/kg	79SS5 DUP AVG	6/8	0.001 - 0.0012	4.0E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	1.8E-03	6.3E-02	mg/kg	79SS5 DUP AVG	5/8	0.0014 - 0.0016	6.3E-02	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	8.5E-03	5.3E-02	mg/kg	30SS2	8/8	0.0051 - 0.0059	5.3E-02	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	6.0E-03	1.1E-02	mg/kg	79SS2	2/8	0.0054 - 0.0063	1.1E-02	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	5.8E-03	9.5E-02	mg/kg	79SS5 DUP AVG	4/8	0.0038 - 0.0044	9.5E-02	1.5E+01	c	2.1E+02	c	IND	N	BSL
	84-74-2	Di-n-butyl Phthalate	3.1E-02	2.0E-01	mg/kg	79SS2	5/8	0.027 - 0.032	2.0E-01	6.1E+02	n	6.2E+03	n	IND	N	BSL
	53-70-3	Dibenz(a,h)anthracene	2.3E-02	2.3E-02	mg/kg	79SS5 DUP AVG	1/8	0.0085 - 0.0098	2.3E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	132-64-9	Dibenzofuran	2.4E-02	2.4E-02	mg/kg	79SS5 DUP AVG	1/8	0.0096 - 0.011	2.4E-02	--	--	--	--	IND	Y	NSV
	84-66-2	Diethyl Phthalate	2.1E-02	2.1E-02	mg/kg	30SS2	1/8	0.0038 - 0.0044	2.1E-02	4.9E+03	n	4.9E+04	nm	IND	N	BSL
	206-44-0	Fluoranthene	1.1E-03	2.4E-01	mg/kg	79SS5 DUP AVG	8/8	0.00084 - 0.00097	2.4E-01	2.3E+02	n	2.2E+03	n	IND	N	BSL
	86-73-7	Fluorene	3.9E-02	3.9E-02	mg/kg	79SS5 DUP AVG	1/8	0.0075 - 0.0088	3.9E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	5.5E-02	5.5E-02	mg/kg	79SS5 DUP AVG	1/8	0.004 - 0.0047	5.5E-02	1.5E-01	c	2.1E+00	c	IND	N	BSL
	91-20-3	Naphthalene	2.7E-03	1.4E-02	mg/kg	79SS5 DUP AVG	3/8	0.0023 - 0.0027	1.4E-02	3.9E+00	c*	2.0E+01	c*	IND	N	BSL
	85-01-8	Phenanthrene [3]	2.9E-03	2.9E-01	mg/kg	79SS5 DUP AVG	7/8	0.0012 - 0.0013	2.9E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	2.3E-03	2.5E-01	mg/kg	79SS5 DUP AVG	7/8	0.0013 - 0.0015	2.5E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
		Explosives														
	98-95-3	Nitrobenzene	9.4E-02	9.4E-02	mg/kg	79SS5 DUP AVG	1/8	0.045 - 0.045	9.4E-02	4.4E+00	c*	2.2E+01	c*	IND	N	BSL
		Cyanide														
	57-12-5	Cyanide, Total	6.6E-02	2.7E-01	mg/kg	30SS1	5/8	0.073 - 0.085	2.7E-01	1.6E+02	n	2.0E+03	n	IND	N	BSL

Table 6-5
SSAs 30 and 79 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens

Key:
- c = cancer
- n = noncancer
- c* = where: n SL < 100X c SL
- c** = where n SL < 10X c SL
- m = concentration may exceed ceiling limit
- s = concentration may exceed Csat

-- = Not Available

[1] = Mercuric chloride soil RSLs used
[2] = Aroclor 1254 Noncancer Soil Residential RSL used
[3] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 6-6
SSAs 30 and 79 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Total Soil		**TAL Metals**														
	7429-90-5	Aluminum	8,000	31,000	mg/kg	30SS2	14/14	1.8 - 370	31,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.053	0.26	mg/kg	30SS2	13/14	0.034 - 0.037	0.26	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	0.92	3.4	mg/kg	79SB3B	14/14	0.028 - 0.03	3.4	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	37	140	mg/kg	79SS3	14/14	0.28 - 0.28	140	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	0.106	1.1	mg/kg	79SB1B	13/14	0.035 - 0.035	1.1	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.6	2.2	mg/kg	30SS2	14/14	0.24 - 0.24	2.2	7	n	80	n	IND	N	BSL
	7440-47-3	Chromium	9.9	34	mg/kg	79SB3B	14/14	0.74 - 0.74	34	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	3.4	9.65	mg/kg	30SB3B DUP AVG	14/14	0.44 - 0.44	9.65	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	3.2	37	mg/kg	79SB3B	14/14	0.04 - 0.043	37	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	12,000	43,000	mg/kg	79SB3B	14/14	0.47 - 230	43,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	4	43	mg/kg	79SS5 DUP AVG	14/14	0.045 - 0.049	43	400	nL	800	nL	IND	N	BSL
	7439-96-5	Manganese	54	1,200	mg/kg	30SS1	14/14	0.21 - 2.1	1,200	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.012	0.11	mg/kg	30SS2	13/14	0.008 - 0.0093	0.11	2.3	ns	31	ns	IND	N	BSL
	7440-02-0	Nickel	3.9	16	mg/kg	79SB3B	14/14	0.023 - 0.025	16	150	n	2,000	n	IND	N	BSL
	7782-49-2	Selenium	0.04425	0.44	mg/kg	30SS2	12/14	0.045 - 0.049	0.44	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.018	0.083	mg/kg	30SS1	14/14	0.0099 - 0.011	0.083	39	n	510	n	IND	N	BSL
	7440-28-0	Thallium	0.05	0.23	mg/kg	30SS2	14/14	0.0056 - 0.0061	0.23	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	15	63	mg/kg	30SS2	14/14	0.032 - 0.065	63	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	16	110	mg/kg	79SS5 DUP AVG	14/14	0.79 - 0.79	110	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	60-57-1	Dieldrin	4.6E-04	4.6E-04	mg/kg	79SS5 DUP AVG	1/14	0.00028 - 0.00037	4.6E-04	3.0E-02	c	1.1E-01	c	IND	N	BSL
		PCBs														
	11097-69-1	Aroclor 1254 [2]	1.4E-02	2.9E-02	mg/kg	79SS5 DUP AVG	2/14	0.0065 - 0.0086	2.9E-02	1.1E-01	n	7.4E-01	c*	IND	N	BSL
	11096-82-5	Aroclor 1260	1.3E-02	1.3E-02	mg/kg	30SS3	1/14	0.0055 - 0.0073	1.3E-02	2.2E-01	c	7.4E-01	c	IND	N	BSL
		VOCs														
	78-93-3	2-Butanone	1.3E-01	1.3E-01	mg/kg	30SS2	1/14	0.0029 - 0.0044	1.3E-01	2.8E+03	ns	1.9E+04	nms	IND	N	BSL
	67-64-1	Acetone	8.6E-03	4.3E-01	mg/kg	30SS2	5/14	0.004 - 0.006	4.3E-01	6.1E+03	n	6.1E+04	nms	IND	N	BSL
	75-15-0	Carbon Disulfide	2.9E-03	2.9E-03	mg/kg	30SS2	1/14	0.00043 - 0.00065	2.9E-03	6.7E+01	ns	3.0E+02	ns	IND	N	BSL
		SVOCs														
	92-52-4	1,1'-Biphenyl	1.1E-03	3.8E-03	mg/kg	79SS5 DUP AVG	2/14	0.00091 - 0.0012	3.8E-03	3.9E+02	ns	5.1E+03	ns	IND	N	BSL
	91-57-6	2-Methylnaphthalene	7.6E-04	1.0E-02	mg/kg	79SS5 DUP AVG	6/14	0.0005 - 0.00066	1.0E-02	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	106-44-5	4-Methylphenol	8.2E-03	8.2E-03	mg/kg	30SS2	1/14	0.0049 - 0.0064	8.2E-03	3.1E+01	n	3.1E+02	n	IND	N	BSL
	83-32-9	Acenaphthene	3.1E-02	3.1E-02	mg/kg	79SS5 DUP AVG	1/14	0.00086 - 0.0011	3.1E-02	3.4E+02	n	3.3E+03	n	IND	N	BSL
	120-12-7	Anthracene	3.2E-02	3.2E-02	mg/kg	79SS5 DUP AVG	1/14	0.0028 - 0.0037	3.2E-02	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	56-55-3	Benzo(a)anthracene	1.5E-03	1.2E-01	mg/kg	79SS5 DUP AVG	9/14	0.0012 - 0.0016	1.2E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	2.2E-03	6.5E-02	mg/kg	79SS5 DUP AVG	5/14	0.0015 - 0.002	6.5E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	205-99-2	Benzo(b)fluoranthene	3.3E-03	1.1E-01	mg/kg	79SS5 DUP AVG	5/14	0.0032 - 0.0042	1.1E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [3]	1.2E-03	4.0E-02	mg/kg	79SS5 DUP AVG	6/14	0.001 - 0.0014	4.0E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	1.8E-03	6.3E-02	mg/kg	79SS5 DUP AVG	5/14	0.0014 - 0.0019	6.3E-02	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	5.7E-03	5.3E-02	mg/kg	30SS2	14/14	0.0051 - 0.0068	5.3E-02	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	5.8E-03	1.2E-02	mg/kg	30SB3B DUP AVG	5/14	0.0054 - 0.0071	1.2E-02	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	5.8E-03	9.5E-02	mg/kg	79SS5 DUP AVG	4/14	0.0038 - 0.0051	9.5E-02	1.5E+01	c	2.1E+02	c	IND	N	BSL
	84-74-2	Di-n-butyl Phthalate	3.1E-02	2.0E-01	mg/kg	79SS2	6/14	0.027 - 0.036	2.0E-01	6.1E+02	n	6.2E+03	n	IND	N	BSL
	53-70-3	Dibenz(a,h)anthracene	2.3E-02	2.3E-02	mg/kg	79SS5 DUP AVG	1/14	0.0085 - 0.011	2.3E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	132-64-9	Dibenzofuran	2.4E-02	2.4E-02	mg/kg	79SS5 DUP AVG	1/14	0.0096 - 0.013	2.4E-02	--	--	--	--	IND	Y	NSV
	84-66-2	Diethyl Phthalate	5.5E-03	2.1E-02	mg/kg	30SS2	2/14	0.0038 - 0.005	2.1E-02	4.9E+03	n	4.9E+04	nm	IND	N	BSL
	206-44-0	Fluoranthene	1.1E-03	2.4E-01	mg/kg	79SS5 DUP AVG	10/14	0.00084 - 0.0011	2.4E-01	2.3E+02	n	2.2E+03	n	IND	N	BSL
	86-73-7	Fluorene	3.9E-02	3.9E-02	mg/kg	79SS5 DUP AVG	1/14	0.0075 - 0.01	3.9E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	5.5E-02	5.5E-02	mg/kg	79SS5 DUP AVG	1/14	0.004 - 0.0053	5.5E-02	1.5E+02	c	2.1E+03	c	IND	N	BSL
	91-20-3	Naphthalene	2.7E-03	1.4E-02	mg/kg	79SS5 DUP AVG	3/14	0.0023 - 0.003	1.4E-02	3.9E+00	c*	2.0E+01	c*	IND	N	BSL
	85-01-8	Phenanthrene [3]	2.0E-03	2.9E-01	mg/kg	79SS5 DUP AVG	8/14	0.0012 - 0.0015	2.9E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	2.1E-03	2.5E-01	mg/kg	79SS5 DUP AVG	8/14	0.0013 - 0.0017	2.5E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL
		Explosives														
	98-95-3	Nitrobenzene	9.4E-02	1.1E-01	mg/kg	79SB1B	2/14	0.045 - 0.045	1.1E-01	4.4E+00	c*	2.2E+01	c*	IND	N	BSL
		Cyanide														
	57-12-5	Cyanide, Total	6.6E-02	2.7E-01	mg/kg	30SS1	6/14	0.073 - 0.097	2.7E-01	1.6E+02	n	2.0E+03	n	IND	N	BSL

Table 6-6
SSAs 30 and 79 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens

Key:
- c = cancer
- n = noncancer
- c* = where: n SL < 100X c SL
- c** = where n SL < 10X c SL
- m = concentration may exceed ceiling limit
- s = concentration may exceed Csat

-- = Not Available

[1] = Mercuric chloride soil RSLs used
[2] = Aroclor 1254 Noncancer Soil Residential RSL used
[3] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 6-7
SSAs 30 and 79 Cumulative HHRS (Surface Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	8/8	31,000	77,000	n	990,000	n	4.E-01	--	3.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	8/8	3.3	0.39	c	1.6	c	--	8.E-06	--	2.E-06	--
7440-38-2	Arsenic	mg/kg	8/8	3.3	22	n	260	n	2.E-01	--	1.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	8/8	8.9	23	n	300	n	4.E-01	--	3.E-02	--	blood
7439-89-6	Iron	mg/kg	8/8	35,000	55,000	n	720,000	n	6.E-01	--	5.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	8/8	1,200	1,800	n	23,000	n	7.E-01	--	5.E-02	--	CNS
7440-62-2	Vanadium	mg/kg	8/8	63	550	n	7,200	n	1.E-01	--	9.E-03	--	kidney
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	5/8	0.065	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/8	0.02345	0.015	c	0.21	c	--	2.E-06	--	1.E-07	--
132-64-9	Dibenzofuran	mg/kg	1/8	0.02425	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		2.E+00	1.E-05	2.E-01	2.E-06	

Target Organ Segregation

Total blood HI =	**1**	Total blood HI =	0.08
Total CNS HI =	**1**	Total CNS HI =	0.08
Total skin HI =	0.2	Total skin HI =	0.01
Total vascular HI =	0.2	Total vascular HI =	0.01
Total kidney HI =	0.1	Total kidney HI =	0.01
Total GI Tract HI =	**0.6**	Total GI Tract HI =	0.05
Total liver HI =	**0.6**	Total liver HI =	0.05

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal Tract

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 6-8
SSAs 30 and 79 Cumulative HHRS (Total Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	14/14	31,000	77,000	n	990,000	n	4.E-01	--	3.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	14/14	3.4	0.39	c	1.6	c	--	9.E-06	--	2.E-06	--
7440-38-2	Arsenic	mg/kg	14/14	3.4	22	n	260	n	2.E-01	--	1.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	14/14	9.65	23	n	300	n	4.E-01	--	3.E-02	--	blood
7439-89-6	Iron	mg/kg	14/14	43,000	55,000	n	720000	n	8.E-01	--	6.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	14/14	1,200	1,800	n	23,000	n	7.E-01	--	5.E-02	--	CNS
7440-62-2	Vanadium	mg/kg	14/14	63	550	n	7,200	n	1.E-01	--	9.E-03	--	kidney
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	5/14	0.065	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/14	0.02345	0.015	c	0.21	c	--	2.E-06	--	1.E-07	--
132-64-9	Dibenzofuran	mg/kg	1/14	0.02425	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		3.E+00	1.E-05	2.E-01	3.E-06	

Target Organ Segregation

Total blood HI =	**1**	Total blood HI =	0.09
Total CNS HI =	**1**	Total CNS HI =	0.08
Total skin HI =	0.2	Total skin HI =	0.01
Total vascular HI =	0.2	Total vascular HI =	0.01
Total GI Tract HI =	**0.8**	Total GI Tract HI =	0.1
Total liver HI =	**0.8**	Total liver HI =	0.06

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 6-9
SSL Screening Results for Subsurface Soil
Site Screening Areas 30 and 79
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	Facility Background [A]	SSL (DAF 20)	Minimum Detected Concentration	Maximum Detected Concentration	# of Samples Above SSL	# of Detections	# of Samples
TAL Metals (mg/kg)								
Aluminum	7429-90-5	40,041	1,100,000	8,000	18,500	0	6	6
Antimony	7440-36-0	--	13.2	0.053	0.11	0	5	6
Arsenic	7440-38-2	15.8	0.026	0.92	3.4	**6**	6	6
Barium	7440-39-3	209	6,000	37	71	0	6	6
Beryllium	7440-41-7	1.02	1,160	0.106	1.1	0	6	6
Cadmium	7440-43-9	0.69	--	0.6	1.8	**--**	6	6
Chromium	7440-47-3	65.3	--	9.9	34	**--**	6	6
Cobalt	7440-48-4	72.3	9.8	3.4	9.65	0	6	6
Copper	7440-50-8	53.5	1,020	3.2	37	0	6	6
Iron	7439-89-6	50,962	12,800	12,000	43,000	**5**	6	6
Lead	7439-92-1	26.8	--	4	15.4	**--**	6	6
Manganese	7439-96-5	2,543	1,140	54	710	0	6	6
Mercury [1]	7439-97-6	0.13	0.6	0.012	0.04	0	5	6
Nickel	7440-02-0	62.8	960	3.9	16	0	6	6
Selenium	7782-49-2	--	19	0.04425	0.34	0	4	6
Silver	7440-22-4	--	32	0.018	0.057	0	6	6
Thallium	7440-28-0	2.11	3.4	0.05	0.135	0	6	6
Vanadium	7440-62-2	108	5,200	15	41	0	6	6
Zinc	7440-66-6	202	13,600	16	34.5	0	6	6
VOCs (ug/kg)								
Acetone	67-64-1	--	8.8E+04	13	13	0	1	6
SVOCs (ug/kg)								
Benzo(a)anthracene	56-55-3	--	2.8E+02	2.1	2.5	0	2	6
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.2E+04	5.7	43	0	6	6
Butyl Benzyl Phthalate	85-68-7	--	1.3E+04	5.8	12.225	0	3	6
Di-n-butyl Phthalate	84-74-2	--	2.2E+05	123.75	123.75	0	1	6
Diethyl Phthalate	84-66-2	--	2.6E+05	5.5	5.5	0	1	6
Fluoranthene	206-44-0	--	4.2E+06	1.5	3.3	0	2	6
Phenanthrene [2]	85-01-8	--	3.0E+06	2	2	0	1	6
Pyrene	129-00-0	--	3.0E+06	2.1	2.1	0	1	6
Explosives (mg/kg)								
Nitrobenzene	98-95-3	--	1.4E-03	0.11	0.11	**1**	1	6
Cyanide (mg/kg)								
Cyanide, Total	57-12-5	--	1.5E+02	0.0975	0.0975	0	1	6

Notes:
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
SSL = Risk-based Soil Screening Level from April 2009 RSL Table
DAF 20 = Dilution Attenuation Factor of 20
-- = No Value Available
[1] = Mercuric chloride soil SSL used
[2] = Pyrene soil SSL used
(A) = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

Table 6-10
SSAs 30 and 79 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Surface Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Surface Soil	Maximum Concentration Surface Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	11,000	31,000	mg/kg	30SS2	8/8	1.8 - 370	31,000	40,041	N
7440-36-0	Antimony	0.12	0.26	mg/kg	30SS2	8/8	0.034 - 0.037	0.26	--	NBE
7440-38-2	Arsenic	1.6	3.3	mg/kg	30SS2	8/8	0.028 - 0.03	3.3	15.8	N
7440-39-3	Barium	70	140	mg/kg	79SS3	8/8	0.28 - 0.28	140	209	N
7440-41-7	Beryllium	0.3	0.865	mg/kg	79SS5 DUP AVG	7/8	0.035 - 0.035	0.865	1.02	N
7440-43-9	Cadmium	0.65	2.2	mg/kg	30SS2	8/8	0.24 - 0.24	2.2	0.69	**Y**
7440-47-3	Chromium	17	27	mg/kg	30SS2	8/8	0.74 - 0.74	27	65.3	N
7440-48-4	Cobalt	4.1	8.9	mg/kg	79SS4	8/8	0.44 - 0.44	8.9	72.3	N
7440-50-8	Copper	5.1	13.5	mg/kg	79SS5 DUP AVG	8/8	0.04 - 0.043	14	53.5	N
7439-89-6	Iron	12,000	35,000	mg/kg	30SS2	8/8	0.47 - 230	35,000	50,962	N
7439-92-1	Lead	11	43	mg/kg	79SS5 DUP AVG	8/8	0.045 - 0.049	43	26.8	**Y**
7439-96-5	Manganese	220	1,200	mg/kg	30SS1	8/8	0.21 - 2.1	1,200	2,543	N
7439-97-6	Mercury	0.037	0.11	mg/kg	30SS2	8/8	0.008 - 0.0093	0.11	0.13	N
7440-02-0	Nickel	5.1	12	mg/kg	79SS4	8/8	0.023 - 0.025	12	62.8	N
7782-49-2	Selenium	0.078	0.44	mg/kg	30SS2	8/8	0.045 - 0.049	0.44	--	NBE
7440-22-4	Silver	0.039	0.083	mg/kg	30SS1	8/8	0.0099 - 0.011	0.083	--	NBE
7440-28-0	Thallium	0.13	0.23	mg/kg	30SS2	8/8	0.0056 - 0.0061	0.23	2.11	N
7440-62-2	Vanadium	25	63	mg/kg	30SS2	8/8	0.032 - 0.065	63	108	N
7440-66-6	Zinc	24	110	mg/kg	79SS5 DUP AVG	8/8	0.79 - 0.79	110	202	N

Table 6-10
SSAs 30 and 79 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Total Soil	Maximum Concentration Total Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	8,000	31,000	mg/kg	30SS2	14/14	1.8 - 370	31,000	40,041	N
7440-36-0	Antimony	0.053	0.26	mg/kg	30SS2	13/14	0.034 - 0.037	0.26	--	NBE
7440-38-2	Arsenic	0.92	3.4	mg/kg	79SB3B	14/14	0.028 - 0.03	3.4	15.8	N
7440-39-3	Barium	37	140	mg/kg	79SS3	14/14	0.28 - 0.28	140	209	N
7440-41-7	Beryllium	0.106	1.1	mg/kg	79SB1B	13/14	0.035 - 0.035	1.1	1.02	**Y**
7440-43-9	Cadmium	0.6	2.2	mg/kg	30SS2	14/14	0.24 - 0.24	2.2	0.69	**Y**
7440-47-3	Chromium	9.9	34	mg/kg	79SB3B	14/14	0.74 - 0.74	34	65.3	N
7440-48-4	Cobalt	3.4	9.65	mg/kg	30SB3B DUP AVG	14/14	0.44 - 0.44	9.65	72.3	N
7440-50-8	Copper	3.2	37	mg/kg	79SB3B	14/14	0.04 - 0.043	37	53.5	N
7439-89-6	Iron	12,000	43,000	mg/kg	79SB3B	14/14	0.47 - 230	43,000	50,962	N
7439-92-1	Lead	4	43	mg/kg	79SS5 DUP AVG	14/14	0.045 - 0.049	43	26.8	**Y**
7439-96-5	Manganese	54	1,200	mg/kg	30SS1	14/14	0.21 - 2.1	1,200	2,543	N
7439-97-6	Mercury	0.012	0.11	mg/kg	30SS2	13/14	0.008 - 0.0093	0.11	0.13	N
7440-02-0	Nickel	3.9	16	mg/kg	79SB3B	14/14	0.023 - 0.025	16	62.8	N
7782-49-2	Selenium	0.04425	0.44	mg/kg	30SS2	12/14	0.045 - 0.049	0.44	--	NBE
7440-22-4	Silver	0.018	0.083	mg/kg	30SS1	14/14	0.0099 - 0.011	0.083	--	NBE
7440-28-0	Thallium	0.05	0.23	mg/kg	30SS2	14/14	0.0056 - 0.0061	0.23	2.11	N
7440-62-2	Vanadium	15	63	mg/kg	30SS2	14/14	0.032 - 0.065	63	108	N
7440-66-6	Zinc	16	110	mg/kg	79SS5 DUP AVG	14/14	0.79 - 0.79	110	202	N

Notes:

CAS = Chemical Abstracts Service
TAL = Target Analyte List
NBE = No Background Estimate Available
mg/kg = Milligram Per Kilogram
(A) = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

Table 6-11
SSAs 30 and 79 Cumulative HHRS (Surface Soil - Excluding Metals Below Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	5/8	0.065	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/8	0.02345	0.015	c	0.21	c	--	2.E-06	--	1.E-07	--
132-64-9	Dibenzofuran	mg/kg	1/8	0.02425	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		--	6.E-06	--	4.E-07	

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 6-12
SSAs 30 and 79 Cumulative HHRS (Total Soil Excluding Metals Below Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	5/14	0.065	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/14	0.023	0.015	c	0.21	c	--	2.E-06	--	1.E-07	--
132-64-9	Dibenzofuran	mg/kg	1/14	0.024	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		--	6.E-06	--	4.E-07	

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

7.0 SSA 60 RUBBLE PILE EAST OF ADMINSTRATION BUILDING (BUILDING 220)

7.1 SITE BACKGROUND – ENVIRONMENTAL SETTING

7.1.1 Site Description and Topography

The rubble pile east of Administration Building 220 (SSA 60) is located in the southern portion of the MMA (Figure 1-1). SSA 60 is an approximate 1.5 acre fill area of demolition waste and construction waste material (Figure 7-1). Soil and gravel material were used to cover the fill material and level the area with an approximate 4% slope toward the west. The northern and eastern edges of fill material have steeper side slopes to the base of the fill area. Grass vegetation covers the fill area and side slopes. Maximum and minimum elevations of the site area are approximately 1,914 ft msl at the western edge of the site and 1,880 ft at the easternmost base of the fill area.

Structures at SSA 60 are limited to a meteorological tower constructed on the site in 1990 to monitor weather conditions and provide emergency response information. Aboveground power lines run along the western edge of the site adjacent to the main entry road to the plant area. In addition, a gravel area was added to the area to allow for access to the meteorological tower located at the site. Tanks and subsurface utilities are not located on or in the immediate vicinity of the site. Administrative Building 220 is located approximately 150 ft west of SSA 60 across the main entry road to the plant area. A site photographic log for SSA 60 is included in Appendix B.

7.1.2 Site History

The rubble pile was created in 1985 to accept demolition waste (fill dirt and concrete slab materials) cleaned up from the remains of an explosion in the Nitroglycerin Area Number 1 and highway construction debris (fill dirt and blasted rock) from nearby Route 114 in the late 1980s. Soil and gravel were placed and compacted over the rubble pile and graded level with the intention of building a parking lot for Building 220 employees. The parking lot was not constructed. Fill activities ceased at the site in 1988. Pre-1985 topographic maps indicate that a narrow valley area between two ridges was filled at the site with fill depths likely greater than 20 ft in the center and eastern portions of the site area. Based on the SSP investigation, surface sampling and test pits indicated a minimum one foot of cover over rubble material.

According the Virginia Solid Waste Management Regulations Title 9; VAC 20-80-60.D.7, the rubble pile site is conditionally exempt from the requirements of this chapter. The exemption states “landfilling of solid waste which includes only rocks, brick, block, dirt, broken concrete and road pavement, and which contain no paper, yard or wood wastes” is exempt from the regulation.

Figure 7-2 presents a 1990 aerial photograph of SSA 60 after fill activities had ceased and the meteorological tower had been constructed. A well defined drainage ditch is visible on the photograph extending from the easternmost base of fill area toward the east. A second drainage ditch appears to originate at the base of the fill area and merges with the main drainage channel less than 100 ft from the fill area. A later aerial photograph from 2002 shown on Figure 7-3 shows the same drainage features.

7.1.3 Surface Water

Surface water bodies, manholes, or catch basins are not located within SSA 60. Any surface water runoff that does not infiltrate into the subsurface at the site would flow toward the east across the site and down the steeper vegetated side slopes of the fill area. Runoff from the site that reaches the base of the fill slopes would potentially leave the site area via a drainage ditch that extends from the site down a valley approximately 600 ft before ending at an alluvial valley area that is enclosed on all sides by steep slopes and road embankments.

7.1.4 Soil

According to the *Soil Survey of Montgomery County, Virginia* (USDA 1985), the area of SSA 60 is underlain by Unison-Urban Land complex soil. This soil has moderate permeability and medium-to-strong acidity. Soil classification is not practical in urban land areas because the original soil has been physically altered or obscured. A typical profile of undisturbed Unison soil consists of a 15-inch thick surface layer of dark brown loam and a 43-inch thick subsoil of yellowish-red, sticky plastic clay underlain by a red sandy clay loam to a depth of 58 inches. In general, permeability is moderate in Unison soil, natural fertility is low, and organic matter content is low to moderate.

7.1.5 Geology

Subsurface investigations have not been previously conducted at the site. Bedrock of the Cambrian Age Elbrook Formation is mapped below SSA 60 (Bartholomew and Schultz 2000). Residual clayey soil from limestone/dolomite bedrock of Cambrian Age Elbrook Formation is expected to be present below fill material placed at the site. The Elbrook Formation in the site area is typically gray to dark gray, fine to medium grained limestone and dolomite, with laminar to medium beds for dolomite and medium beds for limestone. Outcrops of bedrock occur at higher elevations immediately south of the site.

7.1.6 Hydrogeology

Groundwater investigations have not been previously conducted at the site. Based on groundwater conditions investigated at similar areas of RFAAP, groundwater is expected to occur within fractures and voids of underlying bedrock. The expected groundwater depth at SSA 60 of greater than 75 ft below the fill material is based on the assumption that potentiometric elevations in the upland area of the facility are similar for sites whose ground surface elevations are similar. SWMU 17 and SWMU 40 are located to the west of SSA 60 and have similar ground surface elevations to SSA 60 prior to filling (1,880 to 1,910 ft msl).

Select Groundwater Elevation Data – SWMU 17 and SWMU 40

Well ID	Location	Top of Casing at Measurement Point	Ground Surface Elevation (ft msl)	Depth to Groundwater (bgs)	Groundwater Elevation (12/10/07)
17MW2	SWMU 17	1905.88	1903.99	102.90	1801.09
17PZ1	SWMU 17	1906.90	1904.70	104.16	1800.54
40MW6	SWMU 40	1884.25	1882.61	98.68	1783.93

As shown in the above table, the depth to groundwater below the ground surface at SWMU 17 and SWMU 40 within relatively undisturbed areas is greater than 98 ft and therefore it has been conservatively assumed that the depth to groundwater below the fill material at SSA 60 is greater than 75 ft.

7.2 PREVIOUS INVESTIGATIONS

7.2.1 RCRA Facility Assessment – USEPA 1987

An assessment was conducted at SSA 60 (listed as Unit 60 in RFA) to evaluate potential hazardous waste or hazardous chemical releases and implement corrective actions, as necessary. The assessment consisted of a preliminary review and evaluation of available site information, personnel interviews, and a visual inspection of the site. Environmental samples were not collected at SSA 60 as part of the inspection. The RFA indicated that there were no documented releases from the unit.

7.3 WORK PLAN DATA GAP ANALYSIS

The data gap analysis presented in WPA 028 indicated that no soil sampling and analyses had occurred at SSA 60 (URS 2009). The data gap analysis completed for SSA 60 identified data gaps for evaluating potential releases to surface soil, subsurface soil, and the drainage ditch area from previous fill activities, and characterizing physical and geotechnical properties of site soil.

7.3.1 Release Assessment to Surface Soil

An assessment of potential releases to surface soil had not been performed at SSA 60. This data gap was filled by collecting surface soil samples from the fill area and at the base of the fill embankment where potential mass transport of material from the fill area would occur from stormwater runoff. Field investigation activities are discussed in Section 7.4.

7.3.2 Release Assessment to Drainage Ditch

An assessment of potential releases to the drainage ditch located at the base of the fill area had not been performed at SSA 60. This data gap was filled by collecting surface soil samples from the drainage ditch located at the base of the fill area. Field investigation activities are discussed in Section 7.4.

7.3.3 Release Assessment to Subsurface Soil

An assessment of potential releases to subsurface soil had not been performed at SSA 60. This data gap was filled by collecting subsurface soil samples below the fill material. Field investigation activities are discussed in Section 7.4.

7.3.4 Groundwater

Given the lack of data at the site and anticipated significant depth to groundwater, potential releases to groundwater were assessed by evaluating subsurface soil data and a comparison of these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table (USEPA 2009).

7.3.5 Other

Two representative samples of soil at the site (one surface sample and one subsurface sample) were submitted for analysis of physical and geotechnical properties, as described in Section 7.4

7.3.6 Summary of Data Gaps

The following table summarizes these identified data gaps and the completion plan to fill the data gaps from WPA 028 (URS 2009).

SSA 60 - Summary of Data Gap Analysis and Completion Plan

DATA GAPS			COMPLETION PLAN
Item	**Physical**	**Chemical**	
Releases to Soil	Surface Soil Samples	Chemical Data – VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect surface soil samples from fill area and at base of fill embankment
	Subsurface Soil Samples	Chemical Data – VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect subsurface samples below fill material
Release to Drainage Ditch Soil/Sediment	Surface Soil Samples	Chemical Data – VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Collect surface soil or sediment samples from drainage ditch area proximate to fill area

DATA GAPS			COMPLETION PLAN
Item	Physical	Chemical	
Releases to Groundwater	Subsurface Soil Samples	Use subsurface soil sample data	Compare subsurface soil data collected below fill material to soil-to-groundwater SSLs
Site-Wide Soil Characteristics	Physical / Geotechnical Properties	pH, TOC, grain size, Atterberg Limits, and moisture content	Collect samples for geotechnical and physical property analysis.

7.4 SSP FIELD ACTIVITIES

Seven surface soil samples and two test pits were advanced in and around the site to evaluate for the presence or absence of chemicals in soil potentially associated with historical activities (Figure 7-4). During excavation of the test pits, the material encountered included fill, gravel areas, rocks, and concrete building debris. Three surface soil samples were collected from the fill area, two surface soil samples were collected from the base of the fill area, and two surface soil samples were collected from within the ditch located at the base of the fill area. In addition, two test pits were completed at the site and one subsurface sample was collected from test pit 1 while not enough soil was present in test pit 2 to obtain a soil sample. An additional boring (60SS6) was completed horizontally into the base of the fill area to obtain an additional subsurface sample. Discrete samples were collected from surface or intermediate intervals for the samples as summarized below.

SSA 60 SSP Samples and Boring Information

Boring ID	Total Depth of Boring (ft bgs)	Surface Sample ID	Sample Depth (ft bgs)	Intermediate Sample ID	Sample Depth (ft bgs)
60SE1	1.0	60SE1	0-1	--	--
60SE2	1.0	60SE2	0-1	--	--
60SS1	1.0	60SS1	0-1	--	--
60SS2	1.0	60SS2	0-1	--	--
60SS3	1.0	60SS3	0-1	--	--
60SS4	1.0	60SS4	0-1	--	--
60SS5	1.0	60SS5	0-1	--	--
60SS6	1.0*	60SS6	0-1	--	--
60TP1	16	--	--	60TP1	14-16

Note: * 60SS6 was completed horizontally into the base of the fill area to obtain an additional subsurface sample approximately 12-14 ft below the upper level surface of SSA 60.

Soil samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides, TCL PCBs, explosives (including nitroglycerin and PETN), and TAL inorganics . SSP analytical results (detected chemicals) are summarized in Table 7-1.

Two samples were collected for physical testing (one surface soil sample (60SS3) and one subsurface soil sample (60SS6)). Physical testing for each sample included: grain size analysis, Atterberg limits, soil

moisture content, TOC, and pH. Analytical results for these samples are summarized in Table 2-1 and the complete results are provided in Appendix D.1.

7.5 CONCEPTUAL SITE MODEL (CSM)

A CSM for SSA 60 is presented on Figure 7-5. The site is located in the upland area outside the fenced area containing manufacturing operations at RFAAP. Rubble fill material consisting of demolition debris and highway construction debris has been placed within a former valley area to estimated maximum depths greater than 20 ft. Soil cover has been placed over the fill area to level the site. Grass covers the fill area and side slopes. Groundwater is expected to occur within fractures and voids of underlying bedrock at estimated depths greater than 75 ft below the fill material placed at SSA 60. A drainage ditch at the base of the fill area is expected to convey runoff from the site area during significant storm events. This drainage ditch leads to a valley area approximately 600 ft from the site that is surrounded on all sides by steep slopes associated with ridges and road embankments and would eventually discharge to Stroubles Creek.

Fill material placed in the rubble pile represents the potential constituent source at SSA 60. Material placed in the rubble pile reportedly consisted of demolition waste (fill dirt and concrete slab materials) from the remains of an explosion in the Nitroglycerin Area Number 1 and highway construction debris (fill direct and blast rock). The volume of material placed in the rubble pile is unknown. Potentially affected media at the site include:

- Surface and subsurface soil via placement of fill material;
- Surface soil/deposited material at the base of the fill area from stormwater runoff (erosion and mass transport) from the fill area;
- Soil or sediment in the drainage ditch at base of fill area from stormwater runoff (erosion and mass transport) from the fill area;
- Subsurface soil via leaching of constituents from fill material place; and
- Groundwater via leaching of constituents released to subsurface soil.

Although current and likely future land-use scenarios are limited to industrial operations, both residential and industrial scenarios will be evaluated in the SSP human health screening (USEPA 2001).

SSA 60 is exclusively an upland habitat that lacks wetland or perennial surface water features. Therefore, soil represents the potential exposure medium for ecological receptors. An ECSM is provided in Section 3.0, Figure 3-1.

7.6 HUMAN HEALTH RISK SCREENING

7.6.1 Identification of COPCs

Tables 7-2 and 7-3 present the results of the COPC evaluations for surface soil and total soil, respectively. COPCs identified for surface soil and total soil included:

TAL metals:	aluminum, arsenic, cobalt, iron, manganese;
TCL Pesticides:	none;
TCL PCBs:	none;
TCL VOCs:	none;
TAL SVOCs:	benzo(a)pyrene, dimethyl phthalate (NSV); and
Explosives:	not detected.

7.6.2 Cumulative Risk Screen

The cumulative risk screening for surface soil is presented on Table 7-4. The cumulative risk screening for total soil is presented on Table 7-5. A summary of the screening results is presented below:

Cumulative Human Health Risk Screening Results for Soil

	Surface Soil			Total Soil		
	Above/ Below/ Equal	**Risk/ Hazard**	**Drivers**	**Above/ Below/ Equal**	**Risk/ Hazard**	**Drivers**
Residential Risk	Above	4.E-05	Arsenic	Above	5.E-05	Arsenic
Industrial Risk	Below	8.E-06	--	Equal	1.E-05	Arsenic
Residential Hazard	Above	2	Aluminum, Arsenic, Cobalt, Iron, Manganese	Above	3	Aluminum, Arsenic, Cobalt, Iron, Manganese
Industrial Hazard	Below	0.2	--	Below	0.2	--

*Note: Above, below, or equal to established SSP risk and hazard levels.

The cumulative human health risk screens were above the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the residential scenario for surface and total soil. The cumulative human health risk screens for the industrial scenario were below the established SSP risk level of 1E-05 for surface soil and equal to the risk level for total soil. Cumulative hazard screening was below the established SSP hazard level of 1 for the industrial scenario for total and surface soil. The risk/hazard drivers identified in the table above are those chemicals that primarily contribute to HIs or risks greater than the established SSP hazard level of 1 or risk level of 1E-05, respectively.

Due to multiple chemicals contributing to a residential HI greater than 1, as presented on Table 7-4 (surface soil) and Table 7-5 (total soil), the HIs were segregated based on primary target organs for chronic exposure. The HI segregations for surface and total soil resulted in values equal to or higher than the cumulative SSP HI target organ threshold of 0.5 for the following target organs: blood, CNS, skin, vascular, GI tract, and liver.

7.6.3 Lead and Iron Screening

Detected lead concentrations at the site were below 400 mg/kg; therefore, lead modeling was not conducted for the site.

Since iron concentrations in soil result in an HQ of greater than 0.5, further assessment is required. This assessment consists of a "margin of exposure evaluation" where the estimated intake of iron is compared to the RDA and concentrations known to cause adverse health effects in children (NCEA 2006). Appendix E.4 presents the margin of exposure evaluation for surface soil and total soil. A summary of the results for SSA 60 is presented below.

Iron Margin of Exposure Evaluation – Future Child Resident

	Surface Soil			Total Soil		
	Above/ Below	**Estimated Site Intake**	**Exposure Screening Level**	**Above/ Below**	**Estimated Site Intake**	**Exposure Screening Level**
RDA Screen (mg/day)	Below	6	10	Below	7	10
Provisional Reference Dose (RfD) Screen (mg/kg-day)	Below	0.4	0.7	Below	0.5	0.7

The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 60.

7.6.4 SSL Comparison - Soil

7.6.4.1 Generic SSLs (Soil-to-groundwater Risk-based Screening Levels)

An SSL screening was conducted for detected chemicals in subsurface soil to evaluate the potential for leaching of chemicals from soil to groundwater. As presented in Table 7-6, the detected concentrations for each chemical in subsurface soil were compared to their USEPA risk-based SSLs included in the Regional Screening Table (USEPA 2009), if available. The comparisons of subsurface soil concentrations to generic SSLs (DAF 20) for detected chemicals indicated that arsenic and iron were above their SSLs (Table 7-6).

7.6.4.2 Site-specific SSL Comparison

Organic chemical were not detected in subsurface soil at concentrations above their generic SSLs (DAF 20); therefore, site-specific SSLs were not calculated.

7.6.5 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPCs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). The comparison of MDCs for metals identified as COPCs in surface soil and total soil with their background point estimates resulted in a site soil MDC above its background point estimate for arsenic for total soil (Table 7-7). Note that, although the MDC for arsenic in total soil (16 mg/kg) was slightly above the background point estimate (15.8 mg/kg), the detected concentration was within the range of arsenic concentrations in background at the facility (1.2 – 35.9 mg/kg).

7.6.6 Human Health Risk Screening Summary

Soil COPCs with screening values were limited to metals and SVOCs. The soil cumulative human health risk screens were above the established SSP risk and hazard levels of 1E-05 and 1.0, respectively, for the residential scenario for surface and total soil. The cumulative human health risk screens for the industrial scenario were below the established SSP risk level of 1E-05 for surface soil and equal to the risk level for total soil. Cumulative hazard screening was below the established SSP hazard level of 1 for the industrial scenario for total and surface soil.

The results of the carcinogenic residential risk screening were above the established SSP threshold (1E-05) for surface soil and total soil primarily due to arsenic. Although the MDC for arsenic in total soil (16 mg/kg) was slightly above the background point estimate (15.8 mg/kg), the detected concentration was within the range of arsenic concentrations in background at the facility (1.2 – 35.9 mg/kg) and the

remaining samples were all below the background point estimate; therefore, arsenic is not considered a concern at the site. As presented on Tables 7-8 and 7-9 the site-related risk, when excluding arsenic in surface and total soil, is 5E-06 which is below the SSP risk threshold of 1E-05.

The noncarcinogenic residential hazard screening was above the established SSP threshold (HI=1) for surface and total soil primarily due to metals at concentrations within background (Table 7-7) and are therefore not considered a concern for the site.

Detected lead concentrations at the site were below 400 mg/kg; therefore, lead modeling was not conducted for the sites. The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 60.

The MDC comparisons of total soil to generic SSLs (DAF 20) for detected chemicals indicated that arsenic and iron were above their SSLs (Table 7-6). The iron concentrations are not a concern at the site since the detected concentrations are below its background point estimate. Although the MDC for arsenic in total soil (16 mg/kg) was slightly above the background point estimate (15.8 mg/kg), the detected concentration was within the range of arsenic concentrations in background at the facility (1.2 – 35.9 mg/kg) and the remaining samples were all below the background point estimate; therefore, arsenic is not considered a concern at the site.

7.7 ECOLOGICAL RISK SCREENING

7.7.1 Ecological Site Characterization

An overview of the site physiography, water resources, soil, and geology for SSA 60 is presented in Section 7.1. SSA 60 is an approximate 1.5 acre fill area of demolition waste and construction waste material that due to the nature of the fill material provides minimal habitat value to wildlife potentially occurring in the area (see photographic log – Appendix B).

Based on information from the Installation-Wide Biological Survey and observations made during the site reconnaissance, the grassland vegetative community at the site is typical of other meadow-grassed areas that are regularly maintained at RFAAP.

The habitat could support some ecological use (i.e., shelter and foraging) by some smaller common species in the area. Given its limited size, substrate (gravel), asphalt roads, adjacent buildings, and potential use as a parking area, few individuals would be expected to utilize the area for a lengthy period.

Threatened, rare, or endangered species were not observed during the site reconnaissance. These species are not likely to be present within the boundaries of the site. Threatened, rare, and endangered species information for RFAAP is discussed in Section 3.3.4.

7.7.1.1 Data Organization

The following table identifies the soil samples used for the SLERA. These samples were analyzed for TAL inorganics, TCL pesticides, TCL PCBs, TCL VOCs, TCL SVOCs, and explosives (including nitroglycerin and PETN). Refer to Table 2-1 for a detailed list of samples and analytes.

Soil Samples Evaluated for SLERA

SSA 60	
60SS1	60SS5
60SS2	60SE1
60SS3	60SE2
60SS4	

Detected chemical occurrence and distribution tables for surface soil are presented in Table F.4-1. Refer to Table 7-1 for a complete list of results for detected analytes. In addition, to evaluate the adequate

sensitivity of the MDL for the necessary screening levels, Table F.4-2 provides a screening of the maximum MDL versus available ecological screening values for non-detected chemicals in surface soil.

7.7.1.2 Ecological Conceptual Site Model (ECSM)

The terrestrial ECSM is presented on Figure 3-1. Surface soil is a potential exposure medium of concern based on historical activities at the site. Based on the site characterization and data, the terrestrial receptor exposure to surface soil pathway exists.

7.7.2 Preliminary Exposure Estimate and Ecological Effects Evaluation

The preliminary exposure estimate and ecological effects evaluation considers the most conservative risk scenario. Highly conservative assumptions are used to estimate COPEC exposure to terrestrial receptors for pathways to be quantitatively evaluated. Conservative TRVs are used to evaluate the ecological effects of exposure using the two approaches discussed below.

7.7.2.1 Direct Contact Approach

The MDC for detected chemicals are used as the preliminary exposure estimate concentrations to develop a conservative risk scenario for the direct contact pathway to soil invertebrates and terrestrial plants. The results of the preliminary exposure assessments for plants and invertebrates are provided below.

Terrestrial Plants

Preliminary direct contact HQs calculated for plants are presented in Table F.4-6 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of aluminum, chromium, lead, manganese, selenium, and vanadium resulted in HQ values that were greater than 1.

Soil Invertebrates and Microbial Communities

Preliminary direct contact HQs calculated for invertebrates are presented in Table F.4-8 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of chromium, iron, manganese, vanadium, zinc, and cyanide resulted in HQ values that were greater than 1.

7.7.2.2 Dose Rate Modeling Approach

Quantitative risk characterization for terrestrial wildlife is limited to direct ingestion of biota and incidental ingestion of soil. The preliminary risks for detected bioaccumulative chemicals are summarized in Table F.4-24 for each terrestrial wildlife receptor and the chemicals with HQs greater than 1 are characterized as follows:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	cadmium, lead	arsenic, selenium
Short-tailed Shrew	cadmium, chromium, lead, selenium, zinc, Aroclor 1254, Aroclor 1260, benzo(g,h,i)perylene	arsenic
Red Fox	chromium, copper, lead, Aroclor 1254, Aroclor 1260, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene	arsenic, cadmium, selenium, zinc
American Robin	cadmium, mercury, selenium, 4,4'-DDD, 4,4'-DDE, Aroclor 1254	chromium, lead, zinc
Red-tailed Hawk	lead, zinc	none

7.7.3 Refined Exposure Estimate and Risk Characterization

7.7.3.1 Direct Contact Approach

The refined exposure estimate for the direct contact pathway to soil invertebrate and microbial communities incorporates the 95% UCL as the exposure concentration for evaluating the COPECs using a conservative yet more realistic exposure assumption than MDCs. Due to the number of samples at the sites, a 95% UCL was not calculated; therefore, a refinement of the direct contact pathway was not conducted.

7.7.3.2 Dose Rate Modeling Approach

The refined exposure estimates and ecological effects are developed for wildlife receptors having complete exposure pathways to be quantitatively evaluated (i.e., omnivorous birds, and carnivorous and herbivorous mammals). In the refined model, an average body weight, average ingestion rate, and a 95% UCL as the EPC are used. Due to the small number of samples at the site, a 95% UCL was not calculated for the site and the MDC was used as the EPC for the refinement. Refined receptor-specific exposure parameters are presented on Table F.4-9 (Appendix F.4). In addition, a realistic area use factor ($AF_{refined}$) was calculated as the ratio of the site area to the average home range of the receptor which is also presented in Table F.4-9 (Appendix F.4). A summary of the results of the refined exposure assessment for terrestrial wildlife is provided below.

Terrestrial Wildlife

The refined risk characterization results are presented in Table F.4-24 and summarized below for each of the receptors with chemical HQs greater than 1:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	arsenic (1.3)	none
Short-tailed Shrew	arsenic (2.5)	none
Red Fox	none	none
American Robin	chromium (1.5), lead (4.5), zinc (3.0)	none
Red-tailed Hawk	none	none

*Note: (1.3) = NOAEL-based HQ

7.7.4 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPECs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). The comparison of MDCs for metals identified as COPECs in surface soil with their background point estimates resulted in site soil MDCs above background point estimates for cadmium and lead (Table 7-7). Note that background point estimates are not available for cyanide and selenium; therefore, background comparisons were not conducted.

7.7.5 Risk Management – Scientific Management Decision Point

The findings of the ecological risk screen including site characterization and risk calculations are used as input to risk management decision-making for the site. The SMDP reached from the ecological risk screening concludes that one of the following statements is true:

- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the site on the basis of ecological risk;

- The information is not adequate to make a decision at this point and further refinement of data is needed to augment the ecological risk screening; or
- The information collected and presented indicates that a more thorough assessment is warranted.

Terrestrial plant COPECs with HQs greater than 1 included: aluminum (HQ=500), chromium (HQ=39), lead (HQ=1.1), manganese (HQ=3), selenium (HQ=1.3), and vanadium (HQ=22). Aluminum, chromium, manganese, and vanadium are below background point estimates (Table 7-7); therefore, these chemicals are not considered site-related. Even though the refined HQ for lead (HQ=1.1) is greater than 1 and concentrations at the site are above the background point estimate, this risk is considered to present low to negligible risk to plants at the site. Even though the refined HQ for selenium (HQ=1.3) is greater than 1 and no background point estimate is available, this risk is considered to present low to negligible risk to plants at the site.

Soil invertebrates and microbial processes COPECs with HQs greater than 1 included chromium (HQ=98), iron (HQ=150), manganese (HQ=1.5), vanadium (HQ=2.2), zinc (HQ=1.1), and cyanide (HQ=2.9). Chromium, iron, manganese, vanadium, and zinc are below background point estimates (Table 7-7); therefore, these chemicals are not considered site-related. Even though the refined HQ for cyanide (2.9) is greater than 1 and no background point estimate is available, this risk is considered to present low to negligible risk to invertebrates and microbial processes at the site.

The refined risk characterization for wildlife resulted in the identification of no chemicals with a LOAEL-based HQ greater than 1.

After consideration of the limited metals concentrations above ecological screening levels for plants and invertebrates, the lack of refined LOAEL-based HQs greater than 1 for terrestrial receptors, and the nature of activities at the site, the SMDP is the following:

There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the site on the basis of ecological risk.

7.8 CONCLUSIONS AND RECOMMENDATION

No further action is recommended for SSA 60 based on the following results of the SSP screening:

- Site-related cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards;
- Site-related cumulative risk and hazard screening results for residential scenarios are below SSP thresholds for target risk and hazards;
- The MDC for lead is below the SSP screening level of 400 mg/kg;
- The iron exposure assessment results for the hypothetical future child resident are below the applicable iron margin of exposure screening criteria;
- Chemicals at concentrations above their generic SSLs are limited to metals at concentrations within background and nitrobenzene which was not detected in groundwater and therefore not considered a concern at the site; and
- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at SSA 60 based on ecological risk.

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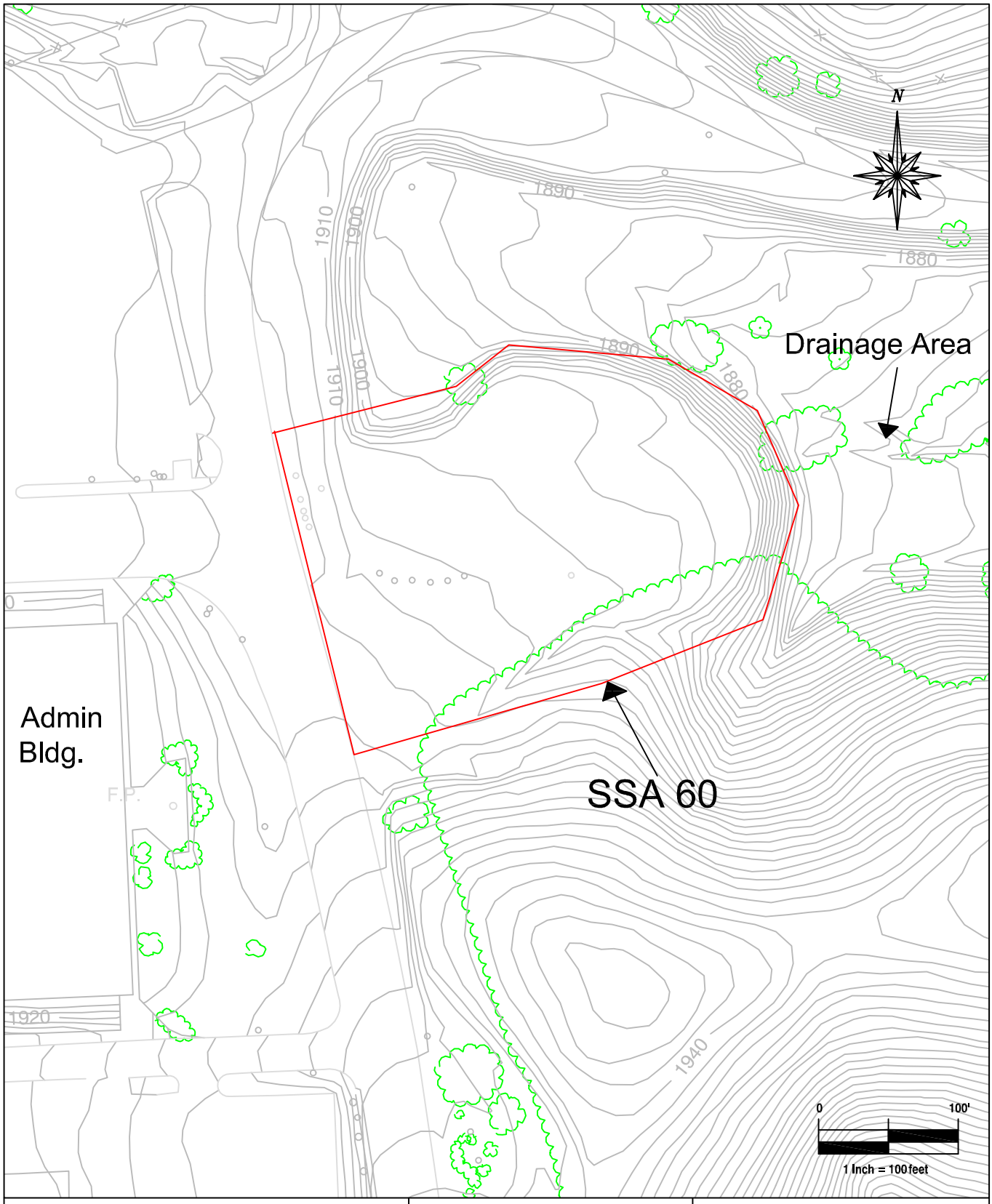


Legend

- Approximate SSA Boundary
- Topographic Contour
- Vegetation

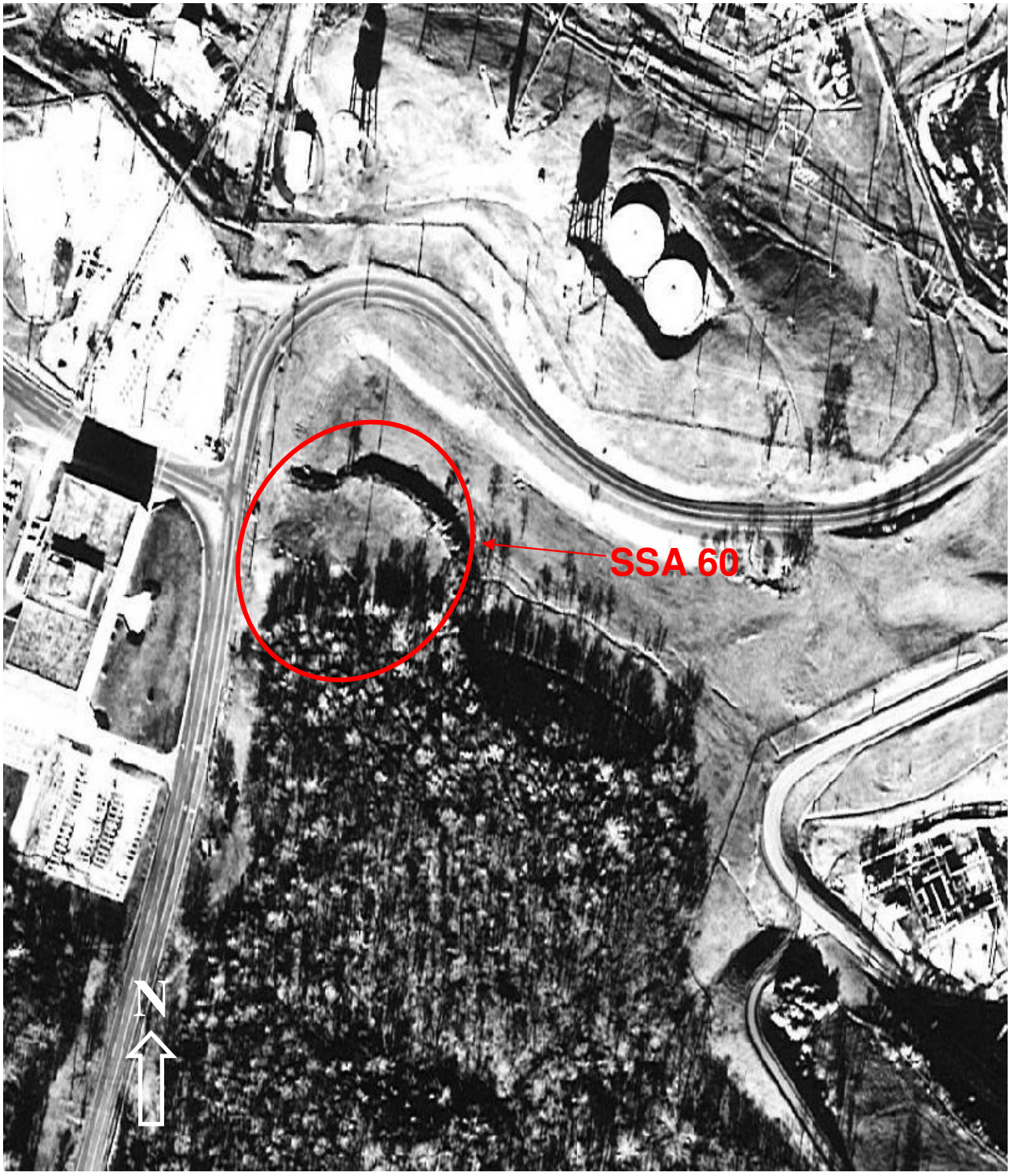
FIGURE 7-1

Site Layout - SSA 60

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 100 feet	File Name: Fig.7-1 Site Layout

SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230



SSA 60
AERIAL PHOTOGRAPH – 1990

FIGURE 7-2

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

SSA 60
AERIAL PHOTOGRAPH – 2002

FIGURE 7-3

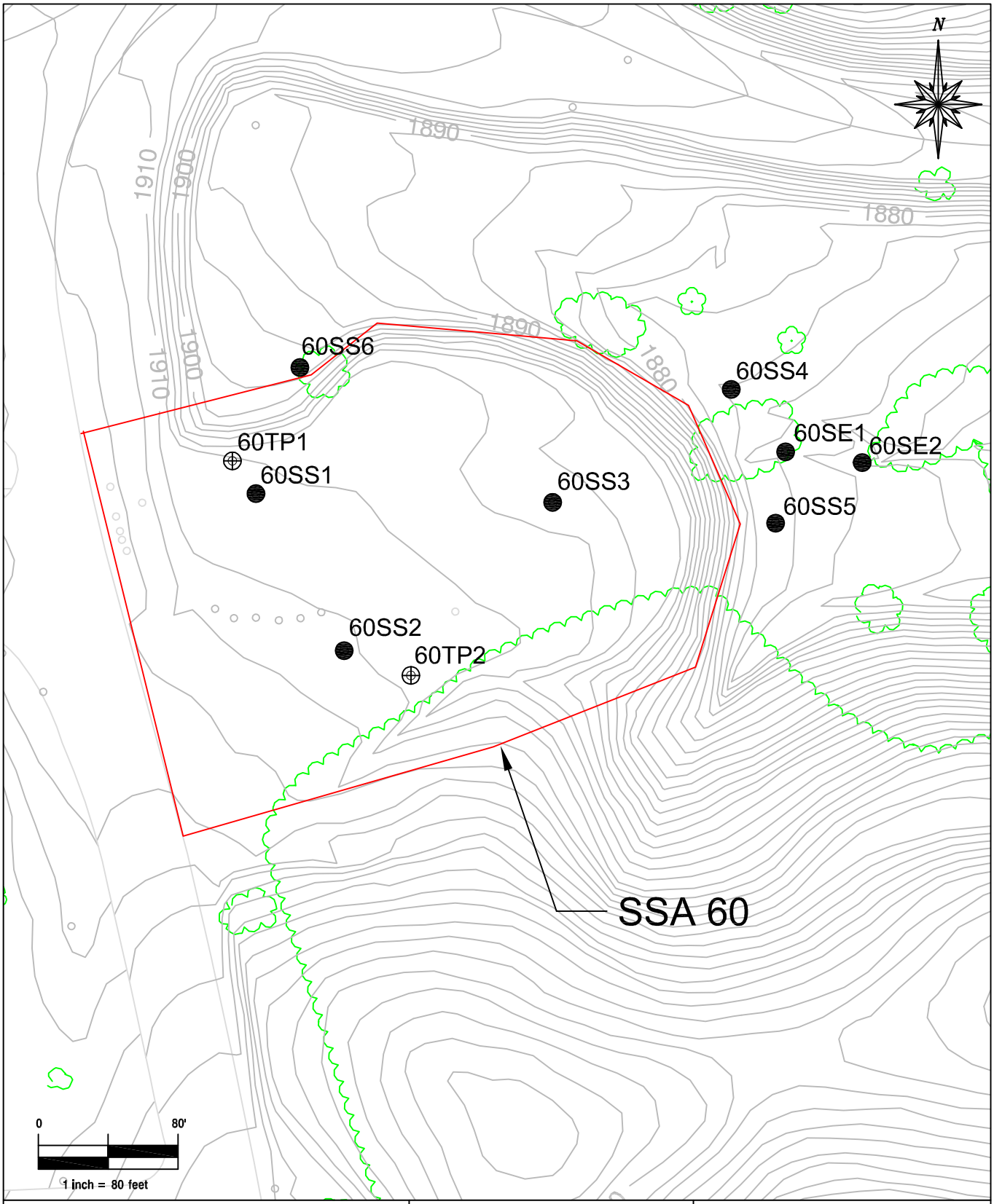
Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



Legend

- SSP Sample Location (Borings)
- SSP Sample Location (Test Pits)
- Approximate SSA Boundary
- Topographic Contour
- Fence
- Approximate SWMU Boundary

FIGURE 7-4

SSP Sample Locations - SSA 60

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 80 feet	File Name: Fig.7-4 SSP Samp.

SSP for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

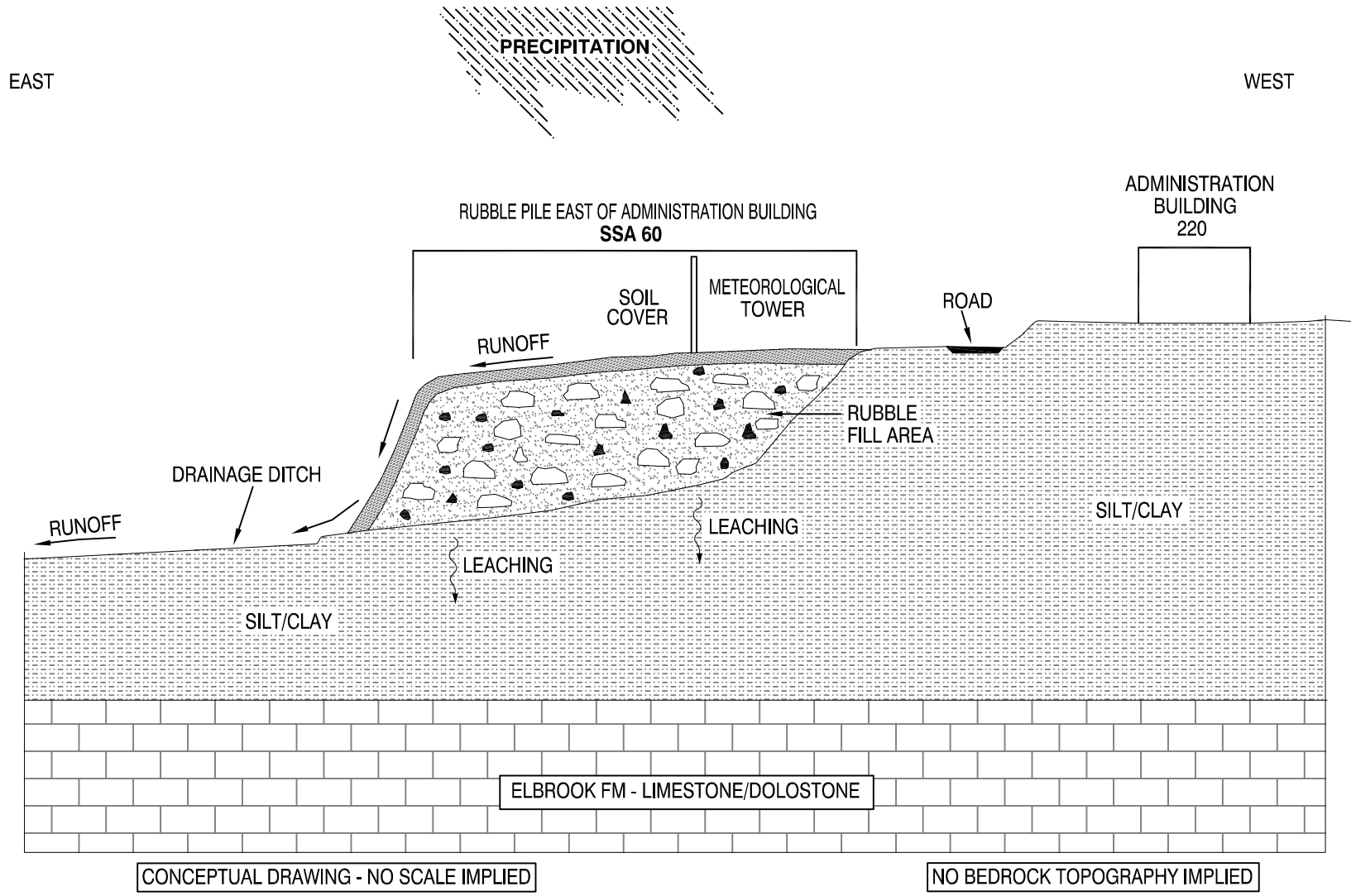


FIGURE 7-5
Conceptual Site Model - SSA 60

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: Not to Scale	File Name: Fig. 6-5

SSP Report for SSAS 18, 72, 30, 79, 60 and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

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Table 7-1
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 60 - Rubble Pile East of the Administration Building
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	60SE1 8/10/2009 0-1		MDL	RL	60SE2 8/10/2009 0-1		MDL	RL	60SS1 8/10/2009 0-1		MDL	RL	60SS2 8/10/2009 0-1		MDL	RL	60SS3 8/10/2009 0-1		MDL	RL	60SS4 8/10/2009 0-1		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																															
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	25,000		1.8	10	22,000		1.8	10	15,000		1.8	10	11,000		1.8	10	14,000		1.8	10	21,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.37		0.037	0.2	0.32		0.037	0.2	0.5		0.037	0.2	0.34		0.037	0.2	0.2	,B,o	0.037	0.2	0.34		0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***7.5***		0.03	0.1	***7.5***		0.03	0.1	***7.6***		0.03	0.1	***12***		0.03	0.1	***4.5***		0.03	0.1	***8.8***		0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	84	,K,m	0.28	1	58	,K,m	0.28	1	72	,K,m	0.28	1	82	,K,m	0.28	1	130	,K,m	0.28	1	94	,K,m	0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	1.3		0.035	1	1.1		0.035	1	0.6	J	0.035	1	0.16	J	0.035	1	0.57	J	0.035	1	1.2		0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	1	J	0.24	2	1.1	J	0.24	2	1	J,K,m	0.24	2	0.88	J	0.24	2	0.83	J	0.24	2	0.95	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	31,000	,K,m	8.7	50	51,000	,K,m	87	500	33,000		8.7	50	150,000	,K,m	87	500	100,000	,K,m	87	500	26,000	,K,m	8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	39		0.74	5	35		0.74	5	28		0.74	5	16		0.74	5	24		0.74	5	29		0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	***10***		0.44	2	9.8		0.44	2	9		0.44	2	3.9		0.44	2	7		0.44	2	***11***		0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	28		0.043	0.2	43		0.043	0.2	15		0.043	0.2	8.7		0.043	0.2	10		0.043	0.2	37	,J,f	0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***28,000***		0.47	10	***30,000***		0.47	10	***24,000***		0.47	10	***21,000***		0.47	10	***18,000***		0.47	10	***29,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	130		0.25	1	100		0.25	1	35		0.049	0.2	36		0.049	0.2	12		0.049	0.2	28		0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	24,000		4.4	50	29,000		4.4	50	17,000		4.4	50	71,000		44	500	63,000		44	500	20,000		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	550		0.21	1	500		0.21	1	530		0.21	1	670		0.21	1	300		0.21	1	650		0.21	1
Mercury[1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.092		0.0093	0.05	0.065		0.0093	0.05	0.076		0.0093	0.05	0.026	J	0.0093	0.05	0.011	J	0.0093	0.05	0.057		0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	22	,L,m	0.025	0.1	24	,L,m	0.025	0.1	9.8	,L,m	0.025	0.1	14	,L,m	0.025	0.1	17	,L,m	0.025	0.1	21	,L,m	0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	3,000		6.8	50	2,700		6.8	50	760		6.8	50	520		6.8	50	2,300		6.8	50	1,800		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.45	,L,m	0.049	0.2	0.3	,L,m	0.049	0.2	0.66	,L,m	0.049	0.2	0.39	,L,m	0.049	0.2	0.33	,L,m	0.049	0.2	0.53	,L,m	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.11		0.011	0.1	0.11		0.011	0.1	0.12		0.011	0.1	0.087	J	0.011	0.1	0.086	J	0.011	0.1	0.11		0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	54	J	5.4	100	66	J	5.4	100	70	J	5.4	100	160		5.4	100	360		5.4	100	60	J	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.21		0.0061	0.1	0.15		0.0061	0.1	0.17		0.0061	0.1	0.064	J	0.0061	0.1	0.093	J	0.0061	0.1	0.22		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	42	,L,m	0.032	0.1	35	,L,m	0.032	0.1	43	,L,m	0.032	0.1	28	,L,m	0.032	0.1	25	,L,m	0.032	0.1	41	,L,m	0.032	0.1
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	120		0.79	5	130		0.79	5	120		0.79	5	59		0.79	5	35		0.79	5	93		0.79	5
Pesticides (mg/kg)																															
4,4'-DDD	72-54-8	--	2	c	7.2	c	1.72	<0.025	U	0.00044	0.025	<0.028	U	0.0005	0.028	<0.02	U	0.00034	0.02	<0.022	U	0.00039	0.022	<0.018	U	0.00032	0.018	0.0025	J,J,g	0.00038	0.022
4,4'-DDE	72-55-9	--	1.4	c	5.1	c	1.2	<0.025	U	0.00037	0.025	<0.028	U	0.00042	0.028	<0.02	U	0.00029	0.02	<0.022	U	0.00033	0.022	0.0021	J,J,g	0.00027	0.018	0.032	,J,g	0.00032	0.022
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	<0.025	U	0.00037	0.025	<0.028	U	0.00042	0.028	0.00058	J,J,g	0.00029	0.02	<0.022	U	0.00033	0.022	<0.018	U	0.00027	0.018	<0.022	U	0.00032	0.022
gamma-Chlordane[2]	5103-74-2	--	1.6	c*	6.5	c*	0.66	<0.025	U	0.00042	0.025	<0.028	U	0.00048	0.028	<0.02	U	0.00033	0.02	<0.022	U	0.00037	0.022	<0.018	U	0.00031	0.018	<0.022	U	0.00036	0.022
Heptachlor Epoxide	1024-57-3	--	0.053	c*	0.19	c*	0.00158	<0.025	U	0.00031	0.025	0.0015	J,B,x	0.00036	0.028	***0.0022***	J,J,g	0.00025	0.02	<0.022	U	0.00028	0.022	<0.018	U	0.00023	0.018	<0.022	U	0.00027	0.022
PCBs (ug/kg)																															
Aroclor 1254[3]	11097-69-1	--	110	n	740	c*	102	59		8.7	49	42	J	9.9	55	89		6.8	38	<43	U	7.7	43	53		6.4	36	23	J	7.5	42
Aroclor 1260	11096-82-5	--	220	c	740	c	280	27	J,J,g	7.4	99	31	J,J,g	8.4	110	50	J,J,g	5.8	78	<88	U	6.5	88	25	J,J,g	5.4	73	19	J,J,g	6.3	85
VOCs (ug/kg)																															
Acetone	67-64-1	--	6.1E+06	n	6.1E+07	nms	8.8E+04	<37	U,UJ,s	5.7	37	12	JB,B,z	5.7	36	<25	U	3.8	25	7.4	JB,B,z	4.4	28	<24	U	3.8	24	<25	U	4	25
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	<37	U,UJ,s	2.3	37	3	J,B,z	2.3	36	<25	U	1.5	25	<28	U	1.8	28	<24	U	1.5	24	<25	U	1.6	25
Toluene	108-88-3	--	5.0E+05	ns	4.6E+06	ns	3.4E+04	1.2	J,J,s	1.1	9.2	<9.1	U	1.1	9.1	<6.2	U	0.74	6.2	<7.1	U	0.85	7.1	<6	U	0.72	6	1	J	0.76	6.3
SVOCs (ug/kg)																															
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	4.9	J	0.67	250	3.4	J	0.76	280	4.6	J	0.52	200	0.87	J	0.59	220	0.72	J	0.49	180	<220	U	0.58	220
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	<25	U	1.1	25	<28	U	1.3	28	1.2	J	0.9	20	<22	U	1	22	<18	U	0.85	18	<22	U	0.99	22
Acenaphthylene[4]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<25	U	2.5	25	<28	U	2.8	28	7.3	J	1.9	20	3.1	J	2.2	22	<18	U	1.8	18	<22	U	2.1	22
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	<25	U	3.8	25	<28	U	4.3	28	4.2	J	3	20	<22	U	3.3	22	<18	U	2.8	18	<22	U	3.2	22
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	11	J,J,i	1.7	25	7.8	J,J,i	1.9	28	51	,J,i	1.3	20	11	J	1.5	22	6.5	J	1.2	18	5.1	J	1.4	22
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	13	J,J,i	2.1	25	11	J,J,i	2.3	28	69	,J,i	1.6	20	17	J	1.8	22	6.9	J	1.5	18	6.3	J	1.8	22
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	22	J,J,i	4.3	25	14	J,J,i	4.9	28	120	,J,i	3.4	20	27		3.8	22	8	J	3.2	18	10	J	3.7	22
Benzo(g,h,i)perylene[4]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	7.4	J,J,i	1.4	99	7.8	J,J,i	1.6	110	46	J,J,i	1.1	78	14	J	1.2	88	4.7	J	1	73	5.1	J	1.2	85
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	6.4	J,J,i	1.9	25	10	J,J,i	2.2	28	35	,J,i	1.5	20	12	J	1.7	22	3.6	J	1.4	18	3.4	J	1.6	22
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	57	J,B,z	6.8	250	56	J,B,z	7.8	280	57	J,B,z	5.4	200	14	J,B,z	6.1	220	11	J,B,z	5.1	180	22	J,B,z	5.9	220
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	7.8	J,J,i	7.2	250	16	J,J,i	8.2	280	11	J,J,i	5.7	200	<220	U	6.4	220	<180	U	5.3	180	8.9	J	6.2	220
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	15	J,J,i	5.1	25	12	J,J,i	5.8	28	67	,J,i	4	20	16	J	4.5	22	7.2	J	3.8	18	6.3	J	4.4	22
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	<250	U	36	250	<280	U	42	280	<200	U	29	200	<220	U	32	220	<180	U	27	180	<220	U	31	220
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	<99	U,UJ,i	11	99	<110	U,UJ,i	13	110	9.3	J,J,i	8.9	78	<88	U	10	88	<73	U	8.4	73	<85	U	9.8	85
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	<250	U	5.1	250	<280	U	5.8	280	<200	U	4	200	<220	U	4.5	220	<180	U	3.8	180	<220	U	4.4	220
Dimethyl Phthalate	131-11-3	--	--	--	--	--	--	<250	U	1.3	250	<280	U	1.5	280	1.9	J	1	200	<220	U	1.1	220	<180	U	0.94	180	<220	U	1.1	220
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	16	J	1.1	25	12	J	1.3	28	60		0.88	20	19	J	1	22	9.4	J	0.83	18	7.6	J	0.97	22
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	7.8	J,J,i	5.4	99	<110	U,UJ,i	6.1	110	36	J,J,i	4.2	78	11	J	4.8	88	<73	U	4	73	<85	U	4.7	85
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	<25	U	3.1	25	<28	U	3.5	28	2.7	J	2.4	20	<22	U	2.7	22	<18	U	2.3	18	<22	U	2.6	22
Phenanthrene[4]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	11	J	1.5	25	8.9	J	1.8	28	23		1.2	20	11	J	1.4	22	4.3	J	1.1	18	3.4	J	1.3	22
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	23	J,J,i	1.8	25	17	J,J,i	2	28	86	,J,i	1.4	20	24		1.6	22	12	J	1.3	18	8.5	J	1.5	22
Cyanide (mg/kg)																															
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	0.32	J	0.098	0.44	2.6		0.11	0.5	0.08	J	0.077	0.35	<0.39	U	0.087	0.39	<0.33	U	0.072	0.33	0.12	J	0.085	0.38
Total Organic Carbon, TOC (%)																															
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT				NT				0.096	J	0.0062	0.2	NT			
Percent Solids (%)																															
Percent Solids	--	--	--	--	--	--	--	68		0.1	0.1	60		0.1	0.1	86		0.1	0.1	76		0.1	0.1	92		0.1	0.1	79		0.1	0.1

Table 7-1
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 60 - Rubble Pile East of the Administration Building
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	60SS4-DUP (DUP-1) 8/10/2009 0-1		MDL	RL	60SS5 8/10/2009 0-1		MDL	RL	60SS6 8/13/2009 0-1*		MDL	RL	60TP1 8/11/2009 14-16		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																							
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	22,000		1.8	10	21,000		1.8	10	19,000		1.8	10	33,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	0.38		0.037	0.2	0.32		0.037	0.2	0.37		0.037	0.2	0.43		0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***9.4***		0.03	0.1	***6.8***		0.03	0.1	***9.4***		0.03	0.1	***16***		0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	94	,K,m	0.28	1	80	,K,m	0.28	1	82	,K,m	0.28	1	92	,K,m	0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	1.2		0.035	1	1.1		0.035	1	0.44	J	0.035	1	1.5		0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	1	J	0.24	2	0.94	J	0.24	2	2.2		0.24	2	1	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	28,000	,K,m	8.7	50	64,000	,K,m	87	500	110,000		870	5,000	65,000	,K,m	87	500
Chromium	7440-47-3	65.3	280	c	1,400	c	--	30		0.74	5	32		0.74	5	21		0.74	5	40		0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	***12***		0.44	2	8.9		0.44	2	6.7		0.44	2	9.3		0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	65	,J,f	0.086	0.4	27		0.043	0.2	12	,B,x	0.043	0.2	33		0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***29,000***		0.47	10	***25,000***		0.47	10	***23,000***		0.47	10	***39,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	25		0.049	0.2	28		0.049	0.2	36	,L,m	0.049	0.2	21		0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	21,000		4.4	50	42,000		4.4	50	50,000		440	5,000	39,000		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	640		0.21	1	470		0.21	1	600		0.21	1	1,100		0.21	1
Mercury[1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	0.055		0.0093	0.05	0.05		0.0093	0.05	0.043	J	0.0093	0.05	0.061		0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	24	,L,m	0.025	0.1	19	,L,m	0.025	0.1	14		0.025	0.1	28	,L,m	0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	2,000		6.8	50	2,800		6.8	50	1,200		6.8	50	3,300		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.39	,L,m	0.049	0.2	0.44	,L,m	0.049	0.2	0.29		0.049	0.2	0.45	,L,m	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.11		0.011	0.1	0.097	J	0.011	0.1	0.086	J	0.011	0.1	0.15		0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	62	J	5.4	100	100		5.4	100	140		5.4	100	72	J	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.18		0.0061	0.1	0.2		0.0061	0.1	0.17		0.0061	0.1	0.28		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	41	,L,m	0.032	0.1	33	,L,m	0.032	0.1	37	,L,m	0.032	0.1	55	,L,m	0.065	0.2
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	95		0.79	5	62		0.79	5	92	,K,m	0.79	5	89		0.79	5
Pesticides (mg/kg)																							
4,4'-DDD	72-54-8	--	2	c	7.2	c	1.72	<0.022	U	0.00038	0.022	<0.024	U	0.00042	0.024	<0.022	U	0.00039	0.022	<0.021	U	0.00037	0.021
4,4'-DDE	72-55-9	--	1.4	c	5.1	c	1.2	<0.022	U	0.00032	0.022	<0.024	U	0.00035	0.024	<0.022	U	0.00033	0.022	<0.021	U	0.00031	0.021
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	<0.022	U	0.00032	0.022	<0.024	U	0.00036	0.024	<0.022	U	0.00033	0.022	<0.021	U	0.00031	0.021
gamma-Chlordane[2]	5103-74-2	--	1.6	c*	6.5	c*	0.66	0.0023	J,J,g	0.00036	0.022	<0.024	U	0.0004	0.024	<0.022	U	0.00037	0.022	<0.021	U	0.00035	0.021
Heptachlor Epoxide	1024-57-3	--	0.053	c*	0.19	c*	0.00158	***0.0016***	J,B,x	0.00027	0.022	<0.024	U	0.0003	0.024	<0.022	U	0.00028	0.022	<0.021	U	0.00026	0.021
PCBs (ug/kg)																							
Aroclor 1254[3]	11097-69-1	--	110	n	740	c*	102	46		7.6	42	12	J	8.3	47	<43	U	7.8	43	<41	U	7.3	41
Aroclor 1260	11096-82-5	--	220	c	740	c	280	24	J,J,g	6.4	86	14	J,J,g	7.1	95	<88	U	6.6	88	<82	U	6.1	82
VOCs (ug/kg)																							
Acetone	67-64-1	--	6.1E+06	n	6.1E+07	nms	8.8E+04	11	JB,B,z	5.4	35	<37	U	5.8	37	<24	U,UJ,s	3.8	24	<27	U	4.3	27
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	<35	U	2.2	35	<37	U	2.3	37	<24	U,UJ,s	1.5	24	<27	U	1.7	27
Toluene	108-88-3	--	5.0E+05	ns	4.6E+06	ns	3.4E+04	1.1	J	1	8.7	<9.3	U	1.1	9.3	<6.1	U,UJ,s	0.73	6.1	<6.8	U	0.82	6.8
SVOCs (ug/kg)																							
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	1.7	J	0.58	220	1.4	J	0.64	240	0.88	J	0.6	220	<210	U	0.56	210
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	<22	U	1	22	<24	U	1.1	24	<22	U	1	22	<21	U	0.96	21
Acenaphthylene[4]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	<22	U	2.1	22	<24	U	2.4	24	<22	U	2.2	22	<21	U	2.1	21
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	<22	U	3.3	22	<24	U	3.6	24	<22	U	3.4	22	<21	U	3.1	21
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	6.8	J	1.4	22	6.1	J	1.6	24	7.4	J	1.5	22	<21	U	1.4	21
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	7.7	J	1.8	22	7.1	J	2	24	8.8	J	1.8	22	<21	U	1.7	21
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	16	J	3.7	22	10	J	4.1	24	11	J	3.8	22	<21	U	3.6	21
Benzo(g,h,i)perylene[4]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	7.3	J	1.2	86	5.2	J	1.3	95	7	J	1.2	88	<82	U	1.1	82
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	5.6	J	1.7	22	3.8	J	1.8	24	6.6	J	1.7	22	<21	U	1.6	21
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	28	J,B,z	6	220	35	J,B,z	6.6	240	100	J	6.1	220	20	J,B,z	5.7	210
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	8.1	J	6.3	220	<240	U	6.9	240	<220	U	6.4	220	11	J	6	210
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	10	J	4.5	22	6.6	J	4.9	24	7.4	J	4.6	22	<21	U	4.3	21
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	<220	U	32	220	<240	U	35	240	<220	U	33	220	150	J	30	210
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	<86	U	9.9	86	<95	U	11	95	<88	U	10	88	<82	U	9.5	82
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	<220	U	4.4	220	<240	U	4.9	240	<220	U	4.6	220	13	J	4.3	210
Dimethyl Phthalate	131-11-3	--	--	--	--	--	--	<220	U	1.1	220	<240	U	1.2	240	<220	U	1.1	220	<210	U	1.1	210
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	12	J	0.98	22	9.9	J	1.1	24	8.8	J	1	22	<21	U	0.94	21
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	6	J	4.7	86	<95	U	5.2	95	5.7	J	4.8	88	<82	U	4.5	82
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	<22	U	2.7	22	<24	U	2.9	24	<22	U	2.7	22	<21	U	2.6	21
Phenanthrene[4]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	6.8	J	1.3	22	4.2	J	1.5	24	3.9	J	1.4	22	<21	U	1.3	21
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	17	J	1.5	22	12	J	1.7	24	12	J	1.6	22	<21	U	1.5	21
Cyanide (mg/kg)																							
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	<0.38	U	0.085	0.38	<0.42	U	0.094	0.42	<0.39	U	0.088	0.39	<0.37	U	0.082	0.37
Total Organic Carbon, TOC (%)																							
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT				0.15	J	0.0062	0.2
Percent Solids (%)																							
Percent Solids	--	--	--	--	--	--	--	78		0.1	0.1	71		0.1	0.1	76		0.1	0.1	81		0.1	0.1

Notes:

CAS = Chemical Abstracts Service
ft bgs = Feet Below Ground Surface
mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
pg/g = Picogram Per Gram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
NT = Not Tested

*60SS6 was completed horizontally into the base of the fill area to obtain an additional subsurface sample approximately 12-14 ft below the upper level surface of SSA60.

[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
* = where: n SL < 100X c SL
** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = No Screening Value Available

[1] = Mercuric chloride soil RSLs value used
[2] = Chlordane soil RSLs used
[3] = Aroclor 1254 Unadjusted Soil Residential RSL used
[4] = Pyrene soil RSLs used

= Concentration Exceeds Adjusted Soil Residential RSL

= Concentration Exceeds Adjusted Soil Industrial RSL

underline = Concentration Exceeds Facility Background Point Estimate

bold italic = Concentration Exceeds Soil-to-Groundwater Risk-based SSL (DAF20)

Data Qualifiers:

Laboratory Qualifiers
- B — Analyte found in associated blank as well as in the sample.
- J — Analyte present. Reported value may not be accurate or precise.
- U — The compound was analyzed for but not detected. The reporting limit will be adjusted to reflect any dilution, and for soil, the percent moisture.

Validation Qualifiers
- B — Not detected substantially above the level reported in laboratory or field blanks.
- J — Analyte present. Reported value may not be accurate or precise.
- K — Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L — Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- U — Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
- UJ — Not detected, quantitation limit may be inaccurate or imprecise.

Reason Codes
GC/MS Organics
- i — LCS recovery failure
- m — Internal standard failure
- s — Surrogate failure
- x — Field and/or equipment blank contamination
- z — Method blank and/or storage blank contamination

Inorganics and Conventionals
- f — Field duplicate imprecision
- o — Calibration blank contamination
- m — MS/MSD recovery failure
- s — Serial dilution failure
- x — CRDL standard recovery failure

GC and HPLC Organics
- g — Dual column confirmation imprecision
- x — Trip blank contamination

Table 7-2
SSA 60 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil		**TAL Metals**														
	7429-90-5	Aluminum	11,000	25,000	mg/kg	60SE1	7/7	1.8 - 1.8	25,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.2	0.5	mg/kg	60SS1	7/7	0.037 - 0.037	0.5	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	4.5	12	mg/kg	60SS2	7/7	0.03 - 0.03	12	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	58	130	mg/kg	60SS3	7/7	0.28 - 0.28	130	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	0.16	1.3	mg/kg	60SE1	7/7	0.035 - 0.035	1.3	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.83	1.1	mg/kg	60SE2	7/7	0.24 - 0.24	1.1	7	n	80	n	IND	N	BSL
	7440-70-2	Calcium	27,000	150,000	mg/kg	60SS2	7/7	8.7 - 87	150,000	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	16	39	mg/kg	60SE1	7/7	0.74 - 0.74	39	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	3.9	11.5	mg/kg	60SS4 DUP AVG	7/7	0.44 - 0.44	11.5	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	8.7	51	mg/kg	60SS4 DUP AVG	7/7	0.043 - 0.086	51	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	18,000	30,000	mg/kg	60SE2	7/7	0.47 - 0.47	30,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	12	130	mg/kg	60SE1	7/7	0.049 - 0.25	130	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	17,000	71,000	mg/kg	60SS2	7/7	4.4 - 44	71,000	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	300	670	mg/kg	60SS2	7/7	0.21 - 0.21	670	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.011	0.092	mg/kg	60SE1	7/7	0.0093 - 0.0093	0.092	0.43	ns	2.4	ns	IND	N	BSL
	7440-02-0	Nickel	9.8	24	mg/kg	60SE2	7/7	0.025 - 0.025	24	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	520	3,000	mg/kg	60SE1	7/7	6.8 - 6.8	3,000	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.3	0.66	mg/kg	60SS1	7/7	0.049 - 0.049	0.66	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.086	0.12	mg/kg	60SS1	7/7	0.011 - 0.011	0.12	39	n	510	n	IND	N	BSL
	7440-23-5	Sodium	54	360	mg/kg	60SS3	7/7	5.4 - 5.4	360	--	--	625,700	--	RDA	N	BSL
	7440-28-0	Thallium	0.064	0.21	mg/kg	60SE1	7/7	0.0061 - 0.0061	0.21	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	25	43	mg/kg	60SS1	7/7	0.032 - 0.032	43	55	n	720	n	IND	N	BSL
	7440-66-6	Zinc	35	130	mg/kg	60SE2	7/7	0.79 - 0.79	130	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	72-54-8	4,4'-DDD	0.001345	0.001345	mg/kg	60SS4 DUP AVG	1/7	0.00032 - 0.0005	0.001345	2	c	7.2	c	IND	N	BSL
	72-55-9	4,4'-DDE	0.0021	0.01608	mg/kg	60SS4 DUP AVG	2/7	0.00027 - 0.00042	0.01608	1.4	c	5.1	c	IND	N	BSL
	60-57-1	Dieldrin	0.00058	0.00058	mg/kg	60SS1	1/7	0.00027 - 0.00042	0.00058	0.03	c	0.11	c	IND	N	BSL
	5103-74-2	gamma-Chlordane [2]	0.00124	0.00124	mg/kg	60SS4 DUP AVG	1/7	0.00031 - 0.00048	0.00124	1.6	c*	6.5	c*	IND	N	BSL
	1024-57-3	Heptachlor Epoxide	0.0008675	0.0022	mg/kg	60SS1	3/7	0.00023 - 0.00036	0.0022	0.053	c*	0.19	c*	IND	N	BSL
		PCBs														
	11097-69-1	Aroclor 1254 [3]	0.012	0.089	mg/kg	60SS1	6/7	0.0064 - 0.0099	0.089	1.1E-01	n	7.4E-01	c*	IND	N	BSL
	11096-82-5	Aroclor 1260	0.014	0.05	mg/kg	60SS1	6/7	0.0054 - 0.0084	0.05	2.2E-01	c	7.4E-01	c	IND	N	BSL
		VOCs														
	67-64-1	Acetone	0.0065	0.012	mg/kg	60SE2	3/7	0.0038 - 0.0058	0.012	6.1E+03	n	6.1E+04	nms	IND	N	BSL
	75-09-2	Methylene Chloride	0.003	0.003	mg/kg	60SE2	1/7	0.0015 - 0.0023	0.003	1.1E+01	c	5.4E+01	c	IND	N	BSL
	108-88-3	Toluene	0.00105	0.0012	mg/kg	60SE1	2/7	0.00072 - 0.0011	0.0012	5.0E+02	ns	4.6E+03	ns	IND	N	BSL
		SVOCs														
	91-57-6	2-Methylnaphthalene	0.00072	0.0049	mg/kg	60SE1	7/7	0.00049 - 0.00076	0.0049	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	83-32-9	Acenaphthene	0.0012	0.0012	mg/kg	60SS1	1/7	0.00085 - 0.0013	0.0012	3.4E+02	n	3.3E+03	n	IND	N	BSL
	208-96-8	Acenaphthylene [4]	0.0031	0.0073	mg/kg	60SS1	2/7	0.0018 - 0.0028	0.0073	1.7E+02	n	1.7E+03	n	IND	N	BSL
	120-12-7	Anthracene	0.0042	0.0042	mg/kg	60SS1	1/7	0.0028 - 0.0043	0.0042	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	56-55-3	Benzo(a)anthracene	0.00595	0.051	mg/kg	60SS1	7/7	0.0012 - 0.0019	0.051	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	0.0069	0.069	mg/kg	60SS1	7/7	0.0015 - 0.0023	0.069	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	205-99-2	Benzo(b)fluoranthene	0.008	0.12	mg/kg	60SS1	7/7	0.0032 - 0.0049	0.12	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [4]	0.0047	0.046	mg/kg	60SS1	7/7	0.001 - 0.0016	0.046	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.0036	0.035	mg/kg	60SS1	7/7	0.0014 - 0.0022	0.035	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	0.011	0.057	mg/kg	60SE1	7/7	0.0051 - 0.0078	0.057	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	0.0078	0.016	mg/kg	60SE2	4/7	0.0053 - 0.0082	0.016	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	0.0066	0.067	mg/kg	60SS1	7/7	0.0038 - 0.0058	0.067	1.5E+01	c	2.1E+02	c	IND	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0093	0.0093	mg/kg	60SS1	1/7	0.0084 - 0.013	0.0093	1.5E-02	c	2.1E-01	c	IND	N	BSL
	131-11-3	Dimethyl Phthalate	0.0019	0.0019	mg/kg	60SS1	1/7	0.00094 - 0.0015	0.0019	--	--	--	--	--	Y	NSV
	206-44-0	Fluoranthene	0.0094	0.06	mg/kg	60SS1	7/7	0.00083 - 0.0013	0.06	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.004175	0.036	mg/kg	60SS1	4/7	0.004 - 0.0061	0.036	1.5E-01	c	2.1E+00	c	IND	N	BSL
	91-20-3	Naphthalene	0.0027	0.0027	mg/kg	60SS1	1/7	0.0023 - 0.0035	0.0027	3.9E+00	c*	2.0E+01	c*	IND	N	BSL
	85-01-8	Phenanthrene [4]	0.0042	0.023	mg/kg	60SS1	7/7	0.0011 - 0.0018	0.023	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	0.012	0.086	mg/kg	60SS1	7/7	0.0013 - 0.002	0.086	1.7E+02	n	1.7E+03	n	IND	N	BSL
		Cyanide														
	57-12-5	Cyanide, Total	0.08	2.6	mg/kg	60SE2	4/7	0.072 - 0.11	2.6	1.6E+02	n	2.0E+03	n	IND	N	BSL

Table 7-2
SSA 60 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens

Key:
- c = cancer
- n = noncancer
- c* = where: n SL < 100X c SL
- c** = where n SL < 10X c SL
- m = concentration may exceed ceiling limit
- s = concentration may exceed Csat

-- = Not Available

[1] = Mercuric chloride soil RSLs value used
[2] = Chlordane soil RSLs used
[3] = Aroclor 1254 Noncancer Soil Residential RSL used
[4] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 7-3
SSA 60 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Total Soil		**TAL Metals**														
	7429-90-5	Aluminum	11,000	33,000	mg/kg	60TP1	9/9	10 - 1.8	33,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.2	0.5	mg/kg	60SS1	9/9	0.2 - 0.037	0.5	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	4.5	16	mg/kg	60TP1	9/9	0.1 - 0.03	16	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	58	130	mg/kg	60SS3	9/9	1 - 0.28	130	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	0.16	1.5	mg/kg	60TP1	9/9	1 - 0.035	1.5	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.83	2.2	mg/kg	60SS6	9/9	2 - 0.24	2.2	7	n	80	n	IND	N	BSL
	7440-70-2	Calcium	27,000	150,000	mg/kg	60SS2	9/9	500 - 870	150,000	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	16	40	mg/kg	60TP1	9/9	5 - 0.74	40	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	3.9	11.5	mg/kg	60SS4 DUP AVG	9/9	2 - 0.44	11.5	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	8.7	51	mg/kg	60SS4 DUP AVG	9/9	0.2 - 0.086	51	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	18,000	39,000	mg/kg	60TP1	9/9	10 - 0.47	39,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	12	130	mg/kg	60SE1	9/9	0.2 - 0.25	130	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	17,000	71,000	mg/kg	60SS2	9/9	50 - 440	71,000	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	300	1,100	mg/kg	60TP1	9/9	1 - 0.21	1,100	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.011	0.092	mg/kg	60SE1	9/9	0.05 - 0.0093	0.092	0.43	ns	2.4	ns	IND	N	BSL
	7440-02-0	Nickel	9.8	28	mg/kg	60TP1	9/9	0.1 - 0.025	28	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	520	3,300	mg/kg	60TP1	9/9	50 - 6.8	3,300	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.29	0.66	mg/kg	60SS1	9/9	0.2 - 0.049	0.66	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.086	0.15	mg/kg	60TP1	9/9	0.1 - 0.011	0.15	39	n	510	n	IND	N	BSL
	7440-23-5	Sodium	54	360	mg/kg	60SS3	9/9	100 - 5.4	360	--	--	625,700	--	RDA	N	BSL
	7440-28-0	Thallium	0.064	0.28	mg/kg	60TP1	9/9	0.1 - 0.0061	0.28	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	25	55	mg/kg	60TP1	9/9	0.2 - 0.065	55	55	n	720	n	IND	N	BSL
	7440-66-6	Zinc	35	130	mg/kg	60SE2	9/9	5 - 0.79	130	2,300	n	31,000	nm	IND	N	BSL
		Pesticides											0			
	72-54-8	4,4'-DDD	0.001345	0.001345	mg/kg	60SS4 DUP AVG	1/9	0.021 - 0.0005	0.001345	2	c	7.2	c	IND	N	BSL
	72-55-9	4,4'-DDE	0.0021	0.01608	mg/kg	60SS4 DUP AVG	2/9	0.021 - 0.00042	0.01608	1.4	c	5.1	c	IND	N	BSL
	60-57-1	Dieldrin	0.00058	0.00058	mg/kg	60SS1	1/9	0.021 - 0.00042	0.00058	0.03	c	0.11	c	IND	N	BSL
	5103-74-2	gamma-Chlordane [2]	0.00124	0.00124	mg/kg	60SS4 DUP AVG	1/9	0.021 - 0.00048	0.00124	1.6	c*	6.5	c*	IND	N	BSL
	1024-57-3	Heptachlor Epoxide	0.0008675	0.0022	mg/kg	60SS1	3/9	0.021 - 0.00036	0.0022	0.053	c*	0.19	c*	IND	N	BSL
		PCBs														
	11097-69-1	Aroclor 1254 [3]	0.012	0.089	mg/kg	60SS1	6/9	0.041 - 0.0099	0.089	1.1E-01	n	7.4E-01	c*	IND	N	BSL
	11096-82-5	Aroclor 1260	0.014	0.05	mg/kg	60SS1	6/9	0.082 - 0.0084	0.05	2.2E-01	c	7.4E-01	c	IND	N	BSL
		VOCs														
	67-64-1	Acetone	0.0065	0.012	mg/kg	60SE2	3/9	0.027 - 0.0058	0.012	6.1E+03	n	6.1E+04	nms	IND	N	BSL
	75-09-2	Methylene Chloride	0.003	0.003	mg/kg	60SE2	1/9	0.027 - 0.0023	0.003	1.1E+01	c	5.4E+01	c	IND	N	BSL
	108-88-3	Toluene	0.00105	0.0012	mg/kg	60SE1	2/9	0.0068 - 0.0011	0.0012	5.0E+02	ns	4.6E+03	ns	IND	N	BSL
		SVOCs														
	91-57-6	2-Methylnaphthalene	0.00072	0.0049	mg/kg	60SE1	8/9	0.21 - 0.00076	0.0049	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	83-32-9	Acenaphthene	0.0012	0.0012	mg/kg	60SS1	1/9	0.021 - 0.0013	0.0012	3.4E+02	n	3.3E+03	n	IND	N	BSL
	208-96-8	Acenaphthylene [4]	0.0031	0.0073	mg/kg	60SS1	2/9	0.021 - 0.0028	0.0073	1.7E+02	n	1.7E+03	n	IND	N	BSL
	120-12-7	Anthracene	0.0042	0.0042	mg/kg	60SS1	1/9	0.021 - 0.0043	0.0042	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	56-55-3	Benzo(a)anthracene	0.00595	0.051	mg/kg	60SS1	8/9	0.021 - 0.0019	0.051	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	0.0069	0.069	mg/kg	60SS1	8/9	0.021 - 0.0023	0.069	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	205-99-2	Benzo(b)fluoranthene	0.008	0.12	mg/kg	60SS1	8/9	0.021 - 0.0049	0.12	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [4]	0.0047	0.046	mg/kg	60SS1	8/9	0.082 - 0.0016	0.046	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	0.0036	0.035	mg/kg	60SS1	8/9	0.021 - 0.0022	0.035	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	0.011	0.1	mg/kg	60SS6	9/9	0.21 - 0.0078	0.1	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	0.0078	0.016	mg/kg	60SE2	5/9	0.21 - 0.0082	0.016	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	0.0066	0.067	mg/kg	60SS1	8/9	0.021 - 0.0058	0.067	1.5E+01	c	2.1E+02	c	IND	N	BSL
	84-74-2	Di-n-butyl Phthalate	0.15	0.15	mg/kg	60TP1	1/9	0.21 - 0.042	0.15	6.1E+02	n	6.2E+03	n	IND	N	BSL
	53-70-3	Dibenz(a,h)anthracene	0.0093	0.0093	mg/kg	60SS1	1/9	0.082 - 0.013	0.0093	1.5E-02	c	2.1E-01	c	IND	N	BSL
	84-66-2	Diethyl Phthalate	0.013	0.013	mg/kg	60TP1	1/9	0.21 - 0.0058	0.013	4.9E+03	n	4.9E+04	nm	IND	N	BSL
	131-11-3	Dimethyl Phthalate	0.0019	0.0019	mg/kg	60SS1	1/9	0.21 - 0.0015	0.0019	--	--	--	--	--	Y	NSV
	206-44-0	Fluoranthene	0.0088	0.06	mg/kg	60SS1	8/9	0.021 - 0.0013	0.06	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.004175	0.036	mg/kg	60SS1	5/9	0.082 - 0.0061	0.036	1.5E-01	c	2.1E+00	c	IND	N	BSL
	91-20-3	Naphthalene	0.0027	0.0027	mg/kg	60SS1	1/9	0.021 - 0.0035	0.0027	3.9E+00	c*	2.0E+01	c*	IND	N	BSL
	85-01-8	Phenanthrene [5]	0.0039	0.023	mg/kg	60SS1	8/9	0.021 - 0.0018	0.023	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	0.012	0.086	mg/kg	60SS1	8/9	0.021 - 0.002	0.086	1.7E+02	n	1.7E+03	n	IND	N	BSL
		Cyanide														
	57-12-5	Cyanide, Total	0.08	2.6	mg/kg	60SE2	4/9	0.37 - 0.11	2.6	1.6E+02	n	2.0E+03	n	IND	N	BSL

Table 7-3
SSA 60 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens

Key:
- c = cancer
- n = noncancer
- c* = where: n SL < 100X c SL
- c** = where n SL < 10X c SL
- m = concentration may exceed ceiling limit
- s = concentration may exceed Csat

-- = Not Available

[1] = Mercuric chloride soil RSLs value used
[2] = Chlordane soil RSLs used
[3] = Aroclor 1254 Noncancer Soil Residential RSL used
[4] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 7-4
SSA 60 Cumulative HHRS (Surface Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	7/7	25,000	77,000	n	990,000	n	3.E-01	--	3.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	7/7	12	0.39	c	1.6	c	--	3.E-05	--	8.E-06	--
7440-38-2	Arsenic	mg/kg	7/7	12	22	n	260	n	5.E-01	--	5.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	7/7	11.5	23	n	300	n	5.E-01	--	4.E-02	--	blood
7439-89-6	Iron	mg/kg	7/7	30,000	55,000	n	720,000	n	5.E-01	--	4.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	7/7	670	1,800	n	23,000	n	4.E-01	--	3.E-02	--	CNS
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	7/7	0.069	0.015	c	0.21	c	--	5.E-06	--	3.E-07	--
131-11-3	Dimethyl Phthalate	mg/kg	1/7	0.0019	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		2.E+00	4.E-05	2.E-01	8.E-06	

Target Organ Segregation

Total blood HI =	**1**	Total blood HI =	0.08
Total CNS HI =	**0.7**	Total CNS HI =	0.05
Total skin HI =	**0.5**	Total skin HI =	0.05
Total vascular HI =	**0.5**	Total vascular HI =	0.05
Total GI Tract HI =	**0.5**	Total GI Tract HI =	0.04
Total liver HI =	**0.5**	Total liver HI =	0.04

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 7-5
SSA 60 Cumulative HHRS (Total Soil) - MDC
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	9/9	33,000	77,000	n	990,000	n	4.E-01	--	3.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	9/9	16	0.39	c	1.6	c	--	4.E-05	--	1.E-05	--
7440-38-2	Arsenic	mg/kg	9/9	16	22	n	260	n	7.E-01	--	6.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	9/9	11.5	23	n	300	n	5.E-01	--	4.E-02	--	blood
7439-89-6	Iron	mg/kg	9/9	39,000	55,000	n	720,000	n	7.E-01	--	5.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	9/9	1,100	1,800	n	23,000	n	6.E-01	--	5.E-02	--	CNS
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	8/9	0.069	0.015	c	0.21	c	--	5.E-06	--	3.E-07	--
131-11-3	Dimethyl Phthalate	mg/kg	1/9	0.0019	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		3.E+00	5.E-05	2.E-01	1.E-05	

Target Organ Segregation

Total blood HI =	**1**	Total blood HI =	0.09
Total CNS HI =	**1**	Total CNS HI =	0.08
Total skin HI =	**0.7**	Total skin HI =	0.06
Total vascular HI =	**0.7**	Total vascular HI =	0.06
Total GI Tract HI =	**0.7**	Total GI Tract HI =	0.1
Total liver HI =	**0.7**	Total liver HI =	0.05

Notes:

mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 7-6
SSA 60 SSL Screening Results for Subsurface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	Facility Background [A]	SSL (DAF 20)	Minimum Detected Concentration	Maximum Detected Concentration	# of Samples Above SSL	# of Detections	# of Samples
TAL Metals (mg/kg)								
Aluminum	7429-90-5	40,041	1,100,000	19,000	33,000	0	2	2
Antimony	7440-36-0	--	13.2	0.37	0.43	0	2	2
Arsenic	7440-38-2	15.8	0.026	9.4	16	**2**	2	2
Barium	7440-39-3	209	6,000	82	92	0	2	2
Beryllium	7440-41-7	1.02	1,160	0.44	1.5	0	2	2
Cadmium	7440-43-9	0.69	--	1	2.2	**--**	2	2
Chromium	7440-47-3	65.3	--	21	40	**--**	2	2
Cobalt	7440-48-4	72.3	9.8	6.7	9.3	0	2	2
Copper	7440-50-8	53.5	1,020	12	33	0	2	2
Iron	7439-89-6	50,962	12,800	23,000	39,000	**2**	2	2
Lead	7439-92-1	26.8	--	21	36	**--**	2	2
Manganese	7439-96-5	2,543	1,140	600	1,100	0	2	2
Mercury [1]	7439-97-6	0.13	0.6	0.043	0.061	0	2	2
Nickel	7440-02-0	62.8	960	14	28	0	2	2
Selenium	7782-49-2	--	19	0.29	0.45	0	2	2
Silver	7440-22-4	--	32	0.086	0.15	0	2	2
Thallium	7440-28-0	2.11	3.4	0.17	0.28	0	2	2
Vanadium	7440-62-2	108	5,200	37	55	0	2	2
Zinc	7440-66-6	202	13,600	89	92	0	2	2
SVOCs (ug/kg)								
2-Methylnaphthalene	91-57-6	--	1.8E+04	0.88	0.88	0	1	2
Benzo(a)anthracene	56-55-3	--	2.8E+02	7.4	7.4	0	1	2
Benzo(a)pyrene	50-32-8	--	9.2E+01	8.8	8.8	0	1	2
Benzo(b)fluoranthene	205-99-2	--	9.4E+02	11	11	0	1	2
Benzo(g,h,i)perylene [2]	191-24-2	--	3.0E+06	7	7	0	1	2
Benzo(k)fluoranthene	207-08-9	--	9.2E+03	6.6	6.6	0	1	2
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.2E+04	20	100	0	2	2
Butyl Benzyl Phthalate	85-68-7	--	1.3E+04	11	11	0	1	2
Chrysene	218-01-9	--	2.8E+04	7.4	7.4	0	1	2
Di-n-butyl Phthalate	84-74-2	--	2.2E+05	150	150	0	1	2
Diethyl Phthalate	84-66-2	--	2.6E+05	13	13	0	1	2
Fluoranthene	206-44-0	--	4.2E+06	8.8	8.8	0	1	2
Indeno(1,2,3-cd)pyrene	193-39-5	--	3.2E+03	5.7	5.7	0	1	2
Phenanthrene [2]	85-01-8	--	3.0E+06	3.9	3.9	0	1	2
Pyrene	129-00-0	--	3.0E+06	12	12	0	1	2

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
SVOC = Semi-volatile Organic Compound
SSL = Risk-based Soil Screening Level from April 2009 RSL Table
DAF 20 = Dilution Attenuation Factor of 20
-- = No Value Available

(A) = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

[1] = Mercuric chloride soil SSL used
[2] = Pyrene soil SSL used

Table 7-7
SSA 60 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Surface Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Surface Soil	Maximum Concentration Surface Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	11,000	25,000	mg/kg	60SE1	7/7	1.8 - 1.8	25,000	40,041	N
7440-36-0	Antimony	0.2	0.5	mg/kg	60SS1	7/7	0.037 - 0.037	0.5	--	NBE
7440-38-2	Arsenic	4.5	12	mg/kg	60SS2	7/7	0.03 - 0.03	12	15.8	N
7440-39-3	Barium	58	130	mg/kg	60SS3	7/7	0.28 - 0.28	130	209	N
7440-41-7	Beryllium	0.16	1.3	mg/kg	60SE1	7/7	0.035 - 0.035	1.3	1.02	**Y**
7440-43-9	Cadmium	0.83	1.1	mg/kg	60SE2	7/7	0.24 - 0.24	1.1	0.69	**Y**
7440-47-3	Chromium	16	39	mg/kg	60SE1	7/7	0.74 - 0.74	39	65.3	N
7440-48-4	Cobalt	3.9	11.5	mg/kg	60SS4 DUP AVG	7/7	0.44 - 0.44	11.5	72.3	N
7440-50-8	Copper	8.7	51	mg/kg	60SS4 DUP AVG	7/7	0.043 - 0.086	51	53.5	N
7439-89-6	Iron	18,000	30,000	mg/kg	60SE2	7/7	0.47 - 0.47	30,000	50,962	N
7439-92-1	Lead	12	130	mg/kg	60SE1	7/7	0.049 - 0.25	130	26.8	**Y**
7439-96-5	Manganese	300	670	mg/kg	60SS2	7/7	0.21 - 0.21	670	2,543	N
7439-97-6	Mercury	0.011	0.092	mg/kg	60SE1	7/7	0.0093 - 0.0093	0.092	0.13	N
7440-02-0	Nickel	9.8	24	mg/kg	60SE2	7/7	0.025 - 0.025	24	62.8	N
7782-49-2	Selenium	0.3	0.66	mg/kg	60SS1	7/7	0.049 - 0.049	0.66	--	NBE
7440-22-4	Silver	0.086	0.12	mg/kg	60SS1	7/7	0.011 - 0.011	0.12	--	NBE
7440-28-0	Thallium	0.064	0.21	mg/kg	60SE1	7/7	0.0061 - 0.0061	0.21	2.11	N
7440-62-2	Vanadium	25	43	mg/kg	60SS1	7/7	0.032 - 0.032	43	108	N
7440-66-6	Zinc	35	130	mg/kg	60SE2	7/7	0.79 - 0.79	130	202	N

Table 7-7
SSA 60 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Total Soil	Maximum Concentration Total Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	11,000	33,000	mg/kg	60TP1	9/9	10 - 1.8	33,000	40,041	N
7440-36-0	Antimony	0.2	0.5	mg/kg	60SS1	9/9	0.2 - 0.037	0.5	--	NBE
7440-38-2	Arsenic	4.5	16	mg/kg	60TP1	9/9	0.1 - 0.03	16	15.8	**Y**
7440-39-3	Barium	58	130	mg/kg	60SS3	9/9	1 - 0.28	130	209	N
7440-41-7	Beryllium	0.16	1.5	mg/kg	60TP1	9/9	1 - 0.035	1.5	1.02	**Y**
7440-43-9	Cadmium	0.83	2.2	mg/kg	60SS6	9/9	2 - 0.24	2.2	0.69	**Y**
7440-47-3	Chromium	16	40	mg/kg	60TP1	9/9	5 - 0.74	40	65.3	N
7440-48-4	Cobalt	3.9	11.5	mg/kg	60SS4 DUP AVG	9/9	2 - 0.44	11.5	72.3	N
7440-50-8	Copper	8.7	51	mg/kg	60SS4 DUP AVG	9/9	0.2 - 0.086	51	53.5	N
7439-89-6	Iron	18,000	39,000	mg/kg	60TP1	9/9	10 - 0.47	39,000	50,962	N
7439-92-1	Lead	12	130	mg/kg	60SE1	9/9	0.2 - 0.25	130	26.8	**Y**
7439-96-5	Manganese	300	1,100	mg/kg	60TP1	9/9	1 - 0.21	1,100	2,543	N
7439-97-6	Mercury	0.011	0.092	mg/kg	60SE1	9/9	0.05 - 0.0093	0.092	0.13	N
7440-02-0	Nickel	9.8	28	mg/kg	60TP1	9/9	0.1 - 0.025	28	62.8	N
7782-49-2	Selenium	0.29	0.66	mg/kg	60SS1	9/9	0.2 - 0.049	0.66	--	NBE
7440-22-4	Silver	0.086	0.15	mg/kg	60TP1	9/9	0.1 - 0.011	0.15	--	NBE
7440-28-0	Thallium	0.064	0.28	mg/kg	60TP1	9/9	0.1 - 0.0061	0.28	2.11	N
7440-62-2	Vanadium	25	55	mg/kg	60TP1	9/9	0.2 - 0.065	55	108	N
7440-66-6	Zinc	35	130	mg/kg	60SE2	9/9	5 - 0.79	130	202	N

Notes:

CAS = Chemical Abstracts Service
TAL = Target Analyte List
NBE = No Background Estimate Available
mg/kg = Milligram Per Kilogram
(A) = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

Table 7-8
SSA 60 Cumulative HHRS (Surface Soil Excluding Metals within Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	7/7	0.069	0.015	c	0.21	c	--	5.E-06	--	3.E-07	--
131-11-3	Dimethyl Phthalate	mg/kg	1/7	0.0019	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		--	5.E-06	--	3.E-07	

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TCL = Target Compound List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 7-9
SSA 60 Cumulative HHRS (Total Soil Excluding Metals wihtin Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	8/9	0.069	0.015	c	0.21	c	--	5.E-06	--	3.E-07	--
131-11-3	Dimethyl Phthalate	mg/kg	1/9	0.0019	--	--	--	--	--	--	--	--	--
							Cumulative Risk/Hazard		0.E+00	5.E-06	0.E+00	3.E-07	
Target Organ Segregation													
							Total skin HI =		0.0		Total skin HI =	0.00	
							Total vascular HI =		0.0		Total vascular HI =	0.00	

Notes:

mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TCL = Target Compound List
TAL = Target Analyte List
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

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8.0 SSA 77 GARBAGE INCINERATOR (BUILDING 7219)

8.1 SITE BACKGROUND – ENVIRONMENTAL SETTING

8.1.1 Site Description

The garbage incinerator (SSA 77) at Building 7219 is located in the southern part of the MMA at RFAAP (Figure 1-1). SSA 77 consists of a 29 ft by 25 ft concrete block/brick building with a 52 ft tall brick chimney formerly used to incinerate cardboard, paper products, wood, and other municipal waste materials. The building is located between the Shipping and Receiving Building 534 and Contaminated Scrap Burning Area (SWMU 17) in the southern portion of the MMA. Building 7219 is built into a hillside and has a basement and first floor (Figure 8-1). Paved asphalt roads encircle the building area. The first floor of the building is at grade with the asphalt road to the south of the building (approximately elevation 1,900 ft msl), while the basement is at grade with the asphalt road to the north of the building (approximate 1,890 ft msl). Grass covers the hillside area around Building 7219 between the asphalt pavement areas. A site photographic log for SSA 77 is included in Appendix B.

Equipment formerly contained in the building has been removed. A significant portion of the building roof has collapsed into the first floor of the building. Subsurface piping in the building area includes a sewer pipe extending from the southwest corner building to a partially aboveground, concrete septic tank approximately 30 ft north of the building. This pipe received water from a bathroom area and floor drains located on the charging floor (first floor). According to building plans, the sewer pipe is 4-inch diameter cast iron until it reaches the asphalt road area where the pipe is 6-inch diameter terracotta. This plan does not show a drainage field associated with the septic tank, contrasted with a drain field shown for a septic tank located west of the Shipping and Receiving Building.

Other subsurface utilities located in the site area include a 6-inch water line, which runs across the asphalt area approximately 30 ft south of Building 7219.

8.1.2 Site History

The garbage incinerator operated at the location of Building 7219 from the 1940s until 1974, when it was shutdown, rendered inactive, and equipment was removed. Building 7219 was reconstructed and improved in 1953. The basement floor of the building was the “firing floor” and contained the incinerator furnace and a bathroom area. The incinerator furnace was connected to the chimney by fire brick lined breeching. The first floor of the building was the “charging floor” where garbage was brought into the building for charging into the incinerator furnace via a charging throat. A heat recovery system was installed in the building and included water heater pipe coils at the incinerator furnace, hot water pipe, hot-water storage tank, and heat stove. The concrete floor of the first floor was sloped toward two six-inch diameter floor drains that were connected by 4-inch diameter cast iron pipes to the buildings sanitary line, which lead to a septic tank north of the building. A double sink area on the second floor also was connected to the sanitary system.

After incineration operations ceased in 1974, Building 7219 was then used to store rat bait and bee spray pesticides; however, these materials were removed in 1987 when the building’s roof began leaking. Building 7219 is currently inactive with no plans to reactivate.

Figures 8-2, 8-3, 8-4, and 8-5 are aerial photographs from 1949, 1962, 1971, and 1986 that show Building 7219 area. A small white rectangular object is visible in these photographs to the north of the building is likely a concrete vault associated with the building septic system.

8.1.3 Surface Water

Surface water bodies, manholes, or catch basins are not located in the immediate site area. Stormwater runoff would be expected to follow topography and flow across pavement surfaces and grass vegetated areas toward the north and SWMU 17.

8.1.4 Soil

According to the *Soil Survey of Montgomery County, Virginia* (USDA 1985), the area of SSA 77 is underlain by Unison-Urban Land complex soil. This soil has moderate permeability and medium-to-strong acidity. Soil classification is not practical in urban land areas because the original soil has been physically altered or obscured. A typical profile of undisturbed Unison soil consists of a 15-inch thick surface layer of dark brown loam and a 43-inch thick subsoil of yellowish-red, sticky plastic clay underlain by a red sandy clay loam to a depth of 58 inches. In general, permeability is moderate in Unison soil, natural fertility is low, and organic matter content is low to moderate.

8.1.5 Geology

Geologic and subsurface conditions have been assessed as part of investigations conducted in the SWMU 17 area immediately north and northeast of the site, which includes the Former Lead Furnace Area (FLFA). Deep borings were completed into bedrock at locations 150 ft east (wells 17PZ1 and 17MW2) and 85 ft north (well LFMW01) of the site (Figure 8-6). Numerous soil borings also were completed in the SWMU 17/FLFA area. Gray brown argillaceous limestone of the Elbrook Formation underlies the site area. Depth to bedrock is expected to be less than 10 ft in the immediate area of SSA 77 given its ridge top location and shallow bedrock depth encountered in borings 17PZ1 and 17MW2. Residual soil weathered from bedrock is typically silt and clay (ML/CL). Sinkhole areas are located north site and bedrock in the site area has karst characteristics with clay filled weathered zones and voids.

Appendix D.2.4 includes several geologic cross-sections included in the Shaw Draft FLFA RFI/CMS Report (Shaw 2008a) illustrating subsurface conditions in the site area and boring logs for monitoring wells 17PZ1, 17MW2, and LFMW01.

8.1.6 Hydrogeology

A dye trace study conducted by Engineering Science, Inc. in 1994 at SWMU 17 identified a specific flow path connecting the SWMU 17A sinkhole to a spring in the New River (Appendix D.2.4). Dye placed in the injection point (INJ1) within this sinkhole traveled 4,800 ft to the spring in less than 24 hours. Groundwater in the site area occurs within bedrock in fractures and water saturated karst features. Recent static water levels measurements from wells in the site area have been in the range of 1,800 to 1,810 ft msl or approximately 90 to 100 ft below the elevation of the Building 7219 area. Groundwater flow toward the west-northwest was indicated by the Shaw groundwater measurements obtained for the FLFA RFI/CMS, which was the same direction as the preferential flow path identified by the dye trace study (Shaw 2008a). Appendix D.2.4 includes a groundwater flow map from the Draft Shaw FLFA RFI/CMS Report (Shaw 2008a).

8.2 PREVIOUS INVESTIGATIONS

Environmental sampling specific to SSA 77 has not been conducted. Several investigations have been conducted at SWMU 17A and FLFA located immediately north of the site.

8.2.1 RCRA Facility Assessment – USEPA 1987

An assessment was conducted at SSA 77 (listed as Unit 77 in RFA) to evaluate potential hazardous waste or hazardous chemical releases and implement corrective actions, as necessary. The assessment consisted of a preliminary review and evaluation of available site information, personnel interviews, and a visual inspection of the site. Environmental samples were not collected at SSA 77 as part of the inspection. The RFA did not identify any release history for the site.

8.2.2 Installation Assessment – USEPA 1992

EPIC, under the direction of USEPA, performed an assessment of multiple SWMUs at RFAAP using selected aerial photographs from 1937 to 1986 (USEPA 1992a). The photogeologic analysis was performed to locate waste management areas, identify the location of sinkholes that existed prior to the

construction of the RFAAP, and map fracture traces. A specific assessment was not conducted for SSA 77; however, an assessment was conducted for adjacent SWMU 17 (burning areas). The aerial photographic analysis of SWMU 17 indicated that activity was noted from 1949 through 1986. Mounded material, containers, and possible stains were noted within the SWMU 17 area.

8.2.3 RCRA Facility Investigation - Dames & Moore 1992

The RFI conducted by Dames & Moore at SWMU 17 in 1992 included the installation of piezometer 17PZ1 approximately 150 ft east of Building 7219. Initially this piezometer was dry after installation. Later static water levels were approximately 90 ft bgs. Groundwater samples were not collected from this piezometer for this investigation.

8.2.4 RCRA Facility Investigation – Parsons Engineering Science 1996

As part of an RFI conducted at SWMU 17, Parsons collected groundwater samples from monitoring wells 17MW2 and 17PZ1 located approximately 150 ft east of Building 7219 for analysis of explosives, total metals, dissolved metals, TOC, and TOX. Explosives were not detected in these samples. Dissolved metals that were detected in the samples included barium and lead. The concentration of dissolved beryllium detected in 17MW2 (4.26 µg/L) and 17PZ1 (4.28 µg/L) were above the MCL of 4 µg/L. Dissolved barium was detected in sample 17MW2 (63.2 µg/L) and 17PZ1 (110 µg/L) at concentrations that were below the adjusted T-RSL.

8.2.5 RCRA Facility Investigation/Corrective Measures Study – Shaw 2008

This report presented the results of five previous investigations conducted at the FLFA by Shaw and others and included additional sampling of soil and groundwater in 2007 to complete the RFI/CMS Report. For purposes of the RFI/CMS and remedial actions, the FLFA has been defined as an approximate 0.78 acre area within the SWMU 17A Stage and Burn Area. The limits of this area extend to the northern edge of the asphalt road across from Building 7219. A small portion of the study area for the Building 7219 SSP, which includes several feet of below ground, terracotta sewer pipe and a septic tank, is located within the FLFA defined area.

Shaw conducted extensive sampling across the FLFA area to delineate the extent of lead, PCBs, dioxins, and other chemicals in soil. Lead was identified as the primary chemical of concern (COC) at the site driving corrective measures for soil under future industrial and residential scenarios. Dioxin/furans were identified as a secondary COC. The southwestern edge of the proposed residential remedial goal excavation area extends near the edge of the Building 7219 study area associated with the terracotta sewer pipe and septic tank. The recommended alternative for soil consists of soil excavation and offsite disposal with concentrations above residential remedial goals established for lead, dioxins, PCBs, arsenic, and copper. The FLFA surface soil data near the terracotta sewer pipe and septic tank indicated lead concentrations in surface soil below the residential action level of 400 mg/kg. One surface soil sample LSS04 collected along the asphalt road near the terracotta sewer pipe had dioxin concentrations above the residential and industrial screening level but lead concentrations below 400 mg/kg. Subsurface soil data was not collected in the areas near the Building 7219 study area. Appendix D.2.4 includes several figures showing sample results, the identified excavation areas for industrial and residential remedial goals. A table including the sample result from LSS04 is also included in this appendix.

In 2007, groundwater samples were collected from wells 17MW2, 17PZ1, and LFMW01 located near Building 7219 as part of the RFI/CMS conducted at FLFA. Samples were analyzed for TCL organics, PAHs, explosives, herbicides, TAL metals, and perchlorate. Detected analyte results are summarized in Table 8-1 and included chloroform, tetrachloroethene, perchlorate, total metals, and dioxins. Chloroform, tetrachloroethene, perchlorate, and dioxins were detected at concentrations above their adjusted T-RSLs in one or more samples but below applicable MCLs (Table 8-1). Total aluminum and total iron also were detected in sample LFMW01 collected from the sinkhole at SWMU 17 at concentrations above their adjusted T-RSLs; the higher concentrations were attributed in the RFI/CMS to elevated turbidity levels (greater than 900 Nephelometric Turbidity Units [NTUs]) in the sample.

8.3 WORK PLAN DATA GAP ANALYSIS

The data gap analysis presented in WPA 028 indicated that no soil sampling and analyses had occurred at SSA 77 (URS 2009). The data gap analysis completed for SSA 77 identified data gaps for evaluating potential releases to surface soil and subsurface soil from previous site activities, and characterizing physical and geotechnical properties of site soil.

8.3.1 Release Assessment to Surface Soil

An assessment of potential releases to surface soil had not been performed at SSA 77. This data gap was filled by collecting surface soil samples from around the building area. Field investigation activities are discussed in Section 8.4

8.3.2 Release Assessment to Subsurface Soil

An assessment of potential releases to subsurface soil had not been performed at SSA 77. This data gap was filled by collecting subsurface soil samples around the building area, adjacent to the sewer pipe, and adjacent to the septic tank. Field investigation activities are discussed in Section 8.4.

8.3.3 Groundwater

Potential releases to groundwater were assessed by evaluating subsurface soil data and comparison of these data to USEPA risk-based soil-to-groundwater SSLs included in the Regional Screening Table (USEPA 2009). Existing groundwater data for monitoring wells located in close proximity to the site (FLFA and SWMU 17 area) also were used for the release evaluation.

8.3.4 Other

Two representative samples of soil at the site (one surface sample and one subsurface sample) were submitted for analysis of physical and geotechnical properties, as described in Section 8.4.

8.3.5 Summary of Data Gaps

The following table summarizes these identified data gaps and the completion plan to fill the data gaps from WPA 028 (URS 2009).

SSA 77 - Summary of Data Gap Analysis and Completion Plan

DATA GAPS			COMPLETION PLAN
Item	**Physical**	**Chemical**	
Releases to Soil	Surface Soil Samples	Chemical Data – VOCs, SVOCs, PCBs, pesticides, explosives, metals, and dioxin/furans	Collect surface soil samples around building area
	Subsurface Soil Samples	Chemical Data – VOCs, SVOCs, PCBs, pesticides, explosives, and metals	Complete borings and collect subsurface samples around building area and adjacent to the sewer and septic tank
Releases to Groundwater	Subsurface Soil Samples	Use subsurface soil sample data	Compare subsurface soil data to soil-to-groundwater SSLs and evaluate existing groundwater data from the FLFA and SWMU 17 area
Site-Wide Soil Characteristics	Physical / Geotechnical Properties	pH, TOC, grain size, Atterberg Limits, and moisture content	Collect samples for geotechnical and physical property analysis

8.4 SSP FIELD ACTIVITIES

Six borings were advanced in and around the site to evaluate for the presence or absence of chemicals in soil potentially associated with historical site activities (Figure 8-7). Three direct push soil borings, 77SB1, 77SB2, and 77SB3, were completed around the area of Building 7219 to evaluate for potential releases to surface and subsurface soil. Boring 77SB1 was completed adjacent to western building entrance where waste material was brought into the building. Boring 77SB2 was completed adjacent to the chimney area and northwest corner of the building where incinerator was located and sewer line runs adjacent to the building. Boring 77SB3 was completed near the northeast corner of the building near the entrance to the basement firing floor.

Three direct push borings, 77SB4, 77SB5, and 77SB6, were completed in the septic tank area. Boring 77SB4 was completed near the area where the terracotta pipe enters the tank. Borings 77SB5 and 77SB6 were completed at distances 20 ft east and west of the concrete vault to evaluate for the presence of a drain field. Note that borings 77SB5 and 77SB6 were completed in the septic tank area, but no visual identification of septic use was apparent; therefore samples were not collected from these borings, but a sample was collected from boring 77SB4 in accordance with WPA 028. Borings were advanced to a maximum depth of 8 ft bgs using a skid steer-mounted, direct-push Geoprobe® unit. Discrete samples were collected from surface and/or intermediate intervals for the borings as summarized below.

SSA 77 SSP Samples and Boring Information

Boring ID	Total Depth of Boring (ft bgs)	Surface Sample ID	Sample Depth (ft bgs)	Intermediate Sample ID	Sample Depth (ft bgs)
77SB1	6.0	77SB1A	0-1	77SB1B	4-6
77SB2	5.5	77SB2A	0-1	77SB2B	4-5.5
77SB3	5.0	77SB3A	0-1	77SB3B	4-5
77SB4	8.0	--	--	77SB4B	6-8
77SB5	8.0	--	--	--	--
77SB6	8.0	--	--	--	--

Soil samples were analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, TCL pesticides, explosives (including nitroglycerin and PETN), and TAL inorganics. Analytical results (detected chemicals) used for the SSP are summarized in Table 8-2. 2,3,7,8-TCDD Equivalents (TEQ) calculations for dioxins are provided in Table 8-3.

Two samples were collected for physical testing (one surface soil sample (77SB2A) and one subsurface soil sample (77SB2B). Physical testing for each sample included: grain size analysis, Atterberg limits, soil moisture content, TOC, and pH. Analytical results for these samples are summarized in Table 2-1 and the complete results are provided in Appendix D.1.

8.5 CONCEPTUAL SITE MODEL (CSM)

A CSM for SSA 77 is presented on Figure 8-8. Building 7219 is located on a hillside overlooking the sinkhole at SWMU 17A. Depth to bedrock is expected to be less than 10 ft at the site with residual silt and clay soil overlying limestone bedrock. Groundwater is present within limestone bedrock at estimated depths of 90 to 100 ft bgs at the site.

Potential release sources would be related to historical garbage handling activities within and around the building area, potential releases from the sewer pipe and septic tank receiving wastewater from building floor drains, and waste by products associated with incineration including bottom ash, emission of flue

gases and particulate matter. Post incinerator related constituent sources potentially would be related to storage of pesticides and rat bait in the building.

Potentially affected media at the site include:

- Surface soil from waste management activities in and around the building area and potential deposition of particulate matter from the incinerator chimney;
- Subsurface soil via leaching of any constituents released to surface soil;
- Subsurface soil from potential leaks in the wastewater sewer pipe (terracotta pipe) leading from the building to the septic tank;
- Subsurface soil from potential leaks from the septic tank or drain field area if present; and
- Groundwater via leaching of constituents released to subsurface soil.

Although current and likely future land-use scenarios are limited to industrial operations, both residential and industrial scenarios will be evaluated in the SSP human health screening (USEPA 2001).

The SSA 77 site area is exclusively an upland habitat that lacks wetland and significant drainage features. Therefore, soil represents the potential exposure medium for ecological receptors. An ECSM is provided in Section 3.0, Figure 3-1.

8.6 HUMAN HEALTH RISK SCREENING

8.6.1 Identification of COPCs

Tables 8-4 and 8-5 present the results of the COPC evaluations for surface soil and total soil, respectively. COPCs identified for surface soil and total soil included:

TAL metals: aluminum, arsenic, cobalt, iron, manganese, vanadium;

TCL Pesticides: none;

TCL PCBs: Aroclor 1254, Aroclor 1260;

TCL VOCs: none;

TAL SVOCs: benzo(a)pyrene, dibenz(a,h)anthracene; and

Dioxin/Furans: 2,3,7,8-TCDD TEQ (dioxins).

The FLFA RFI (Shaw 2008a) investigation of the groundwater in the same area did not identify groundwater at the sites as a risk to human health or the environment.

8.6.2 Cumulative Risk Screen

The cumulative risk screening for surface soil is presented on Table 8-6. The cumulative risk screening for total soil is presented on Table 8-7. A summary of the screening results is presented below:

Cumulative Human Health Risk Screening Results for Soil

	Surface Soil			**Total Soil**		
	Above/ Below/ Equal	**Risk/ Hazard**	**Drivers**	**Above/ Below/ Equal**	**Risk/ Hazard**	**Drivers**
Residential Risk	Above	5.E-05	Arsenic, 2,3,7,8-TCDD TEQ (dioxins)	Above	5.E-05	Arsenic, 2,3,7,8-TCDD TEQ (dioxins)

	Surface Soil			Total Soil		
	Above/ Below/ Equal	**Risk/ Hazard**	**Drivers**	**Above/ Below/ Equal**	**Risk/ Hazard**	**Drivers**
Industrial Risk	Equal	1.E-05	Arsenic, 2,3,7,8-TCDD TEQ (dioxins)	Equal	1.E-05	Arsenic, 2,3,7,8-TCDD TEQ (dioxins)
Residential Hazard	Above	4	Aluminum, Arsenic, Cobalt, Iron, Manganese, 2,3,7,8-TCDD TEQ (dioxins)	Above	4	Aluminum, Arsenic, Cobalt, Iron, Manganese, 2,3,7,8-TCDD TEQ (dioxins)
Industrial Hazard	Below	0.4	--	Below	0.4	--

*Note: Above, below, or equal to established SSP risk and hazard levels.

The cumulative human health risk screens were above the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the residential scenario for surface and total soil. Cumulative risk screenings were equal to the established SSP risk level of 1E-05 for the industrial scenario for surface and total soil. Cumulative hazard screening was below the established SSP hazard level of 1 for the industrial scenario for total and surface soil. The risk/hazard drivers identified in the table above are those chemicals that primarily contribute to HIs or risks greater than the established SSP hazard level of 1 or risk level of 1E-05, respectively.

Due to multiple chemicals contributing to a residential HI greater than 1, as presented on Table 8-6 (surface soil) and Table 8-7 (total soil), the HIs have been segregated based on primary target organs for chronic exposure. The HI segregation for surface and total soil resulted in values equal to or higher than the cumulative SSP HI target organ threshold of 0.5 for the following target organs: blood, CNS, GI tract, and liver.

8.6.3 Lead and Iron Screening

Detected lead concentrations at the sites were below 400 mg/kg; therefore, lead modeling was not conducted for the site.

Since iron concentrations in soil result in an HQ of greater than 0.5, further assessment is required. This assessment consists of a "margin of exposure evaluation" where the estimated intake of iron is compared to the RDA and concentrations known to cause adverse health effects in children (NCEA 2006). Appendix E.5 presents the margin of exposure evaluation for surface soil and total soil. A summary of the results for SSA 77 is presented below.

Iron Margin of Exposure Evaluation – Future Child Resident

	Surface Soil			Total Soil		
	Above/ Below	**Estimated Site Intake**	**Exposure Screening Level**	**Above/ Below**	**Estimated Site Intake**	**Exposure Screening Level**
RDA Screen (mg/day)	Below	7	10	Below	8	10

	Surface Soil			Total Soil		
	Above/ Below	**Estimated Site Intake**	**Exposure Screening Level**	**Above/ Below**	**Estimated Site Intake**	**Exposure Screening Level**
Provisional Reference Dose (RfD) Screen (mg/kg-day)	Below	0.5	0.7	Below	0.5	0.7

The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 77.

8.6.4 SSL Comparison - Soil

8.6.4.1 Generic SSLs (Soil-to-groundwater Screening Levels)

An SSL screening was conducted for detected chemicals in subsurface soil to evaluate the potential for leaching of chemicals from soil to groundwater. As presented in Table 8-8, the detected concentrations for each chemical in subsurface soil were compared to their USEPA risk-based SSLs included in the Regional Screening Table (USEPA 2009), if available. The comparisons of subsurface soil concentrations to generic SSLs (DAF 20) for detected chemicals indicated that arsenic and iron were above their SSLs (Table 8-8).

8.6.4.2 Site-specific SSL Comparison

Organic chemical were not detected in subsurface soil at concentrations above their generic SSLs (DAF 20); therefore, site-specific SSLs were not calculated.

8.6.5 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPCs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). No metals identified as COPCs in surface soil and total soil were above their background point estimates (Table 8-9).

8.6.6 Human Health Risk Screening Summary

Soil COPCs with screening values were limited to metals, PCBs, SVOCs, and 2,3,7,8-TCDD TEQ (dioxins). The soil cumulative human health risk screens were above the established SSP risk and hazard levels of 1E-05 and 1, respectively, for the residential scenario for surface and total soil. As presented on Table 8-10 (surface soil) and Table 8-11 (total soil) when excluding risk drivers below background (arsenic), the potential site-related risk is 4E-05 which is above the SSP risk screening level of 1E-05 primarily due to 2,3,7,8-TCDD TEQ (dioxins). The cumulative risk screenings were equal to the established SSP risk level of 1E-05 for the industrial scenario for surface and total soil. When excluding risk drivers below background (arsenic), the potential site-related risk is 8E-06 which is below the SSP risk screening level of 1E-05. The cumulative hazard screening was below the established SSP hazard level of 1 for the industrial scenario for total and surface soil.

The noncarcinogenic residential hazard screening was above the established SSP threshold (HI=1) for surface and total soil primarily due to metals and 2,3,7,8-TCDD TEQ. As presented Table 8-10 (surface soil) and Table 8-11 (total soil) when taking background and target organs into account, the HI segregation for surface soil resulted in values equal to or higher than the cumulative SSP HI target organ threshold of 0.5 for the following target organs: liver (HI=2) due to 2,3,7,8-TCDD TEQ (dioxins).

Detected lead concentrations at the sites were below 400 mg/kg; therefore, lead modeling was not conducted for the site. The iron exposure assessment results for the hypothetical future child resident were below the applicable iron margin of exposure screening criteria for SSA 77.

The comparisons of subsurface soil concentrations to generic SSLs (DAF 20) for detected chemicals indicated that arsenic and iron were above their SSLs (Table 8-8). The arsenic and iron concentrations above their SSLs are not a concern because the detected concentrations are below their background point estimates.

8.7 ECOLOGICAL RISK SCREENING

8.7.1 Ecological Site Characterization

An overview of the site physiography, water resources, soil, and geology for SSA 77 is presented in Section 7.1. SSA 77 consists of a 29 ft by 25 ft concrete block/brick building with a 52 ft tall brick chimney formerly used to incinerate cardboard, paper products, wood, and other municipal waste materials. The building is located between the Shipping and Receiving Building 534 and Contaminated Scrap Burning Area (SWMU 17) in the southern portion of the MMA.

Based on information from the Installation-Wide Biological Survey and observations made during the site reconnaissance, the grassland vegetative community at the site is typical of other meadow-grassed areas that are regularly maintained at RFAAP. The habitat could support some ecological use (i.e., shelter and foraging) by some smaller common species in the area. Given its limited size, proximity asphalt roads and buildings, and its frequent disturbance by facility operations, few individuals would be expected to utilize the area for a lengthy period.

Threatened, rare, or endangered species were not observed during the site reconnaissance. These species are not likely to be present within the boundaries of the site. Threatened, rare, and endangered species information for RFAAP is discussed in Section 3.3.4.

8.7.1.1 Data Organization

The following table identifies the soil samples used for the SLERA. These samples were analyzed for TAL inorganics, TCL pesticides, TCL PCBs, TCL VOCs, TCL SVOCs, and explosives (including nitroglycerin and PETN). Samples 77SB2A and 77SB3A were also analyzed for dioxin/furans. Refer to Table 2-2 for a detailed list of samples and analytes.

Soil Samples Evaluated for SLERA

SSA 77	
77SB1A	77SB3A
77SB2A	

Detected chemical occurrence and distribution tables for surface soil are presented in Table F.5-1. Refer to Table 8-2 for a complete list of results for detected analytes. In addition, to evaluate the adequate sensitivity of the MDL for the necessary screening levels, Table F.5-2 provides a screening of the maximum MDL versus available ecological screening values for non-detected chemicals in surface soil.

8.7.1.2 Ecological Conceptual Site Model (ECSM)

The terrestrial ECSM is presented on Figure 3-1. Surface soil is a potential exposure medium of concern based on historical activities at the site. Based on the site characterization and data, the terrestrial receptor exposure to surface soil pathway exists.

8.7.2 Preliminary Exposure Estimate and Ecological Effects Evaluation

The preliminary exposure estimate and ecological effects evaluation considers the most conservative risk scenario. Highly conservative assumptions are used to estimate COPEC exposure to terrestrial receptors for pathways to be quantitatively evaluated. Conservative TRVs are used to evaluate the ecological effects of exposure using the two approaches discussed below.

8.7.2.1 Direct Contact Approach

The maximum soil concentrations for detected chemicals are used as the preliminary exposure estimate concentrations to develop a conservative risk scenario for the direct contact pathway to soil invertebrates and terrestrial plants. The results of the preliminary exposure assessments for plants and invertebrates are provided below.

Terrestrial Plants

Preliminary direct contact HQs calculated for plants are presented in Table F.5-6 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of aluminum, chromium, copper, manganese, mercury, vanadium, and zinc resulted in HQ values that were greater than 1.

Soil Invertebrates and Microbial Communities

Preliminary direct contact HQs calculated for invertebrates are presented in Table F.5-8 for detected chemicals. Of the detected chemicals for which screening values were available, the concentrations of chromium, copper, iron, manganese, mercury, vanadium, and zinc resulted in HQ values that were greater than 1.

8.7.2.2 Dose Rate Modeling Approach

Quantitative risk characterization for terrestrial wildlife is limited to direct ingestion of biota and incidental ingestion of soil. The preliminary risks for detected bioaccumulative chemicals are summarized in Table F.5-24 for each terrestrial wildlife receptor and the chemicals with HQs greater than 1 are characterized as follows:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	cadmium, copper, lead	arsenic, selenium, 2,3,7,8-TCDD Equivalents
Short-tailed Shrew	arsenic, cadmium, chromium, copper, lead, zinc, dieldrin, Aroclor 1254	2,3,7,8,-TCDD Equivalents, Aroclor 1260
Red Fox	lead, selenium, dieldrin	arsenic, cadmium, chromium, copper, zinc, 2,3,7,8-TCDD Equivalents, Aroclor 1254, Aroclor 1260
American Robin	selenium, dieldrin, Aroclor 1254, Aroclor 1260	cadmium, chromium, lead, mercury, zinc, 2,3,7,8-TCDD Equivalents, 4,4'-DDT
Red-tailed Hawk	chromium, lead, zinc	2,3,7,8-TCDD Equivalents

8.7.3 Refined Exposure Estimate and Risk Characterization

8.7.3.1 Direct Contact Approach

The refined exposure estimate for the direct contact pathway to soil invertebrate and microbial communities incorporates the 95% UCL as the exposure concentration for evaluating the COPECs using a conservative yet more realistic exposure assumption than MDCs. Due to the number of samples at the sites, a 95% UCL was not calculated; therefore, a refinement of the direct contact pathway was not conducted.

8.7.3.2 Dose Rate Modeling Approach

The refined exposure estimates and ecological effects are developed for wildlife receptors having complete exposure pathways to be quantitatively evaluated (i.e., omnivorous birds, and carnivorous and herbivorous mammals). In the refined model, an average body weight, average ingestion rate, and a 95% UCL as the EPC are used. Due to the small number of samples at the site, a 95% UCL was not calculated for the site and the MDC was used as the EPC for the refinement. Refined receptor-specific exposure parameters are presented on Table F.5-9 (Appendix F.5). In addition, a realistic area use factor ($AF_{refined}$) was calculated as the ratio of the site area to the average home range of the receptor which is also presented in Table F.5-9 (Appendix F.5). A summary of the results of the refined exposure assessment for terrestrial wildlife is provided below.

Terrestrial Wildlife

The refined risk characterization results are presented in Table F.5-24 and summarized below for each of the receptors with chemical HQs greater than 1:

Receptor	NOAEL Only HQ>1	NOAEL and LOAEL HQ>1
Meadow Vole	none	2,3,7,8-TCDD Equivalents (12/1.2)
Short-tailed Shrew	none	2,3,7,8-TCDD Equivalents (480/48)
Red Fox	none	none
American Robin	4,4'-DDT (1.1)	2,3,7,8-TCDD Equivalents (26/2.6)
Red-tailed Hawk	none	none

*Note: (12/1.2) = NOAEL-based HQ/LOAEL-based HQ

8.7.4 Background Comparison - Soil

The final step in the risk screening process is the comparison of the MDCs of COPECs identified in soil to the established Facility-wide inorganic background point estimate concentrations for metals (IT 2001). The comparison of MDCs for metals identified as COPECs in surface soil with their background point estimates resulted in site soil MDCs above background point estimates for cadmium, copper, lead, and mercury (Table 8-9). Note that a background point estimate is not available for selenium; therefore, a background comparison was not conducted.

8.7.5 Risk Management – Scientific Management Decision Point

The findings of the ecological risk screen including site characterization and risk calculations are used as input to risk management decision-making for the site. The SMDP reached from the ecological risk screening concludes that one of the following statements is true:

- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the site on the basis of ecological risk;
- The information is not adequate to make a decision at this point and further refinement of data is needed to augment the ecological risk screening; or

- The information collected and presented indicates that a more thorough assessment is warranted.

Terrestrial plant COPECs with HQs greater than 1 included: aluminum (HQ=740), chromium (HQ=53), copper (HQ=1.2), manganese (HQ=3), mercury (HQ=3.3), vanadium (HQ=33), and zinc (HQ=1.1). Aluminum, chromium, manganese, vanadium, and zinc are below background point estimates (Table 8-9); therefore, these chemicals are not considered site-related. Even though the refined HQs for copper (HQ=1.2) and mercury (HQ=3.3) are greater than 1 and concentrations at the site are above the background point estimate, this risk present low to negligible risk to plants at the site.

Soil invertebrates and microbial processes COPECs with HQs greater than 1 included chromium (HQ=130), copper (HQ=1.1), iron (HQ=200), manganese (HQ=1.5), mercury (HQ=10), vanadium (HQ=3.3), and zinc (HQ=1.4). Chromium, iron, manganese, vanadium, and zinc are below background point estimates (see Table 8-9); therefore, these chemicals are not considered site-related. Even though the refined HQs for copper (HQ=1.1) and mercury (HQ=10) are greater than 1 and concentrations at the site are above the background point estimate, this risk present low to negligible risk to invertebrates and microbial processes at the site.

The refined risk characterization for wildlife resulted in the identification of 2,3,7,8-TCDD Equivalents with LOAEL-based HQs greater than 1 for the meadow vole (1.2), short-tailed shrew (48), and American robin (2.6).

Although the SLERA resulted in HQs greater than 1, due to the small size of the site, the limited habitat present at the site (primarily covered with impervious material such as the incinerator building and asphalt), and level of activity near the site due to presence of shipping and receiving, the potential for ecological risks are negligible. After consideration of the results of the SLERA, background concentrations, and the site setting, the SMDP is the following:

There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the SSA on the basis of ecological risk.

8.8 CONCLUSIONS AND RECOMMENDATION

No further action beyond the implementation of land use controls to maintain this site as industrial precluding residential use is recommended for SSA 77 based on the following results of the SSP screening:

- When excluding risk drivers below background (arsenic), the site-related cumulative risk and hazard screening results for industrial scenarios are below SSP thresholds for target risk and hazards;
- Cumulative risk and hazard screening results for residential scenarios are above SSP thresholds for target risk and hazards;
- The MDC for lead is below the SSP screening level of 400 mg/kg;
- The iron exposure assessment results for the hypothetical future child resident are below the applicable iron margin of exposure screening criteria;
- Chemicals at concentrations above their generic SSLs are limited to metals at concentrations below background and are not considered a concern at the site; and
- There is adequate information to conclude that ecological risks are considered negligible and therefore there is no need for further action at the SSA on the basis of ecological risk.

Institutional controls (ICs) are being implemented at the site (SSA 77 – Garbage Incinerator – Building 7219) within the boundaries depicted on Figure 8-1. The objective of the ICs is to maintain the site in its current industrial/commercial state as a closed solid waste management unit and to prevent any future residential use. Specifically the site has been incorporated into plant management manual to ensure long-

term protection of human health and the environment. The management manual provides for advance notice, assessment, and approval of intrusive work that may occur within the plant with a general digging prohibition at sites such as this. In the event the property is transferred or leased, equivalent ICs will be put into terms and conditions of the deed or lease, which are no less restrictive than the IC objectives described above. Furthermore, the transferee or lessee will be responsible for ensuring IC compliance by any future users. However, the Army acknowledges the responsibility for all original liability under CERCLA and its right and responsibility to enforce ICs.

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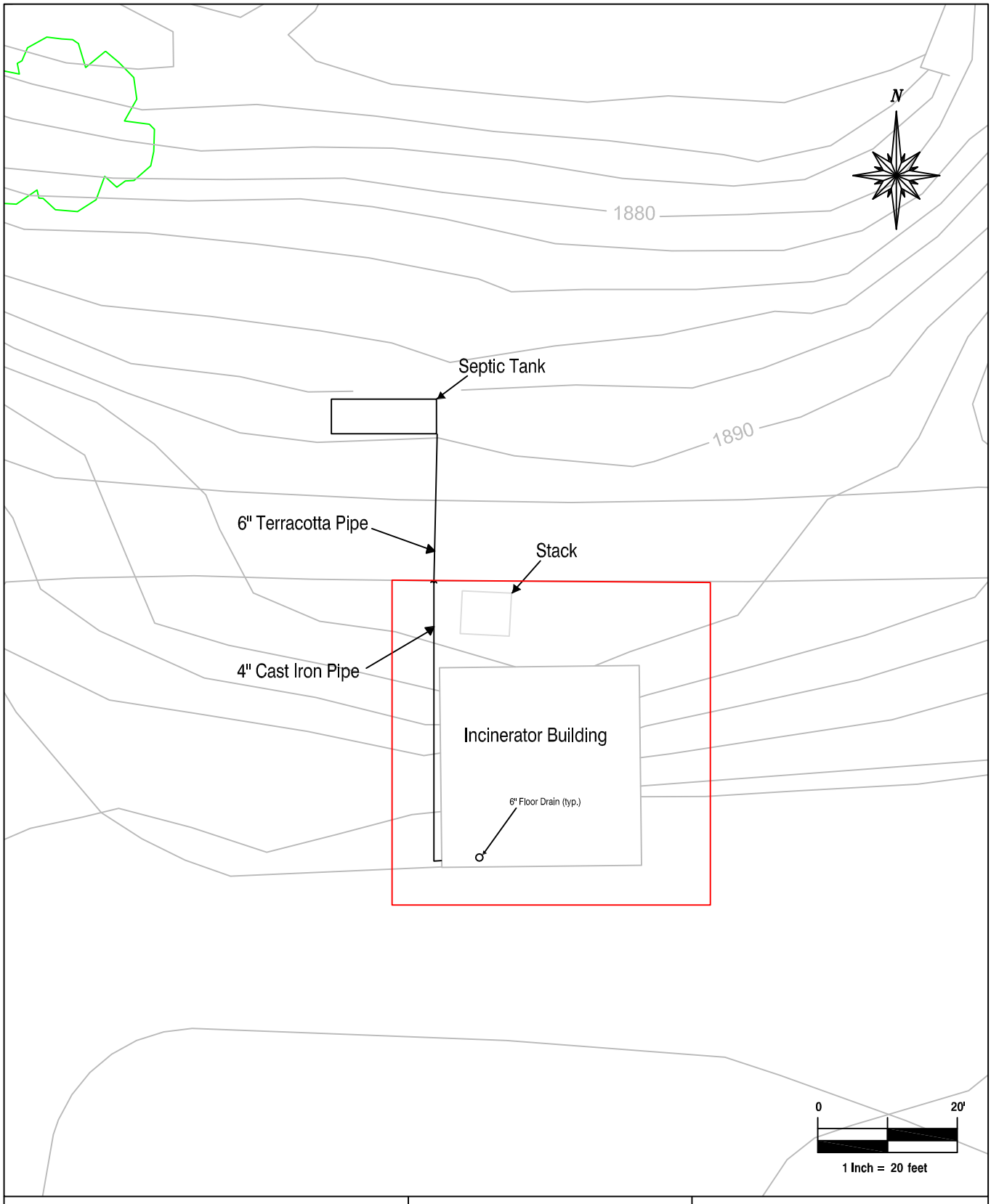


Legend

- Approximate SSA Boundary
- Topographic Contour
- Vegetation
- Fence
- Aboveground Piping

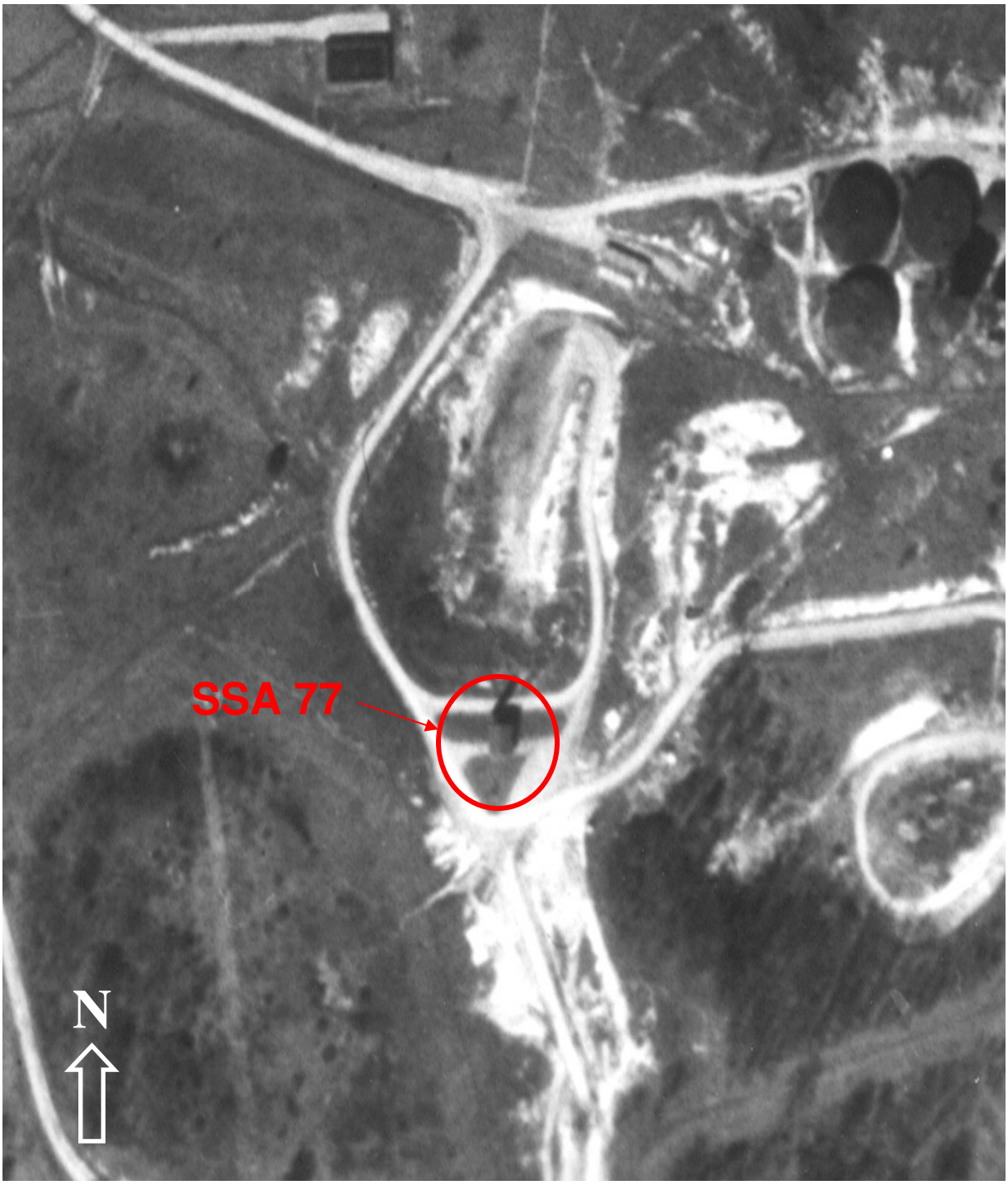
FIGURE 8-1

Site Layout - SSA 77

Date: April 2008	URS Project #: 11657490
Prepared by: DBC	Approved by: JOS
Scale: 1 inch = 20 feet	File Name: Fig.8-1 SiteLayout

SSP Report for SSAs 18, 72, 30, 79, 60, 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230



SSA 77
AERIAL PHOTOGRAPH – 1949

FIGURE 8-2

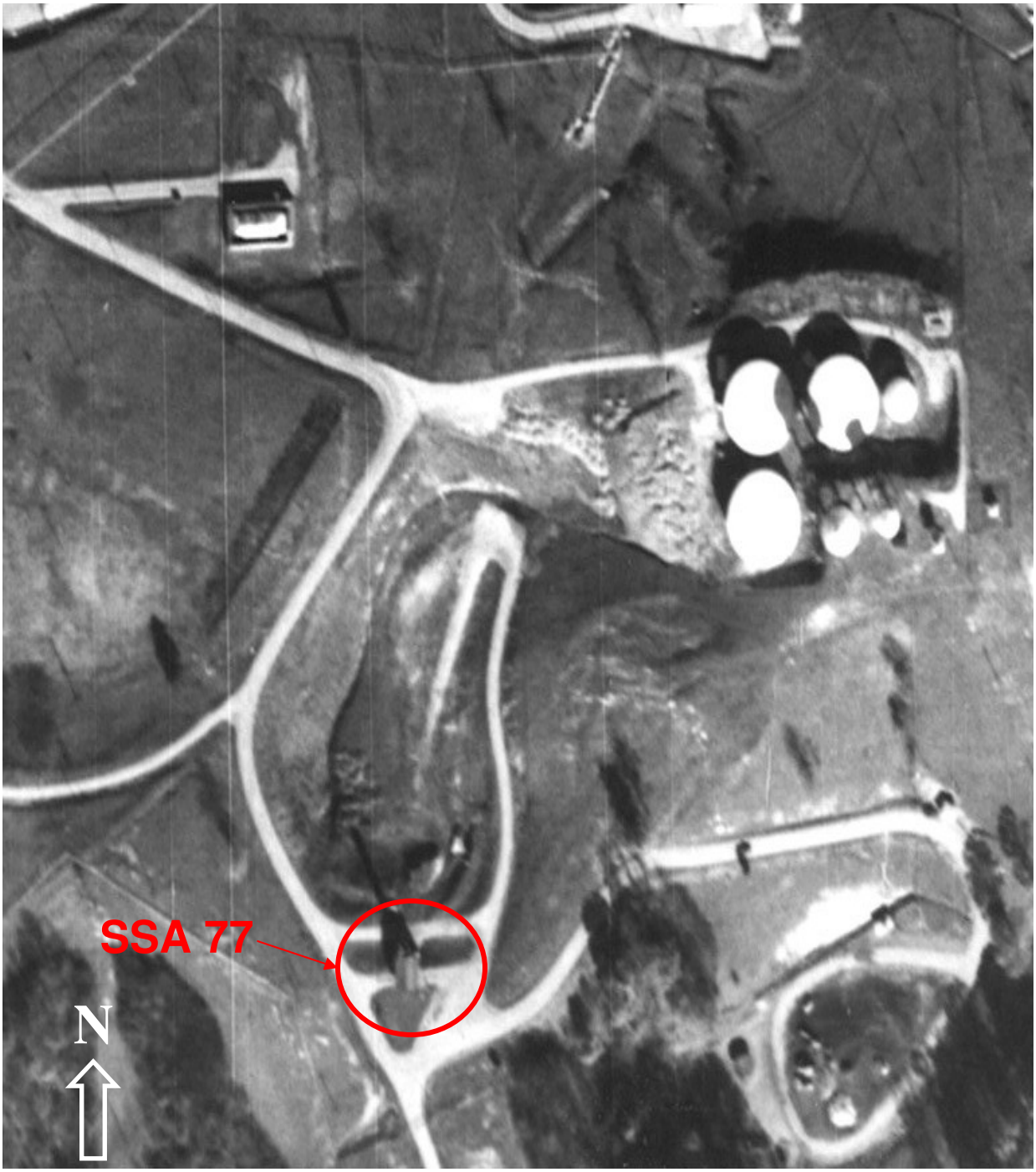
Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77



SSA 77
AERIAL PHOTOGRAPH – 1962

FIGURE 8-3

Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

SSA 77
AERIAL PHOTOGRAPH – 1971

FIGURE 8-4

Date: *January 2010*

Prepared by: *HA/CLD*

Scale: *No Scale Implied*

File Name: *11657490*

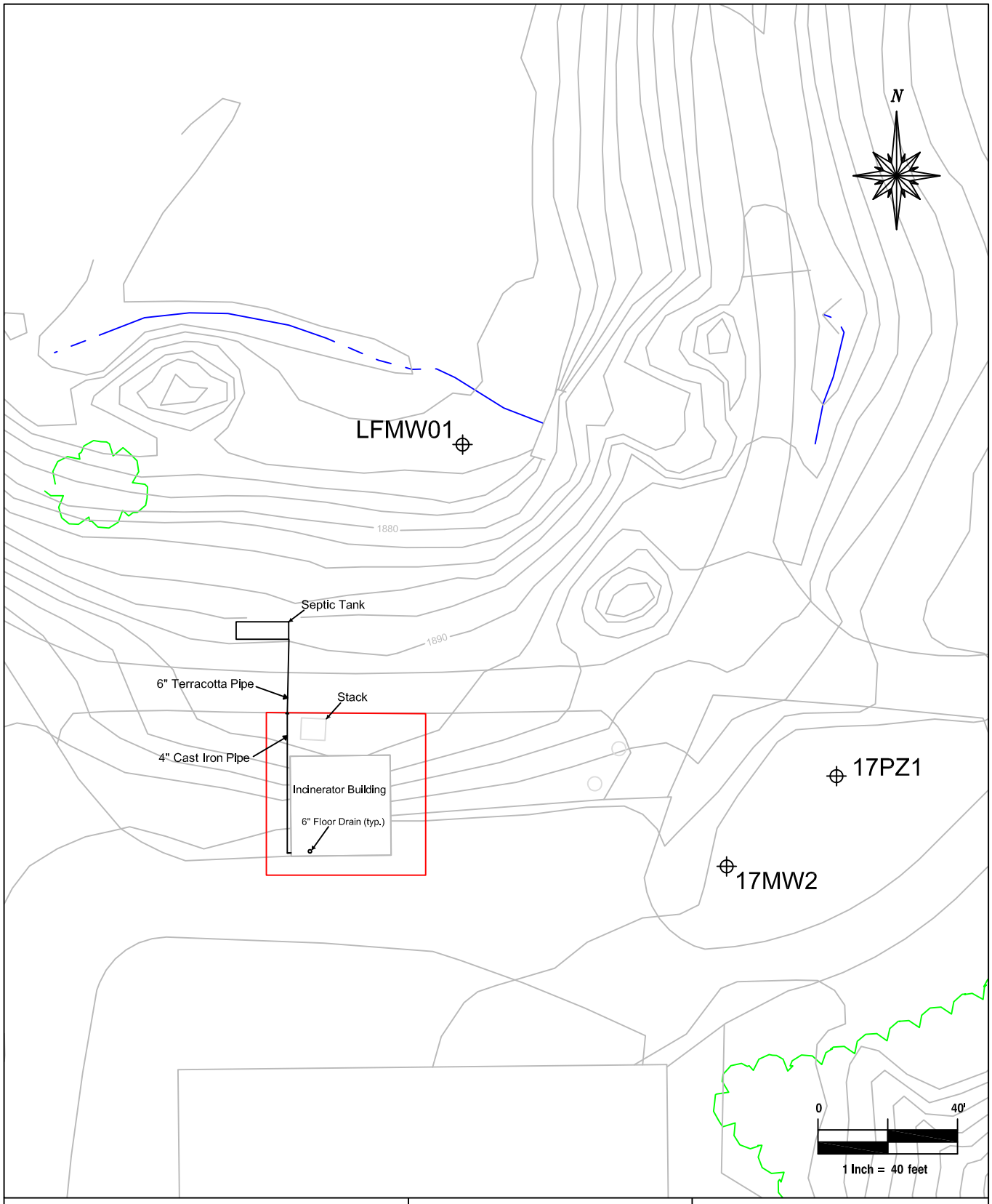
SSP Report for SSAs 18, 72, 30, 79, 60, and 77

SSA 77
AERIAL PHOTOGRAPH – 1986

FIGURE 8-5

SSP Report for SSAs 18, 72, 30, 79, 60, and 77

Date: *January 2010*	**Prepared by:** *HA/CLD*
Scale: *No Scale Implied*	**File Name:** *11657490*



Legend

- Monitoring Well Location
- Approximate SSA Boundary
- Topographic Contour
- Vegetation

FIGURE 8-6

Previous Investigation - SSA 77

Date: January 2010	URS Project #: 11657490
Prepared by: DBC	Approved by: JOS
Scale: 1 inch = 40 feet	File Name: Fig.8-6 Prev Invest

SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

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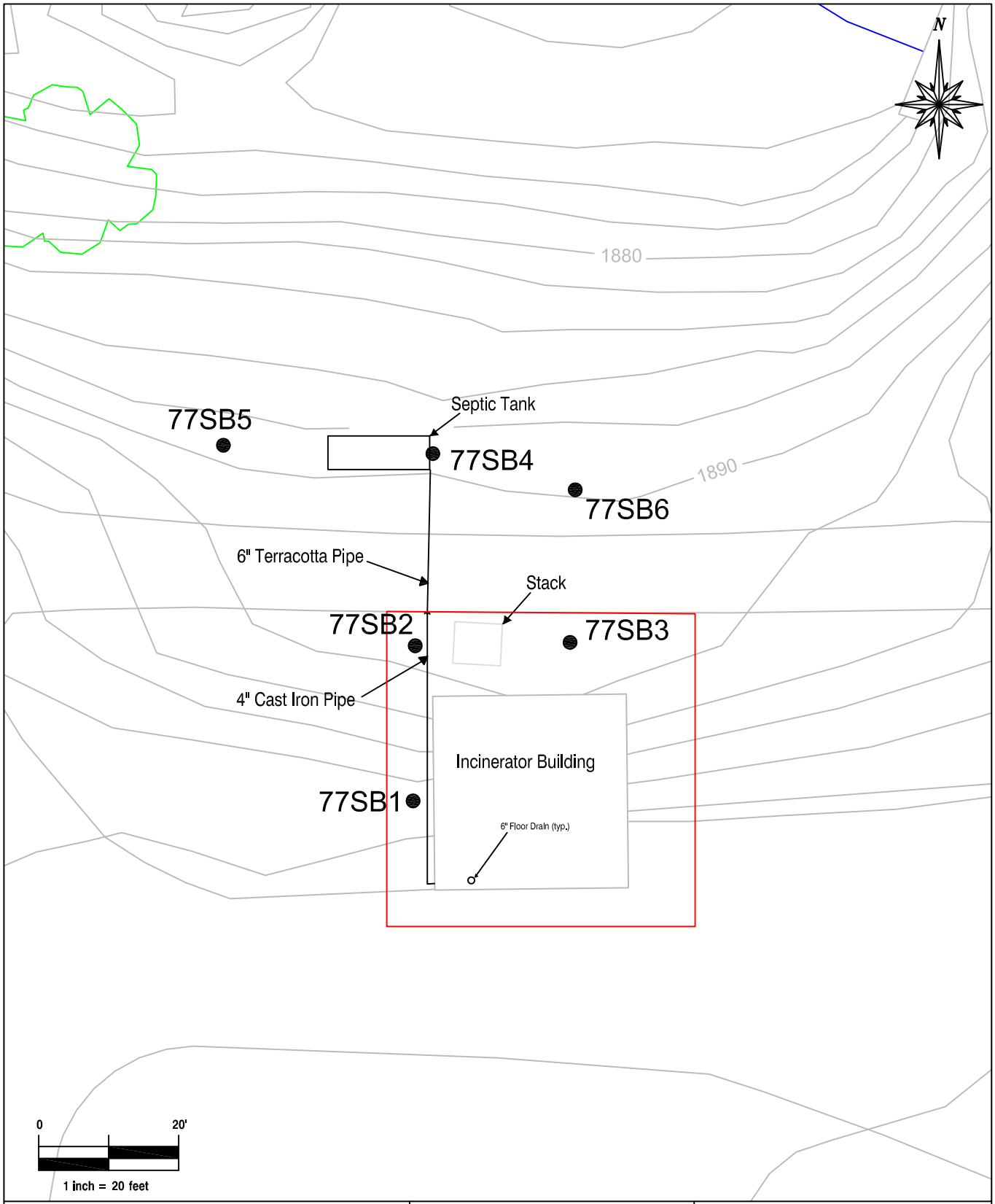
Richmond, Virginia 23230



Legend

- SSP Sample Location
- Approximate SSA Boundary
- Topographic Contour
- Fence

FIGURE 8-7

SSP Sample Locations - SSA 77

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: 1 inch = 20 feet	File Name: Fig.8-7 SSP Samp.

SSP for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant
Radford, Virginia

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Suite 201
Richmond, Virginia 23230

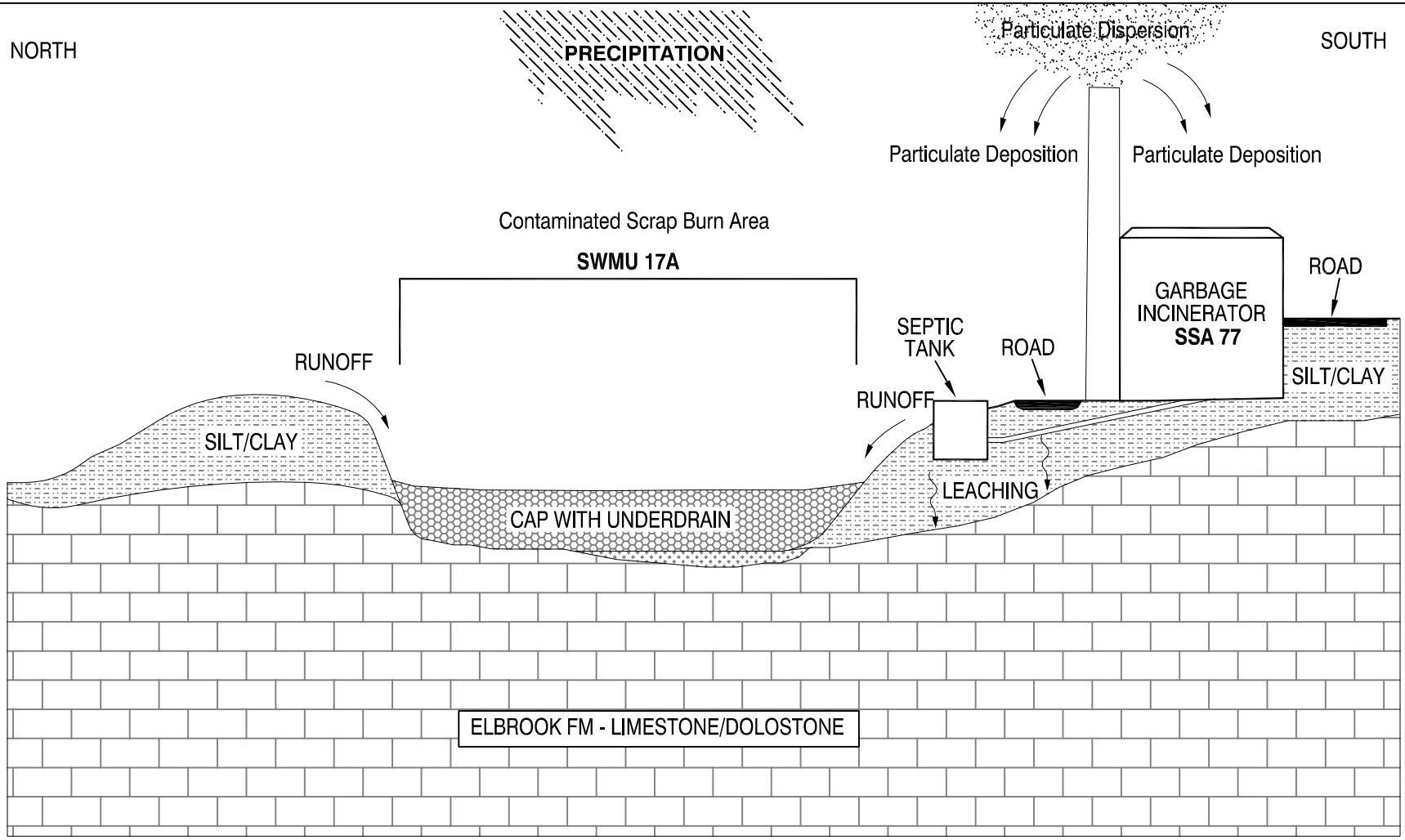

FIGURE 8-8
Conceptual Site Model - SSA 77

Date: January 2010	URS Project #: 11657490
Prepared by: MRF	Approved by: JOS
Scale: Not to Scale	File Name: Fig. 8-8

SSP Report for SSAs 18, 72, 30, 79, 60 and 77
Radford Army Ammunition Plant
Radford, Virginia

URS Group, Inc.
5540 Falmouth Street
Suite 201
Richmond, Virginia 23230

Table 8-1
Historical Groundwater Samples for SSA 77 Area
Modified from Former Lead Furnace Area - 2008 RFI/CMS Draft Report (Shaw Environmental, Inc.)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date	CAS #	Adjusted Tap Water RSL	MCL	LFMW01 8/21/07 Result	LFMW01 8/21/07 LQ,VQ	MDL	RL	17PZ1 8/21/07 Result	17PZ1 8/21/07 LQ,VQ	MDL	RL
VOCs (ug/L)											
Chloroform	67-66-3	0.19	80	<1	U	0.21	1	2.7		0.21	1
Tetrachloroethene	127-18-4	0.11	5	<1	U	0.25	1	<1	U	0.25	1
Toluene	108-88-3	230	1,000	<1	U	0.27	1	<1	U	0.27	1
Metals (ug/L)											
Aluminum	7429-90-5	3,700	--	9,320		79	200	296		79	200
Barium	7440-39-3	730	2,000	93	J, J	5	200	69.7	J, J	5	200
Beryllium	7440-41-7	7.3	4	1.9	J, B	1	4	1.2	J, B	1	4
Chromium [(1)]	7440-47-3	5,500	100	43		0.92	10	11		0.92	10
Cobalt	7440-48-4	1.1	--	4.6	J, J	1	50	<1	U	1	50
Copper	7440-50-8	150	1,300	6.9	J, J	1.2	25	<1.2	U	1.2	25
Iron	7439-89-6	2,600	--	10,100		15	300	<15	U	15	300
Lead [(2)]	7439-92-1	15	--	3.6	J, J	2.1	5	<2.1	U	2.1	5
Manganese	7439-96-5	88	--	78.3		1	15	5.3	J, J	1	15
Nickel	7440-02-0	73	--	30.5	J, J	1	40	6.4	J, J	1	40
Silver	7440-22-4	18	--	<0.77	U	0.77	10	<0.77	U	0.77	10
Vanadium	7440-62-2	26	--	20	J, J	1.1	50	<1.1	U	1.1	50
Zinc	7440-66-6	1,100	--	60.4		5	20	10	J, J	5	20
Dioxin/Furans (ng/L)											
Total 2,3,7,8-TCDD Equivalents	--	5.20E-04		7.89E-04				3.06E-06			
Misc. (ug/L)											
Perchlorate	14797-73-0	2.6	--	5.33		0.112	0.2	1.09		0.112	0.2

Table 8-1
Historical Groundwater Samples for SSA 77 Area
Modified from Former Lead Furnace Area - 2008 RFI/CMS Draft Report (Shaw Environmental, Inc.)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date	CAS #	Adjusted Tap Water RSL	MCL	17MW2 8/21/07		MDL	RL
				Result	LQ,VQ		
VOCs (ug/L)							
Chloroform	67-66-3	0.19	80	5.9		0.21	1
Tetrachloroethene	127-18-4	0.11	5	2.6		0.25	1
Toluene	108-88-3	230	1,000	<1	U	0.27	1
Metals (ug/L)							
Aluminum	7429-90-5	3,700	--	222		79	200
Barium	7440-39-3	730	2,000	54.4	J, J	5	200
Beryllium	7440-41-7	7.3	4	1.3	J, B	1	4
Chromium (1)	7440-47-3	5,500	100	29.5		0.92	10
Cobalt	7440-48-4	1.1	--	26.9	J, J	1	50
Copper	7440-50-8	150	1,300	7.9	J, J	1.2	25
Iron	7439-89-6	2,600	--	644		15	300
Lead (2)	7439-92-1	15	--	<2.1	U	2.1	5
Manganese	7439-96-5	88	--	12.8	J, J	1	15
Nickel	7440-02-0	73	--	18.1	J, J	1	40
Silver	7440-22-4	18	--	6.2	J, B	0.77	10
Vanadium	7440-62-2	26	--	1.5	J, J	1.1	50
Zinc	7440-66-6	1,100	--	11.9	J, J	5	20
Dioxin/Furans (ng/L)							
Total 2,3,7,8-TCDD Equivalents	--	5.20E-04		4.26E-06			
Misc. (ug/L)							
Perchlorate	14797-73-0	2.6	--	5.4		0.112	0.2

Notes:

USEPA = U.S. Environmental Protection Agency
CAS = Chemical Abstracts Service
MCL = Maximum Contaminant Level
ug/L = Microgram Per Liter
ng/L = Nanograms Per Liter
RSL = Regional Screening Level
TAL = Target Analyte List
VOC = Volatile Organic Compound
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier

= Concentration Exceeds Adj. Tap Water RSL

bold = Concentration Exceeds MCL

(1) = Chromium III RSL used
(2) = Lead Action Level used

USEPA Regional Screening Level (RSL) values from the October 2008 Regional Screening Table as presented in Work Plan Addendum 028 (URS 2009)
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Risk Criteria Available

Data Qualifiers:
B = Analyte found in associated blank as well as in the sample.
J = Analyte present. Reported value may not be accurate or precise.
U = The compound was analyzed for but not detected.

Table 8-2
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 77 - Garbage Incinerator
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	77SB1A 8/11/2009 0-1		MDL	RL	77SB1B 8/11/2009 4-6		MDL	RL	77SB2A 8/11/2009 0-1		MDL	RL	77SB2B 8/11/2009 4-5.5		MDL	RL	77SB3A 8/11/2009 0-1		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																											
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	27,000		180	1,000	31,000		1.8	10	37,000		1.8	10	34,000		1.8	10	26,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	1.2		0.037	0.2	0.28		0.037	0.2	0.22		0.037	0.2	0.11	J	0.037	0.2	0.69		0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	***4.6***		0.03	0.1	***2.4***		0.03	0.1	***1.1***		0.03	0.1	***0.44***		0.03	0.1	***3.5***		0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	100	,K,m	0.28	1	55	,K,m	0.28	1	83	,K,m	0.28	1	98	,K,m	0.28	1	89	,K,m	0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	1.3		0.035	1	1.2		0.035	1	3.3		0.035	1	2.1		0.035	1	2.2		0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	1.7	J	0.24	2	1.3	J	0.24	2	0.76	J	0.24	2	0.63	J	0.24	2	0.83	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	4,000	,K,m	8.7	50	1,500	,K,m	8.7	50	5,200	,K,m	8.7	50	4,100	,K,m	8.7	50	36,000	,K,m	8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	36		0.74	5	36		0.74	5	53		0.74	5	49		0.74	5	41		0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	***10***		0.44	2	9.4		0.44	2	***10***		0.44	2	9.2		0.44	2	***12***		0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	85		0.22	1	14		0.043	0.2	24		0.043	0.2	18		0.043	0.2	85		0.086	0.4
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	***33,000***		230	5,000	***33,000***		0.47	10	***39,000***		0.47	10	***41,000***		0.47	10	***30,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	100		0.25	1	12		0.049	0.2	17		0.049	0.2	1.3		0.049	0.2	89		0.099	0.4
Magnesium	7439-95-4	--	--	--	--	--	--	11,000		44	500	12,000		4.4	50	38,000		4.4	50	56,000		44	500	40,000		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	660		2.1	10	390		0.21	1	360		0.21	1	370		0.21	1	540		0.21	1
Mercury [1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	***1***		0.019	0.1	0.063		0.0093	0.05	0.04	J	0.0093	0.05	<0.05	U	0.0093	0.05	0.13		0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	24	,L,m	0.025	0.1	17	,L,m	0.025	0.1	37	,L,m	0.025	0.1	32	,L,m	0.025	0.1	36	,L,m	0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	1,800		6.8	50	1,800		6.8	50	6,400		6.8	50	8,600		6.8	50	3,400		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	0.48	,L,m	0.049	0.2	0.12	J,L,o	0.049	0.2	0.34	,L,m	0.049	0.2	0.4	,L,m	0.049	0.2	0.49	,L,m	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	0.61		0.011	0.1	0.087	J	0.011	0.1	0.12		0.011	0.1	0.11		0.011	0.1	0.67		0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	30	J	5.4	100	44	J	5.4	100	38	J	5.4	100	49	J	5.4	100	70	J	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	0.25		0.0061	0.1	0.22		0.0061	0.1	0.32		0.0061	0.1	0.28		0.0061	0.1	0.28		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	57	,L,m	0.065	0.2	57	,L,m	0.065	0.2	66	,L,m	0.065	0.2	70	,L,m	0.065	0.2	54	,L,m	0.065	0.2
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	170		7.9	50	41		0.79	5	61		0.79	5	60		0.79	5	99		0.79	5
Pesticides (mg/kg)																											
4,4'-DDE	72-55-9	--	1.4	c	5.1	c	1.2	0.0077	J,J,g	0.00031	0.021	<0.024	U	0.00035	0.024	<0.025	U	0.00036	0.025	<0.024	U	0.00035	0.024	0.0063	J	0.00035	0.024
4,4'-DDT	50-29-3	--	1.7	c*	7	c*	1.74	<0.021	U	0.00032	0.021	<0.024	U	0.00036	0.024	<0.025	U	0.00037	0.025	<0.024	U	0.00036	0.024	0.017	J,J,g	0.00037	0.024
alpha-Chlordane [2]	5103-71-9	--	1.6	c*	6.5	c*	0.66	<0.021	U	0.0005	0.021	<0.024	U	0.00055	0.024	<0.025	U	0.00058	0.025	<0.024	U	0.00055	0.024	0.0041	J	0.00056	0.024
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	0.009	J,J,g	0.00032	0.021	<0.024	U	0.00035	0.024	<0.025	U	0.00036	0.025	<0.024	U	0.00035	0.024	***0.0054***	J,J,g	0.00036	0.024
Endosulfan II	33213-65-9	--	37	n	370	n	194	0.001	J,J,g	0.00034	0.021	<0.024	U	0.00038	0.024	<0.025	U	0.00039	0.025	<0.024	U	0.00038	0.024	<0.024	U	0.00039	0.024
Endosulfan Sulfate [3]	1031-07-8	--	37	n	370	n	194	<0.021	U	0.00041	0.021	<0.024	U	0.00046	0.024	<0.025	U	0.00048	0.025	<0.024	U	0.00046	0.024	0.0022	J,J,g	0.00047	0.024
Endrin	72-20-8	--	1.8	n	18	n	4.6	0.0027	J	0.00034	0.021	<0.024	U	0.00038	0.024	<0.025	U	0.0004	0.025	<0.024	U	0.00038	0.024	0.0015	J,J,c	0.00039	0.024
Endrin Aldehyde [4]	7421-93-4	--	1.8	n	18	n	4.6	<0.021	U	0.0011	0.021	0.0022	J	0.0013	0.024	0.005	J	0.0013	0.025	0.0031	J	0.0013	0.024	0.0059	J,J,g	0.0013	0.024
gamma-Chlordane [2]	5103-74-2	--	1.6	c*	6.5	c*	0.66	<0.021	U	0.00036	0.021	<0.024	U	0.00039	0.024	0.0016	J,J,g	0.00041	0.025	<0.024	U	0.00039	0.024	0.0048	J,J,g	0.0004	0.024
Heptachlor Epoxide	1024-57-3	--	0.053	c*	0.19	c*	0.00158	<0.021	U	0.00027	0.021	<0.024	U	0.00029	0.024	0.00048	J,B,x	0.00031	0.025	<0.024	U	0.00029	0.024	<0.024	U	0.0003	0.024
PCBs (ug/kg)																											
Aroclor 1254 [5]	11097-69-1	--	110	n	740	c*	102	***150***	,L,m	7.4	41	<46	U	8.2	46	<48	U	8.5	48	<46	U	8.2	46	***140***		8.3	47
Aroclor 1260	11096-82-5	--	220	c	740	c	280	280	,L,m	6.3	84	<93	U	6.9	93	<97	U	7.2	97	<93	U	6.9	93	69	J	7.1	95
TCL VOCs (ug/kg)																											
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	<25	U	1.6	25	2.6	J	1.7	28	<29	U	1.8	29	<31	U	1.9	31	2.7	J	2.2	34
TCL SVOCs (ug/kg)																											
1,1'-Biphenyl	92-52-4	--	3.9E+05	ns	5.1E+06	ns	4.6E+05	1.3	J	1	210	<240	U	1.1	240	<250	U	1.2	250	<240	U	1.1	240	<240	U	1.2	240
2,4-Dinitrotoluene	121-14-2	--	1.6E+03	c*	5.5E+03	c	4.0E+00	***36***	J,K,m	24	210	<240	U	26	240	<250	U	27	250	<240	U	26	240	<240	U	27	240
2,6-Dinitrotoluene	606-20-2	--	6.1E+03	n	6.2E+04	n	6.8E+02	13	J	2.9	210	<240	U	3.2	240	<250	U	3.3	250	<240	U	3.2	240	<240	U	3.2	240
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	4.6	J	0.57	210	<240	U	0.63	240	<250	U	0.65	250	<240	U	0.63	240	1.9	J	0.64	240
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	2.5	J	0.98	21	<24	U	1.1	24	<25	U	1.1	25	<24	U	1.1	24	<24	U	1.1	24
Acenaphthylene [6]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	2.9	J	2.1	21	<24	U	2.3	24	<25	U	2.4	25	<24	U	2.3	24	<24	U	2.4	24
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	5.8	J	3.2	21	<24	U	3.5	24	<25	U	3.7	25	<24	U	3.5	24	<24	U	3.6	24
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	69	,J,i	1.4	21	1.9	J	1.6	24	<25	U	1.6	25	<24	U	1.6	24	14	J,J,i	1.6	24
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	54	,J,i	1.8	21	<24	U	1.9	24	<25	U	2	25	<24	U	1.9	24	13	J,J,i	2	24
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	110	,J,i	3.7	21	<24	U	4.1	24	<25	U	4.2	25	<24	U	4.1	24	27	,J,i	4.1	24
Benzo(g,h,i)perylene [6]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	35	J,J,i	1.2	84	<93	U	1.3	93	<97	U	1.3	97	<93	U	1.3	93	<95	U,UJ,i	1.3	95
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	58	,J,i	1.6	21	1.9	J	1.8	24	<25	U	1.9	25	<24	U	1.8	24	13	J,J,i	1.8	24
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	150	J,J,i	5.8	210	85	J,B,z	6.5	240	17	J,B,z	6.7	250	23	J,B,z	6.5	240	42	J,B,z	6.6	240
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	25	J,J,i	6.1	210	<240	U	6.8	240	<250	U	7.1	250	9.3	J	6.8	240	<240	U,UJ,i	6.9	240
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	67	,J,i	4.4	21	<24	U	4.8	24	<25	U	5	25	<24	U	4.8	24	15	J,J,i	4.9	24
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	230	,K,m	31	210	<240	U	34	240	<250	U	36	250	<240	U	34	240	<240	U	35	240
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	17	J,J,i	9.6	84	<93	U	11	93	<97	U	11	97	<93	U	11	93	<95	U,UJ,i	11	95
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	140	J,L,m	4.3	210	<240	U	4.8	240	<250	U	5	250	<240	U	4.8	240	12	J	4.9	240
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	73		0.95	21	1.4	J	1.1	24	<25	U	1.1	25	<24	U	1.1	24	16	J	1.1	24
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	34	J,J,i	4.6	84	<93	U	5.1	93	<97	U	5.3	97	<93	U	5.1	93	<95	U,UJ,i	5.2	95
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	3.3	J	2.6	21	<24	U	2.9	24	<25	U	3	25	<24	U	2.9	24	<24	U	2.9	24
Phenanthrene [6]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	40	,K,m	1.3	21	<24	U	1.5	24	<25	U	1.5	25	<24	U	1.5	24	9.4	J	1.5	24
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	120	,J,i	1.5	21	1.9	J	1.7	24	<25	U	1.7	25	<24	U	1.7	24	25	,J,i	1.7	24

Table 8-2
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 77 - Garbage Incinerator
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	77SB1A 8/11/2009 0-1		MDL	RL	77SB1B 8/11/2009 4-6		MDL	RL	77SB2A 8/11/2009 0-1		MDL	RL	77SB2B 8/11/2009 4-5.5		MDL	RL	77SB3A 8/11/2009 0-1		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
Dioxin/Furans (pg/g)																											
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	--	--	--	--	--	NT				NT				1,450		5.28	5.28	NT				337		5.8	5.8
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	--	--	--	--	--	NT				NT				652		5.28	5.28	NT				100		5.8	5.8
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	--	--	--	--	--	NT				NT				51.7		5.28	5.28	NT				8.72		5.8	5.8
1,2,3,4,7,8-HxCDD	39227-28-6	--	--	--	--	--	--	NT				NT				37		5.28	5.28	NT				7.18		5.8	5.8
1,2,3,4,7,8-HxCDF	70648-26-9	--	--	--	--	--	--	NT				NT				98		5.28	5.28	NT				18		5.8	5.8
1,2,3,6,7,8-HxCDD	57653-85-7	--	--	--	--	--	--	NT				NT				86.8		5.28	5.28	NT				17.1		5.8	5.8
1,2,3,6,7,8-HxCDF	57117-44-9	--	--	--	--	--	--	NT				NT				85.4		5.28	5.28	NT				13.9		5.8	5.8
1,2,3,7,8,9-HxCDD	19408-74-3	--	--	--	--	--	--	NT				NT				64.3		5.28	5.28	NT				19.5		5.8	5.8
1,2,3,7,8,9-HxCDF	72918-21-9	--	--	--	--	--	--	NT				NT				29.1	,J,d	5.28	5.28	NT				5.06	A,J,q	5.8	5.8
1,2,3,7,8-PeCDD	40321-76-4	--	--	--	--	--	--	NT				NT				23.3		5.28	5.28	NT				7.09		5.8	5.8
1,2,3,7,8-PeCDF	57117-41-6	--	--	--	--	--	--	NT				NT				35.2		5.28	5.28	NT				6.34		5.8	5.8
2,3,4,6,7,8-HxCDF	60851-34-5	--	--	--	--	--	--	NT				NT				103		5.28	5.28	NT				16		5.8	5.8
2,3,4,7,8-PeCDF	57117-31-4	--	--	--	--	--	--	NT				NT				66.6		5.28	5.28	NT				11.4		5.8	5.8
2,3,7,8-TCDD	1746-01-6	--	4.5E+00	c*	1.8E+01	c*	3.0E+00	NT				NT				***5.93***		1.06	1.06	NT				1.47	,B,z	1.16	1.16
2,3,7,8-TCDF	51207-31-9	--	--	--	--	--	--	NT				NT				33.8	,L,m	1.06	1.06	NT				7.12		1.16	1.16
OCDD	3268-87-9	--	--	--	--	--	--	NT				NT				12,100	E,J,q	10.6	10.6	NT				3,110		11.6	11.6
OCDF	39001-02-0	--	--	--	--	--	--	NT				NT				928		10.6	10.6	NT				172		11.6	11.6
Total HpCDDs	37871-00-4	--	--	--	--	--	--	NT				NT				2,800		5.28	5.28	NT				622		5.8	5.8
Total HpCDFs	38998-75-3	--	--	--	--	--	--	NT				NT				1,240		5.28	5.28	NT				228		5.8	5.8
Total HxCDDs	34465-46-8	--	--	--	--	--	--	NT				NT				879		5.28	5.28	NT				163		5.8	5.8
Total HxCDFs	55684-94-1	--	--	--	--	--	--	NT				NT				1,010		5.28	5.28	NT				178		5.8	5.8
Total PeCDDs	36088-22-9	--	--	--	--	--	--	NT				NT				323		5.28	5.28	NT				58.8		5.8	5.8
Total PeCDFs	30402-15-4	--	--	--	--	--	--	NT				NT				657		5.28	5.28	NT				110		5.8	5.8
Total TCDDs	41903-57-5	--	--	--	--	--	--	NT				NT				93.9		1.06	1.06	NT				16.7	,J,f	1.16	1.16
Total TCDFs	55722-27-5	--	--	--	--	--	--	NT				NT				449		1.06	1.06	NT				80.5		1.16	1.16
WHO-2005 TEQ (ND=0)	--	--	--	--	--	--	--	NT				NT				129		0	0	NT				28		0	0
WHO-2005 TEQ (ND=½)	--	--	--	--	--	--	--	NT				NT				129		0	0	NT				28		0	0
Cyanide (mg/kg)																											
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	0.15	J	0.083	0.38	<0.42	U	0.093	0.42	<0.43	U	0.096	0.43	<0.42	U	0.093	0.42	<0.42	U	0.094	0.42
Total Organic Carbon, TOC (%)																											
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				0.29		0.0062	0.2	0.065	J	0.0062	0.2	NT			
Percent Solids (%)																											
Percent Solids	--	--	--	--	--	--	--	80		0.1	0.1	72		0.1	0.1	69		0.1	0.1	72		0.1	0.1	71		0.1	0.1

Table 8-2
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 77 - Garbage Incinerator
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	77SB3A-DUP (DUP-2) 8/11/2009 0-1		MDL	RL	77SB3B 8/11/2009 4-5		MDL	RL	77SB4B 8/11/2009 6-8		MDL	RL
								Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals (mg/kg)																			
Aluminum	7429-90-5	40,041	7,700	n	99,000	nm	1,100,000	NT				27,000		1.8	10	40,000		1.8	10
Antimony	7440-36-0	--	3.1	n	41	n	13.2	NT				0.15	J	0.037	0.2	0.35		0.037	0.2
Arsenic	7440-38-2	15.8	0.39	c*	1.6	c	0.026	NT				***1.9***		0.03	0.1	***1.7***		0.03	0.1
Barium	7440-39-3	209	1,500	n	19,000	nm	6,000	NT				73	,K,m	0.28	1	61	,K,m	0.28	1
Beryllium	7440-41-7	1.02	16	n	200	n	1,160	NT				1.4		0.035	1	2.1		0.035	1
Cadmium	7440-43-9	0.69	7	n	80	n	--	NT				0.64	J	0.24	2	0.82	J	0.24	2
Calcium	7440-70-2	--	--	--	--	--	--	NT				59,000	,K,m	87	500	2,400	,K,m	8.7	50
Chromium	7440-47-3	65.3	280	c	1,400	c	--	NT				47		0.74	5	47		0.74	5
Cobalt	7440-48-4	72.3	2.3	n	30	n	9.8	NT				8.3		0.44	2	9.1		0.44	2
Copper	7440-50-8	53.5	310	n	4,100	n	1,020	NT				23		0.043	0.2	25		0.043	0.2
Iron	7439-89-6	50,962	5,500	n	72,000	nm	12,800	NT				***32,000***		0.47	10	***38,000***		0.47	10
Lead	7439-92-1	26.8	400	nL	800	nL	--	NT				3.1		0.049	0.2	6.4		0.049	0.2
Magnesium	7439-95-4	--	--	--	--	--	--	NT				61,000		44	500	34,000		4.4	50
Manganese	7439-96-5	2,543	180	n	2,300	n	1,140	NT				350		0.21	1	310		0.21	1
Mercury [1]	7439-97-6	0.13	2.3	ns	31	ns	0.6	NT				<0.05	U	0.0093	0.05	0.033	J	0.0093	0.05
Nickel	7440-02-0	62.8	150	n	2,000	n	960	NT				32	,L,m	0.025	0.1	28	,L,m	0.025	0.1
Potassium	7440-09-7	--	--	--	--	--	--	NT				5,700		6.8	50	4,800		6.8	50
Selenium	7782-49-2	--	39	n	510	n	19	NT				0.2	,L,o	0.049	0.2	0.11	J,L,o	0.049	0.2
Silver	7440-22-4	--	39	n	510	n	32	NT				0.1		0.011	0.1	0.11		0.011	0.1
Sodium	7440-23-5	--	--	--	--	--	--	NT				100		5.4	100	45	J	5.4	100
Thallium	7440-28-0	2.11	0.51	n	6.6	n	3.4	NT				0.2		0.0061	0.1	0.28		0.0061	0.1
Vanadium	7440-62-2	108	55	n	720	n	5,200	NT				58	,L,m	0.065	0.2	68	,L,m	0.065	0.2
Zinc	7440-66-6	202	2,300	n	31,000	nm	13,600	NT				46		0.79	5	50		0.79	5
Pesticides (mg/kg)																			
4,4'-DDE	72-55-9	--	1.4	c	5.1	c	1.2	NT				<0.025	U	0.00036	0.025	<0.022	U	0.00033	0.022
4,4'-DDT	50-29-3	--	1.7	c*	7	c*	1.74	NT				<0.025	U	0.00038	0.025	<0.022	U	0.00034	0.022
alpha-Chlordane [2]	5103-71-9	--	1.6	c*	6.5	c*	0.66	NT				<0.025	U	0.00058	0.025	<0.022	U	0.00053	0.022
Dieldrin	60-57-1	--	0.03	c	0.11	c	0.0018	NT				<0.025	U	0.00037	0.025	<0.022	U	0.00033	0.022
Endosulfan II	33213-65-9	--	37	n	370	n	194	NT				<0.025	U	0.0004	0.025	<0.022	U	0.00036	0.022
Endosulfan Sulfate [3]	1031-07-8	--	37	n	370	n	194	NT				<0.025	U	0.00048	0.025	<0.022	U	0.00044	0.022
Endrin	72-20-8	--	1.8	n	18	n	4.6	NT				<0.025	U	0.0004	0.025	<0.022	U	0.00036	0.022
Endrin Aldehyde [4]	7421-93-4	--	1.8	n	18	n	4.6	NT				<0.025	U	0.0013	0.025	0.0043	J	0.0012	0.022
gamma-Chlordane [2]	5103-74-2	--	1.6	c*	6.5	c*	0.66	NT				<0.025	U	0.00041	0.025	<0.022	U	0.00038	0.022
Heptachlor Epoxide	1024-57-3	--	0.053	c*	0.19	c*	0.00158	NT				<0.025	U	0.00031	0.025	<0.022	U	0.00028	0.022
PCBs (ug/kg)																			
Aroclor 1254 [5]	11097-69-1	--	110	n	740	c*	102	NT				<48	U	8.6	48	<44	U	7.8	44
Aroclor 1260	11096-82-5	--	220	c	740	c	280	NT				<97	U	7.3	97	<89	U	6.6	89
TCL VOCs (ug/kg)																			
Methylene Chloride	75-09-2	--	1.1E+04	c	5.4E+04	c	2.4E+01	NT				2.5	J	2.3	36	<31	U	1.9	31
TCL SVOCs (ug/kg)																			
1,1'-Biphenyl	92-52-4	--	3.9E+05	ns	5.1E+06	ns	4.6E+05	NT				<250	U	1.2	250	<220	U	1.1	220
2,4-Dinitrotoluene	121-14-2	--	1.6E+03	c*	5.5E+03	c	4.0E+00	NT				<250	U	27	250	<220	U	25	220
2,6-Dinitrotoluene	606-20-2	--	6.1E+03	n	6.2E+04	n	6.8E+02	NT				<250	U	3.3	250	<220	U	3	220
2-Methylnaphthalene	91-57-6	--	3.1E+04	n	4.1E+05	ns	1.8E+04	NT				<250	U	0.66	250	<220	U	0.6	220
Acenaphthene	83-32-9	--	3.4E+05	n	3.3E+06	n	5.4E+05	NT				<25	U	1.1	25	<22	U	1	22
Acenaphthylene [6]	208-96-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	NT				<25	U	2.4	25	<22	U	2.2	22
Anthracene	120-12-7	--	1.7E+06	n	1.7E+07	nm	9.0E+06	NT				<25	U	3.7	25	<22	U	3.4	22
Benzo(a)anthracene	56-55-3	--	1.5E+02	c	2.1E+03	c	2.8E+02	NT				<25	U	1.6	25	<22	U	1.5	22
Benzo(a)pyrene	50-32-8	--	1.5E+01	c	2.1E+02	c	9.2E+01	NT				<25	U	2	25	<22	U	1.8	22
Benzo(b)fluoranthene	205-99-2	--	1.5E+02	c	2.1E+03	c	9.4E+02	NT				<25	U	4.2	25	<22	U	3.9	22
Benzo(g,h,i)perylene [6]	191-24-2	--	1.7E+05	n	1.7E+06	n	3.0E+06	NT				<97	U	1.4	97	<89	U	1.2	89
Benzo(k)fluoranthene	207-08-9	--	1.5E+03	c	2.1E+04	c	9.2E+03	NT				<25	U	1.9	25	<22	U	1.7	22
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.5E+04	c*	1.2E+05	c	3.2E+04	NT				26	J,B,z	6.8	250	26	J,B,z	6.1	220
Butyl Benzyl Phthalate	85-68-7	--	2.6E+05	c*	9.1E+05	c	1.3E+04	NT				11	J	7.1	250	7.9	J	6.5	220
Chrysene	218-01-9	--	1.5E+04	c	2.1E+05	c	2.8E+04	NT				<25	U	5.1	25	<22	U	4.6	22
Di-n-butyl Phthalate	84-74-2	--	6.1E+05	n	6.2E+06	n	2.2E+05	NT				<250	U	36	250	<220	U	33	220
Dibenz(a,h)anthracene	53-70-3	--	1.5E+01	c	2.1E+02	c	3.0E+02	NT				<97	U	11	97	<89	U	10	89
Diethyl Phthalate	84-66-2	--	4.9E+06	n	4.9E+07	nm	2.6E+05	NT				<250	U	5	250	<220	U	4.6	220
Fluoranthene	206-44-0	--	2.3E+05	n	2.2E+06	n	4.2E+06	NT				<25	U	1.1	25	<22	U	1	22
Indeno(1,2,3-cd)pyrene	193-39-5	--	1.5E+02	c	2.1E+03	c	3.2E+03	NT				<97	U	5.3	97	<89	U	4.8	89
Naphthalene	91-20-3	--	3.9E+03	c*	2.0E+04	c*	1.1E+01	NT				<25	U	3	25	<22	U	2.7	22
Phenanthrene [6]	85-01-8	--	1.7E+05	n	1.7E+06	n	3.0E+06	NT				<25	U	1.5	25	<22	U	1.4	22
Pyrene	129-00-0	--	1.7E+05	n	1.7E+06	n	3.0E+06	NT				<25	U	1.7	25	<22	U	1.6	22

Table 8-2
Summary of Detected Chemicals in Soil Analytical Samples
Site Screening Area 77 - Garbage Incinerator
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date / Sample Depth (ft bgs)	CAS #	Facility-Wide Background Point Estimate[A]	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	Soil to Groundwater Risk-based SSL (DAF20)	77SB3A-DUP (DUP-2) 8/11/2009 0-1 Result	LQ, VQ, r	MDL	RL	77SB3B 8/11/2009 4-5 Result	LQ, VQ, r	MDL	RL	77SB4B 8/11/2009 6-8 Result	LQ, VQ, r	MDL	RL
Dioxin/Furans (pg/g)																			
1,2,3,4,6,7,8-HpCDD	35822-46-9	--	--	--	--	--	--	348		11.4	11.4	NT				NT			
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	--	--	--	--	--	98.7		11.4	11.4	NT				NT			
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	--	--	--	--	--	7.76	A,J,q	11.4	11.4	NT				NT			
1,2,3,4,7,8-HxCDD	39227-28-6	--	--	--	--	--	--	7.43	A,J,q	11.4	11.4	NT				NT			
1,2,3,4,7,8-HxCDF	70648-26-9	--	--	--	--	--	--	16.6		11.4	11.4	NT				NT			
1,2,3,6,7,8-HxCDD	57653-85-7	--	--	--	--	--	--	17.6		11.4	11.4	NT				NT			
1,2,3,6,7,8-HxCDF	57117-44-9	--	--	--	--	--	--	14.4		11.4	11.4	NT				NT			
1,2,3,7,8,9-HxCDD	19408-74-3	--	--	--	--	--	--	19		11.4	11.4	NT				NT			
1,2,3,7,8,9-HxCDF	72918-21-9	--	--	--	--	--	--	4.93	A,J,q	11.4	11.4	NT				NT			
1,2,3,7,8-PeCDD	40321-76-4	--	--	--	--	--	--	8.08	A,J,q	11.4	11.4	NT				NT			
1,2,3,7,8-PeCDF	57117-41-6	--	--	--	--	--	--	6.1	A,J,q	11.4	11.4	NT				NT			
2,3,4,6,7,8-HxCDF	60851-34-5	--	--	--	--	--	--	14.8		11.4	11.4	NT				NT			
2,3,4,7,8-PeCDF	57117-31-4	--	--	--	--	--	--	11.3	A,J,q	11.4	11.4	NT				NT			
2,3,7,8-TCDD	1746-01-6	--	4.5E+00	c*	1.8E+01	c*	3.0E+00	1.52	A,B,z	2.29	2.29	NT				NT			
2,3,7,8-TCDF	51207-31-9	--	--	--	--	--	--	8.4		2.29	2.29	NT				NT			
OCDD	3268-87-9	--	--	--	--	--	--	2,820		22.9	22.9	NT				NT			
OCDF	39001-02-0	--	--	--	--	--	--	157		22.9	22.9	NT				NT			
Total HpCDDs	37871-00-4	--	--	--	--	--	--	656		11.4	11.4	NT				NT			
Total HpCDFs	38998-75-3	--	--	--	--	--	--	217		11.4	11.4	NT				NT			
Total HxCDDs	34465-46-8	--	--	--	--	--	--	175		11.4	11.4	NT				NT			
Total HxCDFs	55684-94-1	--	--	--	--	--	--	165		11.4	11.4	NT				NT			
Total PeCDDs	36088-22-9	--	--	--	--	--	--	65.1		11.4	11.4	NT				NT			
Total PeCDFs	30402-15-4	--	--	--	--	--	--	127		11.4	11.4	NT				NT			
Total TCDDs	41903-57-5	--	--	--	--	--	--	30	,J,f	2.29	2.29	NT				NT			
Total TCDFs	55722-27-5	--	--	--	--	--	--	114		2.29	2.29	NT				NT			
WHO-2005 TEQ (ND=0)	--	--	--	--	--	--	--	28.9		0	0	NT				NT			
WHO-2005 TEQ (ND=½)	--	--	--	--	--	--	--	28.9		0	0	NT				NT			
Cyanide (mg/kg)																			
Cyanide, Total	57-12-5	--	160	n	2,000	n	148	NT				<0.44	U	0.097	0.44	<0.4	U	0.088	0.4
Total Organic Carbon, TOC (%)																			
Carbon, Total Organic	--	--	--	--	--	--	--	NT				NT				NT			
Percent Solids (%)																			
Percent Solids	--	--	--	--	--	--	--	NT				69		0.1	0.1	76		0.1	0.1

Notes:
CAS = Chemical Abstracts Service
ft bgs = Feet Below Ground Surface
mg/kg = Milligram Per Kilogram
µg/kg = Microgram Per Kilogram
pg/g = Picogram Per Gram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
TEQ = Toxicity Equivalency Factor
NT = Not Tested
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
* = where: n SL < 100X c SL
** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat
-- = No Screening Value Available

[1] = Mercuric chloride soil RSLs value used
[2] = Chlordane soil RSLs used
[3] = Endosulfan soil RSLs used
[4] = Endrin soil RSLs used
[5] = Aroclor 1254 Unadjusted Soil Residential RSL used
[6] = Pyrene soil RSLs used

= Concentration Exceeds Adjusted Soil Residential RSL

= Concentration Exceeds Adjusted Soil Industrial RSL

underline = Concentration Exceeds Facility Background Point Estimate

bold italic = Concentration Exceeds Soil-to-Groundwater Risk-based SSL (DAF20)

Data Qualifiers:
Laboratory Qualifiers
- A Amount detected is less than the Lower Calibration Limit.
- B Analyte found in associated blank as well as in the sample.
- E Concentration exceeded the upper level of the calibration range of the instrument for that specific analysis.
- J Analyte present. Reported value may not be accurate or precise.
- U The compound was analyzed for but not detected. The reporting limit will be adjusted to reflect any dilution, and for soil, the percent moisture.

Validation Qualifiers
- B Not detected substantially above the level reported in laboratory or field blanks.
- J Analyte present. Reported value may not be accurate or precise.
- K Analyte present. Reported value may be biased high. Actual value is expected to be lower.
- L Analyte present. Reported value may be biased low. Actual value is expected to be higher.
- U Not detected. The associated number indicates the approximate sample concentration necessary to be detected.
- UJ Not detected. Quantitation limit may be inaccurate or imprecise.

Reason Codes
GC/MS Organics
- d MS/MSD or LCS/LCSD RPD imprecision
- f Field duplicate imprecision
- i LCS recovery failure
- m Internal standard failure
- q Concentration exceeded the linear range
- z Method blank and/or storage blank contamination

Inorganics and Conventionals
- o Calibration blank contamination
- m MS/MSD recovery failure

GC and HPLC Organics
- c Calibration failure; poor or unstable (%D) response
- g Dual column confirmation imprecision
- m Air bubble (> 6 mm or ¼ inch) in VOC vials
- x Trip blank contamination

Table 8-3
SSA 77 Dioxin/Furan 2,3,7,8-TCDD Equivalents Calculation - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	Adjusted Soil RSL (Residential)	Key	Adjusted Soil RSL (Industrial)	Key	TEF	77SB2A 8/11/2009 0-1		77SB3A DUP AVG 8/11/2009 0-1	
							Result	LQ, VQ, r	Result	LQ, VQ, r
Dioxin/Furans (pg/g)										
1,2,3,4,6,7,8,9-OCDD (OCDD)	3268-87-9	--	--	--	--	0.0003	12,100	E,J,q	2,965	
1,2,3,4,6,7,8,9-OCDF (OCDF)	39001-02-0	--	--	--	--	0.0003	928		164.5	
1,2,3,4,6,7,8-HpCDD	35822-39-4	--	--	--	--	0.01	1,450		342.5	
1,2,3,4,6,7,8-HpCDF	67562-39-4	--	--	--	--	0.01	652		99.35	
1,2,3,4,7,8,9-HpCDF	55673-89-7	--	--	--	--	0.01	51.7		8.24	A,J,q
1,2,3,4,7,8-HxCDD	39227-28-6	--	--	--	--	0.1	37		7.305	A,J,q
1,2,3,4,7,8-HxCDF	70648-26-9	--	--	--	--	0.1	98		17.3	
1,2,3,6,7,8-HxCDD	57653-85-7	--	--	--	--	0.1	86.8		17.35	
1,2,3,6,7,8-HxCDF	57117-44-9	--	--	--	--	0.1	85.4		14.15	
1,2,3,7,8,9-HxCDD	19408-74-3	--	--	--	--	0.1	64.3		19.25	
1,2,3,7,8,9-HxCDF	72918-21-9	--	--	--	--	0.1	29.1	,J,d	4.995	A,J,q
1,2,3,7,8-PeCDD	40321-76-4	--	--	--	--	1	23.3		7.585	A,J,q
1,2,3,7,8-PeCDF	57117-41-6	--	--	--	--	0.03	35.2		6.22	A,J,q
2,3,4,6,7,8-HxCDF	60851-34-5	--	--	--	--	0.1	103		15.4	
2,3,4,7,8-PeCDF	57117-31-4	--	--	--	--	0.3	66.6		11.35	A,J,q
2,3,7,8-TCDD	1746-01-6	4.5	c*	18	c*	1	5.93		1.495	A,B,z
2,3,7,8-TCDF	51207-31-9	--	--	--	--	0.1	33.8	,L,m	7.76	
Total 2,3,7,8-TCDD Equivalents	--	4.5E+00	c*	1.8E+01	c*		129.451		28.462	

Notes:

CAS = Chemical Abstracts Service
pg/g = Picogram per gram
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
TEF = Toxicity Equivalency Factor (WHO 2005)

Total 2,3,7,8-TCDD Equivalents are calculated by summing the detected concentration times the TEF for each chemical. Non-detects, R-flagged data, and B-flagged data are excluded from summed total.

Key per April 2009 EPA Regional RSL Table:
c = cancer
n = noncancer
c* = cancer where n SL < 100X c SL
c** = cancer where n SL < 10X c SL
m = concentration may exceed ceiling
s = concentration may exceed Csat

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Value Available

Data Qualifiers:
A = Amount detected is less than the Lower Calibration Limit.
B = Not detected substantially above the level reported in laboratory or field blanks.
E = Concentration exceeded the upper level of the calibration range of the instrument for the analysis.
J = Analyte present. Reported value may not be accurate or precise.
L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
d = MS/MSD or LCS/LCSD RPD imprecision.
m = MS/MSD recovery failure.
q = Concentration exceeded the linear range.
z = Field and/or equipment blank contamination.

= Concentration Exceeds Adjusted Soil Residential RSL

= Concentration Exceeds Adjusted Soil Industrial RSL

Table 8-4
SSA 77 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil		**TAL Metals**														
	7429-90-5	Aluminum	26,000	37,000	mg/kg	77SB2A	3/3	1.8 - 180	37,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.22	1.2	mg/kg	77SB1A	3/3	0.037 - 0.037	1.2	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	1.1	4.6	mg/kg	77SB1A	3/3	0.03 - 0.03	4.6	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	83	100	mg/kg	77SB1A	3/3	0.28 - 0.28	100	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	1.3	3.3	mg/kg	77SB2A	3/3	0.035 - 0.035	3.3	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.76	1.7	mg/kg	77SB1A	3/3	0.24 - 0.24	1.7	7	n	80	n	IND	N	BSL
	7440-70-2	Calcium	4,000	36,000	mg/kg	77SB3A DUP AVG*	3/3	8.7 - 8.7	36,000	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	36	53	mg/kg	77SB2A	3/3	0.74 - 0.74	53	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	10	12	mg/kg	77SB3A DUP AVG*	3/3	0.44 - 0.44	12	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	24	85	mg/kg	77SB1A	3/3	0.043 - 0.22	85	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	30,000	39,000	mg/kg	77SB2A	3/3	0.47 - 230	39,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	17	100	mg/kg	77SB1A	3/3	0.049 - 0.25	100	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	11,000	40,000	mg/kg	77SB3A DUP AVG*	3/3	4.4 - 44	40,000	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	360	660	mg/kg	77SB1A	3/3	0.21 - 2.1	660	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.04	1	mg/kg	77SB1A	3/3	0.0093 - 0.019	1	2.3	ns	31	ns	IND	N	BSL
	7440-02-0	Nickel	24	37	mg/kg	77SB2A	3/3	0.025 - 0.025	37	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	1800	6,400	mg/kg	77SB2A	3/3	6.8 - 6.8	6,400	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.34	0.49	mg/kg	77SB3A DUP AVG*	3/3	0.049 - 0.049	0.49	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.12	0.67	mg/kg	77SB3A DUP AVG*	3/3	0.011 - 0.011	0.67	39	n	510	n	IND	N	BSL
	7440-23-5	Sodium	30	70	mg/kg	77SB3A DUP AVG*	3/3	5.4 - 5.4	70	--	--	625,700	--	RDA	N	BSL
	7440-28-0	Thallium	0.25	0.32	mg/kg	77SB2A	3/3	0.0061 - 0.0061	0.32	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	54	66	mg/kg	77SB2A	3/3	0.065 - 0.065	66	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	61	170	mg/kg	77SB1A	3/3	0.79 - 7.9	170	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	72-55-9	4,4'-DDE	0.0063	0.0077	mg/kg	77SB1A	2/3	0.00031 - 0.00036	7.7E-03	1.4E+00	c	5.1E+00	c	IND	N	BSL
	50-29-3	4,4'-DDT	0.017	0.017	mg/kg	77SB3A DUP AVG*	1/3	0.00032 - 0.00037	1.7E-02	1.7E+00	c*	7.0E+00	c*	IND	N	BSL
	5103-71-9	alpha-Chlordane [2]	0.0041	0.0041	mg/kg	77SB3A DUP AVG*	1/3	0.0005 - 0.00058	4.1E-03	1.6E+00	c*	6.5E+00	c*	IND	N	BSL
	60-57-1	Dieldrin	0.0054	0.009	mg/kg	77SB1A	2/3	0.00032 - 0.00036	9.0E-03	3.0E-02	c	1.1E-01	c	IND	N	BSL
	33213-65-9	Endosulfan II [3]	0.001	0.001	mg/kg	77SB1A	1/3	0.00034 - 0.00039	1.0E-03	3.7E+01	n	3.7E+02	n	IND	N	BSL
	1031-07-8	Endosulfan Sulfate [3]	0.0022	0.0022	mg/kg	77SB3A DUP AVG*	1/3	0.00041 - 0.00048	2.2E-03	3.7E+01	n	3.7E+02	n	IND	N	BSL
	72-20-8	Endrin	0.0015	0.0027	mg/kg	77SB1A	2/3	0.00034 - 0.0004	2.7E-03	1.8E+00	n	1.8E+01	n	IND	N	BSL
	7421-93-4	Endrin Aldehyde [4]	0.005	0.0059	mg/kg	77SB3A DUP AVG*	2/3	0.0011 - 0.0013	5.9E-03	1.8E+00	n	1.8E+01	n	IND	N	BSL
	5103-74-2	gamma-Chlordane [2]	0.0016	0.0048	mg/kg	77SB3A DUP AVG*	2/3	0.00036 - 0.00041	4.8E-03	1.6E+00	c*	6.5E+00	c*	IND	N	BSL
	1024-57-3	Heptachlor Epoxide	0.00048	0.00048	mg/kg	77SB2A	1/3	0.00027 - 0.00031	4.8E-04	5.3E-02	c*	1.9E-01	c*	IND	N	BSL
		PCBs														
	11097-69-1	Aroclor 1254 [5]	0.14	0.15	mg/kg	77SB1A	2/3	0.0074 - 0.0085	1.5E-01	1.1E-01	n	7.4E-01	c*	IND	Y	**ARES**
	11096-82-5	Aroclor 1260	0.069	0.28	mg/kg	77SB1A	2/3	0.0063 - 0.0072	2.8E-01	2.2E-01	c	7.4E-01	c	IND	Y	**ARES**
		TCL VOCs														
	75-09-2	Methylene Chloride	0.0027	0.0027	mg/kg	77SB3A DUP AVG*	1/3	0.0016 - 0.0022	2.7E-03	1.1E+01	c	5.4E+01	c	IND	N	BSL
		TCL SVOCs														
	92-52-4	1,1'-Biphenyl	1.3E-03	1.3E-03	mg/kg	77SB1A	1/3	0.001 - 0.0012	1.3E-03	3.9E+02	ns	5.1E+03	ns	IND	N	BSL
	121-14-2	2,4-Dinitrotoluene	3.6E-02	3.6E-02	mg/kg	77SB1A	1/3	0.024 - 0.027	3.6E-02	1.6E+00	c*	5.5E+00	c	IND	N	BSL
	606-20-2	2,6-Dinitrotoluene	1.3E-02	1.3E-02	mg/kg	77SB1A	1/3	0.0029 - 0.0033	1.3E-02	6.1E+00	n	6.2E+01	n	IND	N	BSL
	91-57-6	2-Methylnaphthalene	1.9E-03	4.6E-03	mg/kg	77SB1A	2/3	0.00057 - 0.00065	4.6E-03	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	83-32-9	Acenaphthene	2.5E-03	2.5E-03	mg/kg	77SB1A	1/3	0.00098 - 0.0011	2.5E-03	3.4E+02	n	3.3E+03	n	IND	N	BSL
	208-96-8	Acenaphthylene [6]	2.9E-03	2.9E-03	mg/kg	77SB1A	1/3	0.0021 - 0.0024	2.9E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	120-12-7	Anthracene	5.8E-03	5.8E-03	mg/kg	77SB1A	1/3	0.0032 - 0.0037	5.8E-03	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	56-55-3	Benzo(a)anthracene	1.4E-02	6.9E-02	mg/kg	77SB1A	2/3	0.0014 - 0.0016	6.9E-02	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	1.3E-02	5.4E-02	mg/kg	77SB1A	2/3	0.0018 - 0.002	5.4E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	205-99-2	Benzo(b)fluoranthene	2.7E-02	1.1E-01	mg/kg	77SB1A	2/3	0.0037 - 0.0042	1.1E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [6]	3.5E-02	3.5E-02	mg/kg	77SB1A	1/3	0.0012 - 0.0013	3.5E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	1.3E-02	5.8E-02	mg/kg	77SB1A	2/3	0.0016 - 0.0019	5.8E-02	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	1.7E-02	1.5E-01	mg/kg	77SB1A	3/3	0.0058 - 0.0067	1.5E-01	3.5E+04	c*	1.2E+05	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	2.5E-02	2.5E-02	mg/kg	77SB1A	1/3	0.0061 - 0.0071	2.5E-02	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	1.5E-02	6.7E-02	mg/kg	77SB1A	2/3	0.0044 - 0.005	6.7E-02	1.5E+01	c	2.1E+02	c	IND	N	BSL
	84-74-2	Di-n-butyl Phthalate	2.3E-01	2.3E-01	mg/kg	77SB1A	1/3	0.031 - 0.036	2.3E-01	6.1E+02	n	6.2E+03	n	IND	N	BSL
	53-70-3	Dibenz(a,h)anthracene	1.7E-02	1.7E-02	mg/kg	77SB1A	1/3	0.0096 - 0.011	1.7E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	84-66-2	Diethyl Phthalate	1.2E-02	1.4E-01	mg/kg	77SB1A	2/3	0.0043 - 0.005	1.4E-01	4.9E+03	n	4.9E+04	nm	IND	N	BSL
	206-44-0	Fluoranthene	1.6E-02	7.3E-02	mg/kg	77SB1A	2/3	0.00095 - 0.0011	7.3E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	3.4E-02	3.4E-02	mg/kg	77SB1A	1/3	0.0046 - 0.0053	3.4E-02	1.5E-01	c	2.1E+00	c	IND	N	BSL
	91-20-3	Naphthalene	3.3E-03	3.3E-03	mg/kg	77SB1A	1/3	0.0026 - 0.003	3.3E-03	3.9E+00	c*	2.0E+01	c*	IND	N	BSL
	85-01-8	Phenanthrene [6]	9.4E-03	4.0E-02	mg/kg	77SB1A	2/3	0.0013 - 0.0015	4.0E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	2.5E-02	1.2E-01	mg/kg	77SB1A	2/3	0.0015 - 0.0017	1.2E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL

Table 8-4
SSA 77 COPC Determination - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Dioxin/Furans												
	--	2,3,7,8-TCDD TEQ	2.8E-05	1.3E-04	mg/kg	77SB2A	2/2	0.00000106 - 0.00000229	1.3E-04	4.5E-06 c*	1.8E-05 c*	IND	Y	***ARES/IND***
		Cyanide												
	57-12-5	Cyanide, Total	0.15	0.15	mg/kg	77SB1A	1/3	0.083 - 0.096	0.15	160 n	2,000 n	IND	N	BSL

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
c* = where: n SL < 100X c SL
c** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat

-- = Not Available

[1] = Mercuric chloride soil RSLs value used
[2] = Chlordane soil RSLs used
[3] = Endosulfan soil RSLs used
[4] = Endrin soil RSLs used
[5] = Aroclor 1254 Noncancer Soil Residential RSL used
[6] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 8-5
SSA 77 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)		Potential ARAR/TBC Value		Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Total Soil		**TAL Metals**														
	7429-90-5	Aluminum	26,000	40,000	mg/kg	77SB4B	7/7	1.8 - 180	40,000	7,700	n	99,000	nm	IND	Y	**ARES**
	7440-36-0	Antimony	0.11	1.2	mg/kg	77SB1A	7/7	0.037 - 0.037	1.2	3.1	n	41	n	IND	N	BSL
	7440-38-2	Arsenic	0.44	4.6	mg/kg	77SB1A	7/7	0.03 - 0.03	4.6	0.39	c*	1.6	c	IND	Y	***ARES/IND***
	7440-39-3	Barium	55	100	mg/kg	77SB1A	7/7	0.28 - 0.28	100	1,500	n	19,000	nm	IND	N	BSL
	7440-41-7	Beryllium	1.2	3.3	mg/kg	77SB2A	7/7	0.035 - 0.035	3.3	16	n	200	n	IND	N	BSL
	7440-43-9	Cadmium	0.63	1.7	mg/kg	77SB1A	7/7	0.24 - 0.24	1.7	7	n	80	n	IND	N	BSL
	7440-70-2	Calcium	1,500	59,000	mg/kg	77SB3B	7/7	8.7 - 87	59,000	--	--	1,095,000	--	RDA	N	BSL
	7440-47-3	Chromium	36	53	mg/kg	77SB2A	7/7	0.74 - 0.74	53	280	c	1,400	c	IND	N	BSL
	7440-48-4	Cobalt	8.3	12	mg/kg	77SB3A DUP AVG*	7/7	0.44 - 0.44	12	2.3	n	30	n	IND	Y	**ARES**
	7440-50-8	Copper	14	85	mg/kg	77SB1A	7/7	0.043 - 0.22	85	310	n	4,100	n	IND	N	BSL
	7439-89-6	Iron	30,000	41,000	mg/kg	77SB2B	7/7	0.47 - 230	41,000	5,500	n	72,000	nm	IND	Y	**ARES**
	7439-92-1	Lead	1.3	100	mg/kg	77SB1A	7/7	0.049 - 0.25	100	400	nL	800	nL	IND	N	BSL
	7439-95-4	Magnesium	11,000	61,000	mg/kg	77SB3B	7/7	4.4 - 44	61,000	--	--	156,400	--	RDA	N	BSL
	7439-96-5	Manganese	310	660	mg/kg	77SB1A	7/7	0.21 - 2.1	660	180	n	2,300	n	IND	Y	**ARES**
	7439-97-6	Mercury [1]	0.033	1	mg/kg	77SB1A	5/7	0.0093 - 0.019	1	2.3	ns	31	ns	IND	N	BSL
	7440-02-0	Nickel	17	37	mg/kg	77SB2A	7/7	0.025 - 0.025	37	150	n	2,000	n	IND	N	BSL
	7440-09-7	Potassium	1800	8,600	mg/kg	77SB2B	7/7	6.8 - 6.8	8,600	--	--	2,607,000	--	RDA	N	BSL
	7782-49-2	Selenium	0.11	0.49	mg/kg	77SB3A DUP AVG*	7/7	0.049 - 0.049	0.49	39	n	510	n	IND	N	BSL
	7440-22-4	Silver	0.087	0.67	mg/kg	77SB3A DUP AVG*	7/7	0.011 - 0.011	0.67	39	n	510	n	IND	N	BSL
	7440-23-5	Sodium	30	100	mg/kg	77SB3B	7/7	5.4 - 5.4	100	--	--	625,700	--	RDA	N	BSL
	7440-28-0	Thallium	0.2	0.32	mg/kg	77SB2A	7/7	0.0061 - 0.0061	0.32	0.51	n	6.6	n	IND	N	BSL
	7440-62-2	Vanadium	54	70	mg/kg	77SB2B	7/7	0.065 - 0.065	70	55	n	720	n	IND	Y	**ARES**
	7440-66-6	Zinc	41	170	mg/kg	77SB1A	7/7	0.79 - 7.9	170	2,300	n	31,000	nm	IND	N	BSL
		Pesticides														
	72-55-9	4,4'-DDE	0.0063	0.0077	mg/kg	77SB1A	2/7	0.00031 - 0.00036	7.7E-03	1.4E+00	c	5.1E+00	c	IND	N	BSL
	50-29-3	4,4'-DDT	0.017	0.017	mg/kg	77SB3A DUP AVG*	1/7	0.00032 - 0.00038	1.7E-02	1.7E+00	c*	7.0E+00	c*	IND	N	BSL
	5103-71-9	alpha-Chlordane [2]	0.0041	0.0041	mg/kg	77SB3A DUP AVG*	1/7	0.0005 - 0.00058	4.1E-03	1.6E+00	c*	6.5E+00	c*	IND	N	BSL
	60-57-1	Dieldrin	0.0054	0.009	mg/kg	77SB1A	2/7	0.00032 - 0.00037	9.0E-03	3.0E-02	c	1.1E-01	c	IND	N	BSL
	33213-65-9	Endosulfan II [3]	0.001	0.001	mg/kg	77SB1A	1/7	0.00034 - 0.0004	1.0E-03	3.7E+01	n	3.7E+02	n	IND	N	BSL
	1031-07-8	Endosulfan Sulfate [3]	0.0022	0.0022	mg/kg	77SB3A DUP AVG*	1/7	0.00041 - 0.00048	2.2E-03	3.7E+01	n	3.7E+02	n	IND	N	BSL
	72-20-8	Endrin	0.0015	0.0027	mg/kg	77SB1A	2/7	0.00034 - 0.0004	2.7E-03	1.8E+00	n	1.8E+01	n	IND	N	BSL
	7421-93-4	Endrin Aldehyde [4]	0.0022	0.0059	mg/kg	77SB3A DUP AVG*	5/7	0.0011 - 0.0013	5.9E-03	1.8E+00	n	1.8E+01	n	IND	N	BSL
	5103-74-2	gamma-Chlordane [2]	0.0016	0.0048	mg/kg	77SB3A DUP AVG*	2/7	0.00036 - 0.00041	4.8E-03	1.6E+00	c*	6.5E+00	c*	IND	N	BSL
	1024-57-3	Heptachlor Epoxide	0.00048	0.00048	mg/kg	77SB2A	1/7	0.00027 - 0.00031	4.8E-04	5.3E-02	c*	1.9E-01	c*	IND	N	BSL
		PCBs														
	11097-69-1	Aroclor 1254 [5]	1.4E-01	1.5E-01	mg/kg	77SB1A	2/7	0.0074 - 0.0086	1.5E-01	1.1E-01	n	7.4E-01	c*	IND	Y	**ARES**
	11096-82-5	Aroclor 1260	6.9E-02	2.8E-01	mg/kg	77SB1A	2/7	0.0063 - 0.0073	2.8E-01	2.2E-01	c	7.4E-01	c	IND	Y	**ARES**
		TCL VOCs														
	75-09-2	Methylene Chloride	2.5E-03	2.7E-03	mg/kg	77SB3A DUP AVG*	3/7	0.0016 - 0.0023	2.7E-03	1.1E+01	c	5.4E+01	c	IND	N	BSL
		TCL SVOCs														
	92-52-4	1,1'-Biphenyl	1.3E-03	1.3E-03	mg/kg	77SB1A	1/7	0.001 - 0.0012	1.3E-03	3.9E+02	ns	5.1E+03	ns	IND	N	BSL
	121-14-2	2,4-Dinitrotoluene	3.6E-02	3.6E-02	mg/kg	77SB1A	1/7	0.024 - 0.027	3.6E-02	1.6E+00	c*	5.5E+00	c	IND	N	BSL
	606-20-2	2,6-Dinitrotoluene	1.3E-02	1.3E-02	mg/kg	77SB1A	1/7	0.0029 - 0.0033	1.3E-02	6.1E+00	n	6.2E+01	n	IND	N	BSL
	91-57-6	2-Methylnaphthalene	1.9E-03	4.6E-03	mg/kg	77SB1A	2/7	0.00057 - 0.00066	4.6E-03	3.1E+01	n	4.1E+02	ns	IND	N	BSL
	83-32-9	Acenaphthene	2.5E-03	2.5E-03	mg/kg	77SB1A	1/7	0.00098 - 0.0011	2.5E-03	3.4E+02	n	3.3E+03	n	IND	N	BSL
	208-96-8	Acenaphthylene [6]	2.9E-03	2.9E-03	mg/kg	77SB1A	1/7	0.0021 - 0.0024	2.9E-03	1.7E+02	n	1.7E+03	n	IND	N	BSL
	120-12-7	Anthracene	5.8E-03	5.8E-03	mg/kg	77SB1A	1/7	0.0032 - 0.0037	5.8E-03	1.7E+03	n	1.7E+04	nm	IND	N	BSL
	56-55-3	Benzo(a)anthracene	1.9E-03	6.9E-02	mg/kg	77SB1A	3/7	0.0014 - 0.0016	6.9E-02	1.5E-01	c	2.1E+00	c	IND	N	BSL
	50-32-8	Benzo(a)pyrene	1.3E-02	5.4E-02	mg/kg	77SB1A	2/7	0.0018 - 0.002	5.4E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	205-99-2	Benzo(b)fluoranthene	2.7E-02	1.1E-01	mg/kg	77SB1A	2/7	0.0037 - 0.0042	1.1E-01	1.5E-01	c	2.1E+00	c	IND	N	BSL
	191-24-2	Benzo(g,h,i)perylene [6]	3.5E-02	3.5E-02	mg/kg	77SB1A	1/7	0.0012 - 0.0014	3.5E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
	207-08-9	Benzo(k)fluoranthene	1.9E-03	5.8E-02	mg/kg	77SB1A	3/7	0.0016 - 0.0019	5.8E-02	1.5E+00	c	2.1E+01	c	IND	N	BSL
	117-81-7	Bis(2-ethylhexyl) Phthalate	1.7E-02	1.5E-01	mg/kg	77SB1A	7/7	0.0058 - 0.0068	1.5E-01	3.5E+01	c*	1.2E+02	c	IND	N	BSL
	85-68-7	Butyl Benzyl Phthalate	7.9E-03	2.5E-02	mg/kg	77SB1A	4/7	0.0061 - 0.0071	2.5E-02	2.6E+02	c*	9.1E+02	c	IND	N	BSL
	218-01-9	Chrysene	1.5E-02	6.7E-02	mg/kg	77SB1A	2/7	0.0044 - 0.0051	6.7E-02	1.5E+01	c	2.1E+02	c	IND	N	BSL
	84-74-2	Di-n-butyl Phthalate	2.3E-01	2.3E-01	mg/kg	77SB1A	1/7	0.031 - 0.036	2.3E-01	6.1E+02	n	6.2E+03	n	IND	N	BSL
	53-70-3	Dibenz(a,h)anthracene	1.7E-02	1.7E-02	mg/kg	77SB1A	1/7	0.0096 - 0.011	1.7E-02	1.5E-02	c	2.1E-01	c	IND	Y	**ARES**
	84-66-2	Diethyl Phthalate	1.2E-02	1.4E-01	mg/kg	77SB1A	2/7	0.0043 - 0.005	1.4E-01	4.9E+03	n	4.9E+04	nm	IND	N	BSL
	206-44-0	Fluoranthene	1.4E-03	7.3E-02	mg/kg	77SB1A	3/7	0.00095 - 0.0011	7.3E-02	2.3E+02	n	2.2E+03	n	IND	N	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	3.4E-02	3.4E-02	mg/kg	77SB1A	1/7	0.0046 - 0.0053	3.4E-02	1.5E-01	c	2.1E+00	c	IND	N	BSL
	91-20-3	Naphthalene	3.3E-03	3.3E-03	mg/kg	77SB1A	1/7	0.0026 - 0.003	3.3E-03	3.9E+00	c*	2.0E+01	c*	IND	N	BSL
	85-01-8	Phenanthrene [6]	9.4E-03	4.0E-02	mg/kg	77SB1A	2/7	0.0013 - 0.0015	4.0E-02	1.7E+02	n	1.7E+03	n	IND	N	BSL
	129-00-0	Pyrene	1.9E-03	1.2E-01	mg/kg	77SB1A	3/7	0.0015 - 0.0017	1.2E-01	1.7E+02	n	1.7E+03	n	IND	N	BSL

Table 8-5
SSA 77 COPC Determination - Total Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure point	CAS #	Chemical	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Screening Toxicity Value (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Dioxin/Furans												
	--	2,3,7,8-TCDD TEQ	2.8E-05	1.3E-04	mg/kg	77SB2A	2/2	0.00000106 - 0.00000229	1.3E-04	4.5E-06 c*	1.8E-05 c*	IND	Y	***ARES/IND***
		Cyanide												
	57-12-5	Cyanide, Total	0.15	0.15	mg/kg	77SB1A	1/7	0.083 - 0.097	0.15	160 n	2,000 n	IND	N	BSL
		Total Organic Carbon, TOC												
	--	Carbon, Total Organic	0.065	0.29	%	77SB2A	2/2	0.0062 - 0.0062	0.29	-- --	-- --	--	Y	NSV

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
Key: c = cancer
n = noncancer
c* = where: n SL < 100X c SL
c** = where n SL < 10X c SL
m = concentration may exceed ceiling limit
s = concentration may exceed Csat

-- = Not Available

[1] = Mercuric chloride soil RSLs value used
[2] = Chlordane soil RSLs used
[3] = Endosulfan soil RSLs used
[4] = Endrin soil RSLs used
[5] = Aroclor 1254 Noncancer Soil Residential RSL used
[6] = Pyrene soil RSLs used

ARAR = Applicable, Relevant, and Appropriate Requirement
TBC = To-Be-Considered
IND = Adjusted Industrial RSL
RDA = Recommended Daily Allowance

ARES = Above Residential RSL
ARES/IND = Above Residential RSL/Industrial RSL
BSL = Below Residential/Industrial RSLs
NSV = No Screening Value Available

Table 8-6
SSA 77 Cumulative HHRS (Surface Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	3/3	37,000	77,000	n	990,000	n	5.E-01	--	4.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	3/3	4.6	0.39	c	1.6	c	--	1.E-05	--	3.E-06	--
7440-38-2	Arsenic	mg/kg	3/3	4.6	22	n	260	n	2.E-01	--	2.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	3/3	12	23	n	300	n	5.E-01	--	4.E-02	--	blood
7439-89-6	Iron	mg/kg	3/3	39,000	55,000	n	720,000	n	7.E-01	--	5.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	3/3	660	1,800	n	23,000	n	4.E-01	--	3.E-02	--	CNS
7440-62-2	Vanadium	mg/kg	3/3	66	550	n	7,200	n	1.E-01	--	9.E-03	--	kidney
	Pesticides/PCBs												
11097-69-1	Aroclor 1254	mg/kg	2/3	0.15	0.22	c	0.74	c	--	7.E-07	--	2.E-07	--
11097-69-1	Aroclor 1254	mg/kg	2/3	0.15	1.1	n	11	n	1.E-01	--	1.E-02	--	eyes
11096-82-5	Aroclor 1260	mg/kg	2/3	0.28	0.22	c	0.74	c	--	1.E-06	--	4.E-07	--
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	2/3	0.054	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/3	0.017	0.015	c	0.21	c	--	1.E-06	--	8.E-08	--
	Dioxins												
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	4.5E-06	c	1.8E-05	c	--	3.E-05	--	7.E-06	--
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	7.2E-05	n	8.5E-04	n	2.E+00	--	2.E-01	--	liver
							Cumulative Risk/Hazard		4.E+00	5.E-05	4.E-01	1.E-05	

Target Organ Segregation

Total blood HI =	**1.2**	Total blood HI =	0.09
Total CNS HI =	**0.8**	Total CNS HI =	0.07
Total skin HI =	0.2	Total skin HI =	0.02
Total vascular HI =	0.2	Total vascular HI =	0.02
Total kidney HI =	0.1	Total kidney HI =	0.01
Total GI Tract HI =	**0.7**	Total GI Tract HI =	0.1
Total liver HI =	**2.5**	Total liver HI =	0.21
Total eyes HI =	0.1	Total eyes HI =	0.01

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyls
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 8-7
SSA 77 Cumulative HHRS (Total Soil)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	TAL Metals												
7429-90-5	Aluminum	mg/kg	7/7	40,000	77,000	n	990,000	n	5.E-01	--	4.E-02	--	developmental CNS
7440-38-2	Arsenic	mg/kg	7/7	5	0.39	c	1.6	c	--	1.E-05	--	3.E-06	--
7440-38-2	Arsenic	mg/kg	7/7	5	22	n	260	n	2.E-01	--	2.E-02	--	skin/ vascular
7440-48-4	Cobalt	mg/kg	7/7	12	23.5	n	307	n	5.E-01	--	4.E-02	--	blood
7439-89-6	Iron	mg/kg	7/7	41,000	55,000	n	720,000	n	7.E-01	--	6.E-02	--	blood/ liver/ GI tract
7439-96-5	Manganese	mg/kg	7/7	660	1,800	n	23,000	n	4.E-01	--	3.E-02	--	CNS
7440-62-2	Vanadium	mg/kg	7/7	70	550	n	7,200	n	1.E-01	--	1.E-02	--	kidney
	Pesticides/PCBs												
11097-69-1	Aroclor 1254	mg/kg	2/7	0.15	0.22	c	0.74	c	--	7.E-07	--	2.E-07	--
11097-69-1	Aroclor 1254	mg/kg	2/7	0.15	1.1	n	11	n	1.E-01	--	1.E-02	--	eyes
11096-82-5	Aroclor 1260	mg/kg	2/7	0.28	0.22	c	0.74	c	--	1.E-06	--	4.E-07	--
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	2/7	0.054	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/7	0.017	0.015	c	0.21	c	--	1.E-06	--	8.E-08	--
	Dioxins												
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	4.5E-06	c	1.8E-05	c	--	3.E-05	--	7.E-06	--
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	7.2E-05	n	8.5E-04	n	2.E+00	--	2.E-01	--	liver
							Cumulative Risk/Hazard		4.E+00	5.E-05	4.E-01	1.E-05	

Target Organ Segregation

Total blood HI =	**1.3**	Total blood HI =	0.10
Total CNS HI =	**0.9**	Total CNS HI =	0.07
Total skin HI =	0.2	Total skin HI =	0.02
Total vascular HI =	0.2	Total vascular HI =	0.02
Total kidney HI =	0.1	Total kidney HI =	0.01
Total GI Tract HI =	**0.7**	Total GI Tract HI =	0.1
Total liver HI =	**2.5**	Total liver HI =	0.21
Total eyes HI =	0.1	Total eyes HI =	0.01

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyls
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index
CNS = Central Nervous System
GI = Gastrointestinal

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 8-8
SSA 77 SSL Screening Results for Subsurface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	Facility Background [A]	SSL (DAF 20)	Minimum Detected Concentration	Maximum Detected Concentration	# of Samples Above SSL [A]	# of Detections	# of Samples
TAL Metals (mg/kg)								
Aluminum	7429-90-5	40,041	1,100,000	27,000	40,000	0	4	4
Antimony	7440-36-0	--	13.2	0.11	0.35	0	4	4
Arsenic	7440-38-2	15.8	0.026	0.44	2.4	**4**	4	4
Barium	7440-39-3	209	6,000	55	98	0	4	4
Beryllium	7440-41-7	1.02	1,160	1.2	2.1	0	4	4
Cadmium	7440-43-9	0.69	--	0.63	1.3	**--**	4	4
Calcium	7440-70-2	--	--	1,500	59,000	**--**	4	4
Chromium	7440-47-3	65.3	--	36	49	**--**	4	4
Cobalt	7440-48-4	72.3	9.8	8.3	9.4	0	4	4
Copper	7440-50-8	53.5	1,020	14	25	0	4	4
Iron	7439-89-6	50,962	12,800	32,000	41,000	**4**	4	4
Lead	7439-92-1	26.8	--	1	12	**--**	4	4
Magnesium	7439-95-4	--	--	12,000	61,000	**--**	4	4
Manganese	7439-96-5	2,543	1,140	310	390	0	4	4
Mercury [1]	7439-97-6	0.13	0.6	0.033	0.063	0	2	4
Nickel	7440-02-0	62.8	960	17	32	0	4	4
Potassium	7440-09-7	--	--	1800	8,600	**--**	4	4
Selenium	7782-49-2	--	19	0.11	0.4	0	4	4
Silver	7440-22-4	--	32	0.087	0.11	0	4	4
Sodium	7440-23-5	--	--	44	100	**--**	4	4
Thallium	7440-28-0	2.11	3.4	0.2	0.28	0	4	4
Vanadium	7440-62-2	108	5,200	57	70	0	4	4
Zinc	7440-66-6	202	13,600	41	60	0	4	4
Pesticides (mg/kg)								
Endrin Aldehyde [2]	7421-93-4	--	4.6E+00	0.0022	0.0043	0	3	4
TCL VOCs (ug/kg)								
Methylene Chloride	75-09-2	--	2.4E+01	2.5	2.6	0	2	4
TCL SVOCs (ug/kg)								
Benzo(k)fluoranthene	207-08-9	--	9.2E+03	1.9	1.9	0	1	4
Bis(2-ethylhexyl) Phthalate	117-81-7	--	3.2E+04	23	85	0	4	4
Butyl Benzyl Phthalate	85-68-7	--	1.3E+04	7.9	11	0	3	4
Fluoranthene	206-44-0	--	4.2E+06	1.4	1.4	0	1	4
Pyrene	129-00-0	--	3.0E+06	1.9	1.9	0	1	4

Notes:

COPC = Chemical of Potential Concern
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
SVOC = Semi-volatile Organic Compound
SSL = Risk-based Soil Screening Level from April 2009 RSL Table
DAF 20 = Dilution Attenuation Factor of 20
-- = No Value Available
[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)
[1] = Mercuric chloride soil SSL used
[2] = Endrin soil SSL used

Table 8-9
SSA 77 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Surface Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Surface Soil	Maximum Concentration Surface Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	26,000	37,000	mg/kg	77SB2A	3/3	1.8 - 180	37,000	40,041	N
7440-36-0	Antimony	0.22	1.2	mg/kg	77SB1A	3/3	0.037 - 0.037	1.2	--	NBE
7440-38-2	Arsenic	1.1	4.6	mg/kg	77SB1A	3/3	0.03 - 0.03	4.6	15.8	N
7440-39-3	Barium	83	100	mg/kg	77SB1A	3/3	0.28 - 0.28	100	209	N
7440-41-7	Beryllium	1.3	3.3	mg/kg	77SB2A	3/3	0.035 - 0.035	3.3	1.02	**Y**
7440-43-9	Cadmium	0.76	1.7	mg/kg	77SB1A	3/3	0.24 - 0.24	1.7	0.69	**Y**
7440-47-3	Chromium	36	53	mg/kg	77SB2A	3/3	0.74 - 0.74	53	65.3	N
7440-48-4	Cobalt	10	12	mg/kg	77SB3A DUP AVG*	3/3	0.44 - 0.44	12	72.3	N
7440-50-8	Copper	24	85	mg/kg	77SB1A	3/3	0.043 - 0.22	85	53.5	**Y**
7439-89-6	Iron	30,000	39,000	mg/kg	77SB2A	3/3	0.47 - 230	39,000	50,962	N
7439-92-1	Lead	17	100	mg/kg	77SB1A	3/3	0.049 - 0.25	100	26.8	**Y**
7439-96-5	Manganese	360	660	mg/kg	77SB1A	3/3	0.21 - 2.1	660	2,543	N
7439-97-6	Mercury	0.04	1	mg/kg	77SB1A	3/3	0.0093 - 0.019	1	0.13	**Y**
7440-02-0	Nickel	24	37	mg/kg	77SB2A	3/3	0.025 - 0.025	37	62.8	N
7782-49-2	Selenium	0.34	0.49	mg/kg	77SB3A DUP AVG*	3/3	0.049 - 0.049	0.49	--	NBE
7440-22-4	Silver	0.12	0.67	mg/kg	77SB3A DUP AVG*	3/3	0.011 - 0.011	0.67	--	NBE
7440-28-0	Thallium	0.25	0.32	mg/kg	77SB2A	3/3	0.0061 - 0.0061	0.32	2.11	N
7440-62-2	Vanadium	54	66	mg/kg	77SB2A	3/3	0.065 - 0.065	66	108	N
7440-66-6	Zinc	61	170	mg/kg	77SB1A	3/3	0.79 - 7.9	170	202	N

Table 8-9
SSA 77 COPC/Background Screening
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil COPC/Background Comparison

CAS #	Chemical	Minimum Concentration Total Soil	Maximum Concentration Total Soil	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Point Estimate[A]	Background Comparison
	TAL Metals									
7429-90-5	Aluminum	26,000	40,000	mg/kg	77SB4B	7/7	1.8 - 180	40,000	40,041	N
7440-36-0	Antimony	0.11	1.2	mg/kg	77SB1A	7/7	0.037 - 0.037	1.2	--	NBE
7440-38-2	Arsenic	0.44	4.6	mg/kg	77SB1A	7/7	0.03 - 0.03	4.6	15.8	N
7440-39-3	Barium	55	100	mg/kg	77SB1A	7/7	0.28 - 0.28	100	209	N
7440-41-7	Beryllium	1.2	3.3	mg/kg	77SB2A	7/7	0.035 - 0.035	3.3	1.02	**Y**
7440-43-9	Cadmium	0.63	1.7	mg/kg	77SB1A	7/7	0.24 - 0.24	1.7	0.69	**Y**
7440-47-3	Chromium	36	53	mg/kg	77SB2A	7/7	0.74 - 0.74	53	65.3	N
7440-48-4	Cobalt	8.3	12	mg/kg	77SB3A DUP AVG*	7/7	0.44 - 0.44	12	72.3	N
7440-50-8	Copper	14	85	mg/kg	77SB1A	7/7	0.043 - 0.22	85	53.5	**Y**
7439-89-6	Iron	30,000	41,000	mg/kg	77SB2B	7/7	0.47 - 230	41,000	50,962	N
7439-92-1	Lead	1.3	100	mg/kg	77SB1A	7/7	0.049 - 0.25	100	26.8	**Y**
7439-96-5	Manganese	310	660	mg/kg	77SB1A	7/7	0.21 - 2.1	660	2,543	N
7439-97-6	Mercury	0.033	1	mg/kg	77SB1A	5/7	0.0093 - 0.019	1	0.13	**Y**
7440-02-0	Nickel	17	37	mg/kg	77SB2A	7/7	0.025 - 0.025	37	62.8	N
7782-49-2	Selenium	0.11	0.49	mg/kg	77SB3A DUP AVG*	7/7	0.049 - 0.049	0.49	--	NBE
7440-22-4	Silver	0.087	0.67	mg/kg	77SB3A DUP AVG*	7/7	0.011 - 0.011	0.67	--	NBE
7440-28-0	Thallium	0.2	0.32	mg/kg	77SB2A	7/7	0.0061 - 0.0061	0.32	2.11	N
7440-62-2	Vanadium	54	70	mg/kg	77SB2B	7/7	0.065 - 0.065	70	108	N
7440-66-6	Zinc	41	170	mg/kg	77SB1A	7/7	0.79 - 7.9	170	202	N

Notes:

CAS = Chemical Abstracts Service
TAL = Target Analyte List
NBE = No Background Estimate Available
mg/kg = Milligram Per Kilogram
[A] = Facility-Wide Background Point Estimate as Reported in the Facility-Wide Background Study Report (IT 2001)

Table 8-10
SSA 77 Cumulative HHRS (Surface Soil Excluding Metals within Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	Pesticides/PCBs												
11097-69-1	Aroclor 1254	mg/kg	2/3	0.15	0.22	c	0.74	c	--	7.E-07	--	2.E-07	--
11097-69-1	Aroclor 1254	mg/kg	2/3	0.15	1.1	n	11	n	1.E-01	--	1.E-02	--	eyes
11096-82-5	Aroclor 1260	mg/kg	2/3	0.28	0.22	c	0.74	c	--	1.E-06	--	4.E-07	--
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	2/3	0.054	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/3	0.017	0.015	c	0.21	c	--	1.E-06	--	8.E-08	--
	Dioxins									--	--	--	--
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	4.5E-06	c	1.8E-05	c	--	3.E-05	--	7.E-06	--
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	7.2E-05	n	8.5E-04	n	2.E+00	--	2.E-01	--	liver
							Cumulative Risk/Hazard		2.E+00	4.E-05	2.E-01	8.E-06	

Target Organ Segregation

Total liver HI =	**2**	Total liver HI =	0.2
Total eyes HI =	0.1	Total eyes HI =	0.01

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyls
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

Table 8-11
SSA 77 Cumulative HHRS (Total Soil Excluding Metals within Background)
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

CAS #	Chemical	Units	Detection Frequency	MDC	RSL Residential	C/N	RSL Industrial	C/N	Non Carcinogenic HI (Residential)	Excess Cancer Risk (Residential)	Non Carcinogenic HI (Industrial)	Excess Cancer Risk (Industrial)	Noncarcinogenic Target Organ
	Pesticides/PCBs												
11097-69-1	Aroclor 1254	mg/kg	2/7	0.2	0.22	c	0.74	c	--	7.E-07	--	2.E-07	--
11097-69-1	Aroclor 1254	mg/kg	2/7	0.2	1.1	n	11	n	1.E-01	--	1.E-02	--	eyes
11096-82-5	Aroclor 1260	mg/kg	2/7	0.28	0.22	c	0.74	c	--	1.E-06	--	4.E-07	--
	TCL SVOCs												
50-32-8	Benzo(a)pyrene	mg/kg	2/7	0.054	0.015	c	0.21	c	--	4.E-06	--	3.E-07	--
53-70-3	Dibenz(a,h)anthracene	mg/kg	1/7	0.017	0.015	c	0.21	c	--	1.E-06	--	8.E-08	--
	Dioxins									--	--	--	--
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	4.5E-06	c	1.8E-05	c	--	3.E-05	--	7.E-06	--
--	2,3,7,8-TCDD TEQ	mg/kg	2/2	1.3E-04	7.2E-05	n	8.5E-04	n	2.E+00	--	2.E-01	--	liver
							Cumulative Risk/Hazard		2.E+00	4.E-05	2.E-01	8.E-06	
Target Organ Segregation													
									Total liver HI =	**2**	Total liver HI =	0.2	
									Total eyes HI =	0.1	Total eyes HI =	0.01	

Notes:

mg/kg = Milligram Per Kilogram
CAS = Chemical Abstracts Service
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyls
SVOC = Semivolatile Organic Compound
MDC = Maximum Detected Concentration
HI = Hazard Index

RSL = Regional Screening Level (RSL) from EPA April 2009 RSL Table
C = Carcinogenic per EPA RSL Table (April 2009)
N = Noncarcinogenic per EPA RSL Table (April 2009)

9.0 CONCLUSIONS AND RECOMMENDATION FOR FUTURE ACTION

An SSP has been completed for SSAs 18, 72, 30, 79, 60, and 77 following the USEPA approved site screening process for RFAAP (USEPA 2001a). The SSP included sampling of soil and groundwater to evaluate releases to the environment and completion of human health and ecological risk screening elements outlined in the SSP guidance.

The SSP was designed to assess: whether releases of hazardous substances, pollutants, chemicals, hazardous wastes, or hazardous constituents have occurred to the environment at the site evaluated, whether further investigation (i.e., risk assessment or RFI) or an interim removal action is appropriate at a site, or whether NFA at a site is appropriate. Five steps were completed for the SSP following the approved guidance document including: 1) performance of a desktop audit and site visit to develop the scope of the SSP Work Plan, 2) preparation of a SSP site-specific Work Plan, 3) performance of the field work in accordance with the approved SSP Work Plan, 4) evaluation of the SSP data and completion of pre-remedial risk screening, and 5) assessment of the need for further investigation, interim removal action, or preparation of a "No Further Action" Decision Document, per the RCRA Corrective Action permit based on the results of the SSP and risk screening.

Human Health Risk Screenings

Human health risk screening was conducted for each of the sites. SSAs 30 and 79 were assessed together due to their proximity and similar historical activities. Background levels of metals were the risk and hazard drivers for each of the sites except for SSA 72 (benzo(a)pyrene and Aroclor 1254) and SSA 77 (2,3,7,8-TCDD TEQ (dioxins)). SSA 72 and SSA 77 had site-related risks/hazards equal to or above the SSP thresholds of 1E-05 and 1 for the residential scenario. The site-related cumulative risks/hazards for SSA 72 and SSA 77 were below the SSP thresholds for the industrial scenario. The remaining sites (SSA 18, SSA 30, SSA 79, and SSA 60) had site-related risks and hazards below SSP thresholds of 1E-05 and 1, respectively, for residential and industrial scenarios.

Ecological Risk Screenings

Ecological risk screening was conducted for five of the six sites. SSAs 30 and 79 were assessed together due to their proximity and similar historical activities. Metals were the primary constituents of potential ecological concern (COPECs) at the sites with the exception of SSA 77 (2,3,7,8-TCDD TEQ (dioxins)). The results of the ecological risk assessments indicated there is adequate information to conclude that ecological risks are considered negligible at SSAs 18, 30, 79, 60, and 77; therefore, there is no need for further action at these SSP sites on the basis of ecological risk. Although a limited number of surface soil samples were collected (one sample) at SSA 72, an ecological risk assessment was not conducted for the site considering the small size of the site (0.1 acre), the nature of previous activities at the site (acid conveyance via subsurface sump and subsurface sewer line), and the lack of potential surface soil releases due to the nature of previous activities at the site. Based on these factors, the potential for ecological risk at SSA 72 is considered negligible.

Summary of Conclusions and Recommendations

A summary of conclusion and recommendation based on the SSP evaluation for each site is provided below:

- SSA 18 – No Further Action based on the results of the human health screening, ecological risk screening, and SSL evaluation;
- SSA 72 – No Further Action beyond the implementation of land use controls to maintain this site as industrial precluding residential use due to cumulative risk and hazard screening results for residential scenarios equal to or above SSP thresholds for target risk and hazards;

- SSAs 30 and 79 – No Further Action beyond the implementation of land use controls to maintain this site as a closed solid waste management unit due to the presence of bagged asbestos containing material at the site within the trenches;
- SSA 60 – No Further Action based on the results of the human health screening, ecological risk screening, and SSL evaluation; and
- SSA 77 – No Further Action beyond the implementation of land use controls to maintain this site as industrial precluding residential use due to cumulative risk and hazard screening results for residential scenarios above SSP thresholds for target risk and hazards.

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SITE SCREENING PROCESS REPORT FOR SITE SCREENING AREAS 18, 72, 30, 79, 60, AND 77

RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

FINAL
DECEMBER 2010

URS

CONTRACT NO. W91238-07-D-0006
DELIVERY ORDER NO. DA01

SITE SCREENING PROCESS REPORT FOR SITE SCREENING AREAS 18, 72, 30, 79, 60, AND 77

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APPENDIX A

SSP GUIDANCE DOCUMENT

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1.0 INTRODUCTION

The Radford Army Ammunition Plant (RFAAP) is an active military installation located in the mountains of southwest Virginia, and covers approximately 4,080 acres in Montgomery and Pulaski County, Virginia.

The United States Environmental Protection Agency (USEPA) issued a RCRA Corrective Action Permit to Alliant Ammunition and Powder Company (Alliant) and the U.S. Department of the Army (Army) on October 31, 2000. Within the RCRA Corrective Action permit is a listing of 31 identified Site Screening Areas (SSAs) which are to be investigated in accordance with this EPA approved Site Screening Process (SSP). Should additional SSAs be identified at RFAAP, a site screening will need to be completed in accordance with this SSP.

This SSP has been developed as the central document describing how site screening will be applied to the RFAAP. Overall, the SSP is devised to expedite investigations of SSAs at RFAAP to determine what level of evaluation is appropriate for these identified areas. The SSP will help determine whether there have been releases of hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents to the environment from an SSA, and determine whether an SSA should proceed further through the RFI process, be the subject of an interim removal action or be considered for no further action.

Once a SSA is identified, the following five distinct tasks will be undertaken:

- Performance of a Desktop Audit and site visit to determine the scope of the SSP site-specific Work Plan(s);
- Development of an SSP site-specific Work Plan outlining a Sampling and Analysis Plan as well as a risk screening plan (human health and ecological, as appropriate) for EPA approval;
- Performance of SSP field work in accordance with the approved SSP Work Plan;
- Evaluation of SSP data and completion of pre-remedial risk screening; and
- Determination of the need for further investigation of the SSA, an interim removal action at the SSA or preparation of a No Further Action Decision Document, per the RCRA Corrective Action permit, based on results of the SSP and risk screening.

The following sections detail these SSP tasks.

2.0 SITE VISIT AND DESKTOP AUDIT

The purpose of the Desktop Audit is to evaluate and document, through review of existing information, if operations at the SSA(s) have resulted in the release of hazardous substances, pollutants, contaminants, hazardous wastes or hazardous constituents to the environment. The Desktop Audit process includes a search of all documents related to operations at the SSA as well as interviews with personnel knowledgeable about the site. Available information for each SSA, including location and a site map, description of past and current land uses, and a description of releases and associated cleanups, will form the basis for the Desktop Audit. Other information sources will include the administrative record and other local, state and federal documentation containing information pertinent to the site.

Typical existing information that will be examined during the Desktop Audit will include site use, ownership and operational history, groundwater and surface water use and characteristics, soil exposure characteristics, and air exposure pathways. This information can be obtained from maps, publications by the United States Geological Survey (USGS) and state geological surveys, regional databases and geographic information systems, and aerial photography. On the basis of information collected during the Desktop Audit, a list of chemicals potentially stored, handled, released, or disposed at each SSA will be compiled.

In addition to the Desktop Audit, a site visit will be conducted at each SSA. The site visit will include a visual inspection of the SSA to aid in site characterization, including identifying potential contaminant sources; chemical migration pathways; potential human and ecological receptors; and receptor exposure pathways. Additionally, potential media to be sampled and sampling locations will be identified for the SSP.

Results of the Desktop Audit and site visit will be presented in a summary report. Included in the report will be an SSA-specific Conceptual Site Model (CSM) depicting potential contaminant sources, environmental and exposure pathways of concern, and potential human and ecological receptors. The CSM will maximize the usability of analytical data derived from site characterization efforts for subsequent risk assessments, and will form the basis for any additional data collection to support the human health and ecological risk screening. These results will be used in formulating the SSP Work Plan, including the need for human health and ecological risk screening.

3.0 DEVELOPMENT OF SITE SCREENING INSPECTION SAMPLING AND ANALYSIS STRATEGY

A site-specific Work Plan will be developed for each SSA investigated under the SSP. The Work Plans will reference the Desktop Audit Summary, providing a detailed description of historical information, SSA conditions, results of previous investigative work and results of the site visit. The Work Plans will also present a Sampling and Analysis Plan (SAP) that describes the number, types and locations of samples to be collected, sample analyses, and the rationale for the sampling plan. The purpose of sample collection and analysis will be to assess the presence or absence of hazardous substances, contaminants, hazardous wastes, or hazardous constituents, and to provide data for performing human health and ecological risk screening in order to evaluate if there is a potential threat to human health or the environment at the SSA.

Media sampled during the SSP will be identified based upon Desktop Audit and site visit findings, and approval of the USEPA Region III.

Potential media of interest in the SSP may include surface soil (0 to 1 feet below ground surface [bgs] 0-6 inches for constituents other than VOCs, 6-12 inches for VOCs), subsurface soil, groundwater, surface water, sediment, and animal and plant tissue (e.g., fish). Where appropriate, geophysical techniques will be used to aid in placement of groundwater and soil sample locations and to confirm and delineate suspected buried waste material identified during the Desktop Audit and site visit. Field screening for explosives using immunoassay-type sampling kits can be performed at SSAs (a complete list of all explosive compounds and respective detection limits using this method will be included in the Work Plan). However, immunoassay-type analytical data cannot be used for risk screening, unless it can be shown through confirmation sampling and analysis that the results of the field test kits are of equivalent precision and accuracy to standard methods of analysis.

Groundwater samples collected during SSP investigations may be obtained via direct push techniques (DPT) or from groundwater monitoring wells, depending on site conditions and data needs. For groundwater samples collected from monitoring wells, only unfiltered organic and metals results will be considered in the assessments (except in circumstances where monitoring wells do not produce samples with sufficiently low solids for a reasonable risk screening to be performed). For DPT groundwater samples, only the filtered metals and unfiltered organic results will be considered in the assessment. Groundwater parameters measured during field activities should include pH, Eh, dissolved oxygen, specific conductance, temperature, salinity, and turbidity, as appropriate, depending on the medium- and SSA-specific conditions.

All environmental media samples collected during the SSP will be analyzed for the full suite of Contract Laboratory Procedure (CLP) constituents and other constituents based on the findings of the Desktop Audit including additional analytes requested by EPA. The analytical target list will include Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs) and dioxins, and Target Analyte List (TAL) inorganic chemicals, including cyanide. Based on past uses of specific SSAs for explosives treatment, and the results of field screening immunoassay methods, it may be necessary to analyze specific samples for nitramine/nitroaromatic compounds. Depending on the history of the SSA and other available information, it may be necessary to

analyze specific samples for perchlorates. Soil samples should be analyzed for physical properties (e.g., bulk density, grain size, specific gravity, percent moisture, and total organic carbon [TOC]), as necessary.

Analytical methods used in the SSP will generally be USEPA CLP/Standard Methods and/or SW-846 Methods. Polynuclear aromatic hydrocarbons (PAHs) and pesticides/PCBs may be analyzed using low detection methods. For example, the National Oceanographic and Atmospheric Administration (NOAA) Status and Trends Methods (USEPA Method No. 1668 [GC/MS, congener standards]; USEPA, 1995d) will be used to meet PCB method detection limits (MDLs) required for the human health and ecological risk screening. An analysis of risk-based concentrations (RBCs) and Biological Technical Assistance Group (BTAG) screening levels relative to analytical reporting limits (RLs) will be conducted as part of Work Plan preparation to ensure that RLs do not exceed screening concentrations (to the greatest extent practicable).

CLP laboratory analytical data will be subjected to data validation in accordance with the Innovative Approaches for Validation of Organic and Inorganic Data, as amended by USEPA Region III (USEPA, 1995a). Section 5 describes the data validation and data evaluation process that will be used in the SSP.

4.0 PERFORMANCE OF FIELD WORK

All SSP field work at SSAs will be performed in accordance with the Master Project Plans for RFAAP and the SSA-specific SSP Work Plan described in Section 3.0 above. The Master Project Plan, including a Field Sampling Plan, Quality Assurance Project Plan, and Health and Safety Plan, addresses the full range of potentially applicable activities that could be required throughout the SSP.

5.0 DATA VERIFICATION, VALIDATION AND USABILITY ASSESSMENT

5.1 Data Verification

Data will be verified in accordance with USEPA Region III Innovative Approaches for Data Validation (USEPA, 1995). Verification for organic data will be performed at Manual Level M2 and the verification for inorganic data will be performed at Manual Level IM1 (if a determination is made that an SSA does require a RFI and formal baseline risk assessment, the existing SSP data will be re-validated at the M3 and IM2 level, respectively). Particular emphasis will be placed on holding time compliance, equipment calibration, spike recoveries, and blank results, although all required elements of the verification process will be considered. The analytical results for nonCLP parameters will be verified based on the Region III Modifications to the National Functional Guidelines further modified to reflect the acceptance specifications of the referenced method to the extent that those specifications differ from those in the Region III Modifications to the National Functional Guidelines. Data qualifiers will be assigned based on the results of verification findings. Laboratory deliverable packages will be equivalent to USEPA CLP deliverable packages, containing complete quality control (QC) summary reports, quality assurance (QA) documentation, and raw data.

Data qualifiers provide information pertaining to the degree of confidence to be considered relative to the presence (or absence) of reported chemicals, and also identify numerical results considered to be less accurate and/or precise than is normal for the method. A list of the data qualifiers that may be applied during the verification effort and their definitions are presented below.

Data Qualifier Codes	
J	The analyte was positively identified. The associated result is the approximate concentration of the analyte in the sample.
K	The analyte was detected. Reported value may be biased high.
R	Serious analytical problems were encountered and quality control criteria were not met. The data point is rejected. The analyte may or may not be present in the sample.
N	Tentative identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts
L	The analyte was detected. Reported value may be biased low.
U	The analyte was analyzed for, but not detected above the reported quantitation limit.
UL	The analyte was not detected. The reported quantitation limit is approximate and may be lower.
UJ	The analyte was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
B	The analyte was analyzed for, but was not detected substantially above the level reported in the laboratory or field blanks.

Data tables must report non-detects with the following format: < xx, where xx is the sample reporting limit (but not the method detection limit, the instrument detection limit, the contract detection limit, etc.). Thus, all data tables will have either a blank to show that a constituent was not analyzed, a number to show the numeric value of the detected constituent, or a less than symbol followed by the sample reporting limit. The usual data qualifiers will be added as necessary. A data validation report with hand annotated Form 1s will be prepared to present data validation findings.

5.2 Data Validation and Usability Assessment

Data that are compliant with the minimum specifications of the subject analytical methods, still may not provide sufficient qualitative and/or quantitative quality to make decisions at the requisite statistical confidence. To assess risks associated with chemicals of potential concern (COPCs) at a SSA, data of known quality must be used (USEPA, 1992a). An understanding of analytical data quality is necessary for evaluation of uncertainties related to the data, and consideration of these uncertainties in the decision-making process for the SSAs. To facilitate this goal, data from the SSPs will be evaluated for quality and usability prior to its use in the human health and ecological risk screening.

Guidance such as Guidance for the Data Quality Objective Process (EPA QA/G-4, 1994), Guidance for the Data Quality Assessment Process (EPA QA/G-9, 2000), Risk Assessment Guidance for Superfund, Volume I (USEPA, 1989), and Guidance for Data Usability in Risk Assessment (USEPA, 1992a) will be used to evaluate data for usability in the human health and ecological risk screening. Data will be evaluated for quality based on information in the data verification report. Specifically, data will be evaluated for appropriateness of analytical methods and qualifiers, significant blank contamination, and tentatively identified compounds (TICs). Further, and perhaps more importantly, biases and variability inherent in the data will be assessed in relation to the relative interval between the risk screening level and the reported concentration. Additionally, given that a statistical relationship can be defined between variability, the number of samples in a given data set, and the statistical confidence with which a given conclusion may be drawn, the sampling plan and reported results will be evaluated in relationship to the DQOs established during the planning process.

All validated data that is not qualified and data that is qualified with J, L, K, U, UL, UJ, and B will be used to identify COPCs in the risk screening process, unless the inherent limitations of the analytical method and/or matrix effects obviate this use. Data qualified as rejected (i.e., R) will not be used in COPC identification.

Analytical results for the essential nutrients, calcium, sodium, potassium, and magnesium, in both solid and aqueous media, will not be considered in the assessments. All other metals, including iron, and all organic chemicals, including laboratory contaminants not disqualified in the data verification and validation processes, will be considered in the COPC identification process if detected at least once in environmental samples at an SSA.

5.3 Tentatively Identified Compounds

Chemical analysis to identify and quantify organic compounds is performed with gas chromatography-mass spectrometry (GC-MS) methods. The GC-MS instrument is calibrated for a series of target analytes using chemical standards of known concentration and purity. Quantification of these target analytes is performed against specific internal standards as identified in the respective method. Identification of these target analytes is based on a comparison of the unknown analyte to the chemical standards used during calibration based on the analyte's retention time and mass spectra.

Chromatographic peaks in volatile/semivolatile fractions analyses that are not target analytes, surrogates, or internal standards are potential Tentatively Identified Compounds (TICs). TICs must be qualitatively identified by a National Institute of Standards and Technology (NIST) mass spectral library search and the identification assessed by the data reviewer. For each sample, the laboratory conducts a mass spectral search of the NIST library and report the possible identity for the 10 VOC and/or 20 SVOC largest fraction peaks that are not surrogates, internal standards, or target compounds, but that have an area or height greater than 10 percent of the area or height of the nearest internal standard. TIC results are reported for each sample on the Organic Analyses Data Sheet (Form I - VOC-TIC or SVOC -TIC)

TICs will be reported and included in the COPC identification based upon the degree of match, evidence of similar pattern, analyst professional judgment, availability of toxicity data (e.g., IRIS, HEAST, or NCEA reference doses and/or slope factors), and consultation with EPA Region III (see Section 6.1.1.1). The top 20 TICs will be reported by name and CAS Registry number and may be quantified. Quantification of TICs will be based on input from EPA staff. Positive identification and quantification of TICs will be accomplished by acquiring the appropriate standards and calibrating the GC-MS for the tentatively identified compounds. TICs that lack toxicity data will be discussed in the uncertainty section of the screening risk assessment results.

6.0 SCREENING PROCEDURES

Human health and ecological screening procedures will be performed as a part of the SSP. Section 6.1 presents the methodology for the human health screening procedures and Section 6.2 presents the methodology for the ecological risk screening .

6.1 Human Health Screening Procedures

Human health screening procedures will be conducted in accordance with the USEPA Risk Assessment Guidance for Superfund (RAGS) (USEPA, 1989 and 1991b) and USEPA Region III guidance (USEPA, 1991c, 1993a, and 1998a) with modifications. The purpose of the screening step is to evaluate site data with respect to conservative criteria so that sites requiring no further action can be eliminated from further consideration. This process will also be used to identify sites requiring further evaluation to proceed through additional steps. The conceptual site model (CSM) developed in Section 2.0 will be used to identify those media that are associated with identified exposure pathways. If potential current and future exposure pathways associated with a particular medium are determined to be incomplete, then it may not be necessary to carry that medium through the screening process, given approval by EPA.

The screening procedure will involve the following steps:

1. Identification of COPCs and Cumulative Risk Screening

2. Chemical-Specific Screening for Lead and Iron

3. Comparison to Soil Screening Levels (SSLs)

4. Comparison to ARARs

5. Background Comparisons

These steps are described in the following sections.

6.1.1 Identification of COPCs and Cumulative Risk Screening

6.1.1.1 Identification of COPCs for Human Health Cumulative Risk Screening

As stated previously, chemicals detected at least once in environmental samples at an SSA will be evaluated in the COPC identification stage of the human health screening. The essential nutrients calcium, sodium, potassium, and magnesium; chemicals disqualified in the validation process; and TICs not positively identified, will be eliminated as COPCs.

COPCs will be identified by comparing maximum detected concentrations (MDCs) in a specific medium with chemical-specific risk-based screening criteria, unless the data display the statistical properties required to calculate a valid 95% upper confidence limit (UCL). If this is the case, then the 95% UCL will be employed. Chemicals with MDCs exceeding risk-based

criteria will be identified as COPCs and will be carried through to the cumulative risk screening step of the assessment.

Soil and Sediment. COPCs in surface and subsurface soil and sediment will be identified by comparing MDCs (or a 95% UCL if appropriate) in these media to Risk-Based Concentrations (RBCs) in the most recent version of the USEPA Region III Risk-Based Concentration Table for soil ingestion using the residential and industrial scenarios (USEPA 2000).

For soils and sediments that are exposed a significant portion of the year (i.e., > 6 months/year), screening levels shall correspond, or be adjusted to correspond, to an increased cancer risk of 1 x 10-6 and a noncancer Hazard Quotient (HQ) of 0.1. COPCs can be identified if the MDCs (or a 95% UCL if appropriate) are greater than the screening values for the ingestion and/or inhalation pathways. For sediments that are not exposed, comparisons to adjusted soil screening levels may be used to decide on the need for further evaluation (e.g., quantitative risk assessment), further investigation or response action.

Groundwater and Surface Water. COPCs in groundwater and surface water will be identified by comparing MDCs (or a 95% UCL if appropriate) of chemicals in these media to RBCs in the most recent version of the USEPA Region III Risk-Based Concentration Table for tap water (USEPA 2000), and to federal and state Maximum Contaminant Levels (MCLs) for groundwater and surface water used as a source of drinking water.

For groundwater, as well as surface water that may be a source of drinking water, RBC screening levels shall correspond, or be adjusted to correspond, to an increased cancer risk of 1 x 10-6 and a noncancer Hazard Quotient (HQ) of 0.1. For other surface water, comparisons to adjusted groundwater screening levels may be used to decide on the need for further evaluation (e.g., quantitative risk assessment), further investigation, or response action. Note that all ground water is considered a source of drinking water unless deemed non-potable (i.e., Class III).

Fish. COPCs in fish will be identified by comparing MDCs (or a 95% UCL if appropriate) of chemicals in fish tissue samples to screening level RBCs for fish in the USEPA Region III Risk-Based Concentration Table (USEPA, 2000). Screening levels shall correspond, or be adjusted to correspond, to an increased cancer risk of 1 x 10-6 and a noncancer Hazard Quotient (HQ) of 0.1.

Chemicals Lacking RBCs

For chemicals lacking Region III published RBCs, but having available associated toxicity data that are peer-reviewed, risk assessors will obtain information from the following sources, which are listed in order of preference: USEPA's Integrated Risk Information System (IRIS), Health Effects Assessment Summary Tables (HEAST), and provisional values from the National Center for Environmental Assessment (NCEA). From these sources, the Army will make a good faith effort to propose alternative screening values, for EPA concurrence.

Summary. In summary, a detected chemical will be retained as a COPC for a specific medium if the MDC (or a 95% UCL if appropriate) is greater than the corresponding screening criteria described above.

6.1.1.2 Cumulative Risk Screening

The cumulative risk screening process will consist of calculating ratios between the maximum exposure point concentrations (EPCs) of COPCs in an environmental medium and the corresponding USEPA Region III residential and industrial RBCs. COPCs are those chemicals brought forward from the COPC identification step (see Section 6.1.1.1). Carcinogenic and noncarcinogenic effects will be evaluated for exposure to chemicals in each environmental medium sampled.

6.1.1.2.1 Estimation of Exposure Point Concentrations

For purposes of this screening process, maximum detected concentrations (MDCs) (or a 95% UCL if appropriate) will be considered in the cumulative risk screening as representative exposure point concentrations (EPCs) for the SSA as a conservative measure. The selection of the MDC for the exposure point concentration in most cases is motivated by the recognition that in many cases when the number of samples is small, the alternative approach reverts to the maximum detected concentration because the calculated 95% UCL exceeds the MDC.

6.1.1.2.2 Human Health Effects - Carcinogens

The potential for carcinogenic risk will be evaluated by estimating excess cancer risk for each COPC. Using the maximum EPC and the respective screening level RBC value, excess residential and industrial cancer risk can be estimated using the following formula:

$$Excess\,Cancer\,Risk = TR\frac{Max.EPC_i}{RBC_i}$$

Where:

	TR	=	The target lifetime cancer risk of 1x10-6
	EPCi	=	EPC of COPCi detected in soils and fish (mg/kg) or water (g/L)
	RBCi	=	RBC for COPCi in soils and fish (mg/kg) or water (g/L) based on carcinogenic effects at the TR stated above

Finally, the cumulative residential and industrial excess cancer risk is estimated for each SSA. The cumulative excess cancer risk for exposure to multiple COPCs is estimated using the following equation:

$$Cumulative\ Excess\ Cancer\ Risk = \sum \left[TR\ x \frac{Max.EPC_i}{RBC_i} \right]$$

In accordance with 40 Code of Federal Regulations (C.F.R.) 300.430, carcinogenic risk within the benchmark range of 1x10-4 (1 cancer case in 10,000) to 1x10-6 (1 cancer case in 1,000,000) is generally considered acceptable. The following statement is from 40 C.F.R. 300.430 (2000): "For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10-4 to 10-6 using information on the relationship between dose and response. The 10-6 risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure."

Multiplying the EPC/RBC ratio by USEPA's point of departure risk level, 10-6, results in an excess cancer risk estimate for the COPC. Excess cancer risk estimates for all COPCs will be summed to account for potential carcinogenic effects associated with multiple chemical exposures (USEPA, 1989) for each medium. The results of cumulative risk screening will be evaluated as follows:

- If the calculated cumulative excess cancer risk is greater than or equal to 1×10^{-5} for any of the medium, then a quantitative risk assessment would be performed for the SSA, or

- If the calculated cumulative excess cancer risk is: 1) below 1×10^{-5} for all media; and 2) no other screening criteria, as defined by this document, have been exceeded, then no further action (NFA) would be recommended for the SSA.

6.1.1.2.3 Human Health Effects - Noncarcinogens

The potential for adverse noncarcinogenic health effects will be evaluated by calculating a residential and industrial HQ for each COPC. Using the maximum EPC and a respective noncarcinogenic RBC, a residential or industrial HQ can be estimated with the following formula:

$$HQ = THQ \frac{Max.EPC_i}{RBC_i}$$

Where: THQ = The target HQ of 0.1
EPCi = EPC of COPCi detected in soils and fish (mg/kg) or groundwater (g/L)
RBCi = RBC for COPCi in soils and fish (mg/kg) or Groundwater (g/L) based on noncarcinogenic effects at the THQ stated above.

Finally, the cumulative residential and industrial non-carcinogenic hazard index (HI) for exposure to multiple COPCs is estimated as follows:

$$Cumulative\ Noncarcinogenic\ HI = \sum \left[THQ\, x \frac{Max.EPC_i}{RBC_i} \right]$$

Per USEPA guidance for a Baseline Risk Assessment, when the HI exceeds 1, there is a potential for adverse noncarcinogenic health effects (USEPA, 1989). Generally, the more the HI exceeds unity, the greater the potential for adverse health effects. Additionally, when the HI exceeds 1, and multiple chemicals contribute to the exceedance, the HI is segregated on the basis of toxic effects and target organs (i.e., hepatic, renal, respiratory, cardiovascular, gastrointestinal, hematological, musculoskeletal, dermal, ocular effects, neurological, reproductive, developmental, and immune system).

For the cumulative risk screening procedure, HI segregation will involve obtaining the most recent and reliable noncarcinogenic health effects data for COPCs, such as data in the Integrated Risk Information System database (EPA) and databases developed by the Agency for Toxic Substances and Disease Registry (ATSDR). Health effects will be considered for only chronic exposure to COPCs. For COPCs with multiple target organs, the organ that the chemical primarily targets will be considered in hazard segregation.

The results of the cumulative hazard screening will be evaluated as follows:

- In accordance with Region III guidance for risk screening, if the cumulative noncarcinogenic HI for a SSA, computed by this method, is greater or equal than 0.5 for any target organ, then a quantitative risk assessment would be performed for the SSA, or

- If the cumulative noncarcinogenic HI for an SSA, computed by this method, is: 1) less than 0.5 for all target organs; and 2) no other screening criteria, as defined by this document, have been exceeded, then NFA would be recommended for the SSA.

6.1.1.3 Uncertainty Analysis

Uncertainties associated with the cumulative risk screening will be qualitatively evaluated to determine the accuracy of the approach. Factors that may contribute to uncertainty include the use of RBC age-adjusted ingestion and inhalation rates, the use of toxicity information provided by NCEA when RBCs are not available, and the level of uncertainty due to a lack of dermal risk estimates. Uncertainty in the assessment could also arise if health-based RBCs are less than analytical method detection limits.

Uncertainty is associated with the use of RBCs and SSLs because they do not consider dermal uptake. The Site Screening Process is geared towards a risk-based identification of COPCs and preliminary assessment of human and ecological risks that is objective and quantitative. As such, it hinges on the availability of appropriate, risk-based screening levels. No such levels have been identified for dermal exposures to soil, sediment, water or air. Given the conservative nature of the screening process (e.g., use of MDC for exposure point concentrations, use of residential screening level RBCs for soil and groundwater), it is considered very unlikely that omission of

dermal exposures in the risk screening process will result in failure to identify a SSA that would require further investigation or response. To guard against this possibility, contaminant concentrations at all SSAs that pass the risk screening will be scrutinized for the occurrence of contaminants that are known to be easily absorbed through the skin, and if necessary, dermal risks for selected contaminants will be calculated in accordance with USEPA's Dermal Exposure Guidance (USEPA, 1992c, 1997a). These dermal risks may be added to the Cumulative Excess Cancer Risk or Cumulative Noncarcinogenic HI computed above.

6.1.2 Chemical-Specific Screening for Lead and Iron

6.1.2.1 Lead

If lead concentrations in soil are greater than 400 mg/kg (USEPA, 1994a), or lead concentrations in groundwater or surface water are greater than 15 g/L (USEPA 1996b), then potential risk associated with lead will be evaluated using the IEUBK model (USEPA, 1994b). The model will be run using site-specific input parameters based on SSP findings and consultation with USEPA Region III. If the percentage of children expected to have blood lead levels of 10 micrograms per deciliter (μg/dL) or greater exceeds 5%, then further investigation or response action will be required for the SSA.

6.1.2.2 Iron

If iron concentrations in soil or water result in an HQ of 0.5 or greater, then a "margin of exposure" evaluation will be performed. Risks from exposure to iron will be characterized by comparing estimated iron intake to the recommended dietary allowance (RDA) and concentrations known to cause adverse effects in children (NCEA, 1996).

6.1.3 Comparison to Soil Screening Levels (SSLs)

USEPA's Soil Screening Guidance (USEPA, 1996a) will be used as the source of information for three types of SSLs, which address:

- Chemical migration of VOCs from subsurface soil to air;
- Chemical migration of contaminants from soil to air via fugitive dust; and
- Chemical migration of contaminants from soil to groundwater.

MDCs (or a 95% UCL if appropriate) of chemicals found in soil and sediment will be compared to screening levels for leaching of contaminants to groundwater, i.e., soil-to-groundwater screening levels (USEPA, 1996a). Many soil-to-groundwater screening values can be found in the USEPA Region III RBC Tables. A dilution attenuation factor (DAF) of 20 may be used unless groundwater is considered to be shallow. In this case, a site-specific DAF should be calculated. Chemicals found at concentrations exceeding soil-to-groundwater screening levels will be evaluated in a qualitative manner to assess the need for further assessment, investigation, or response action. Geotechnical information such as Total Organic Carbon (TOC), pH, groundwater characteristics, etc., will be an integral part of the qualitative evaluation. In

particular, the SSL comparison will be evaluated with respect to its application to site conditions, such as the karst environment which is present throughout RFAAP. Based on the qualitative evaluation, and other relevant information, a recommendation will be made as to whether further evaluation, investigation, or response action should take place for the SSA.

6.1.4 Comparison to ARARs

MDCs (or a 95% UCL if appropriate) of chemicals found at each SSA will be compared to Applicable or Relevant and Appropriate Requirements (ARARs), including, but not limited to: federal and Virginia Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act, federal Ambient Water Quality Standards under the Clean Water Act, Virginia Water Quality Criteria, Virginia AST/UST TPH guidance level for soil (100 mg/kg) and Virginia AST/UST TPH guidance level for groundwater (1 mg/L) (VDEQ, 1995). Chemicals which are found at concentrations greater than ARARs will be identified. If an MDC (or a 95% UCL if appropriate) is greater than one or more ARARs, a recommendation will be made as to whether further evaluation, investigation, or response action should take place for the SSA. EPA may decide that further evaluation, investigation or response action is required at a SSA, based upon consultation with the Commonwealth if State ARARs are involved.

6.1.5 Background Comparison

As a final step in the human health screening process, MDCs of chemicals identified as COPCs will be compared to the EPA-approved site-specific background concentrations shown in the following table. This table includes inorganic chemicals whose 95% upper tolerance limit (UTL) are greater than residential RBC values and are based on the inorganic background data collected at RFAAP.

Facility-Wide Point Estimates for Soil

[Units in mg/kg]

Chemical	Minimum Concentration	Maximum Concentration	95% UTL of the Mean
Aluminum	3,620	47,900	40,041
Arsenic	1.2	35.9	15.8
Chromium	6.3	75.8	65.3
Iron	7,250	67,700	50,962
Manganese	16.7	2,040	2,543
Thallium	1.3	5	2.11
Vanadium	12.2	114	108

Based on the background comparison, and other relevant information, a recommendation will be made as to whether further investigation or response action is warranted at each SSA.

6.1.6 Summary of Human Health Risk Screening Procedures

The results of each screen will be summarized. If COPCs have been identified, in a particular medium, the SSA will be subject to further evaluation, such as a quantitative risk assessment. The results of the SSP will also be used to further refine the CSM.

6.2 Ecological Risk Screening Procedures

The USEPA Risk Assessment Forum (1992) recommended a general framework for conducting ecological risk assessments (ERAs). The Forum framework is presented in Figure 6-1. USEPA has since refined the framework and prepared ERA guidance (USEPA 1997). The approach taken for the SSA ecological screening at RFAAP follows the ERA eight-step approach in the USEPA guidance. Other guidance documents which may be consulted during the ecological risk screening process include the USEPA Region III BTAG ERA guidelines (USEPA 1995b), and the Tri-Service Procedural Guidelines for ERAs, Volume 1 (Wentsel et al, 1996).

The eight-step process is summarized in Figure 6-2. Since this is an ecological risk screen, the process focuses on Steps 1 and 2. These steps are intended to provide a foundation of information pertaining to ecological resources and potential interactions with site-related contamination in order that risk managers can make conservative decisions regarding ecological risks at individual SSAs.

The following steps will be followed for the ecological risk screening :

Site Reconnaissance

Problem Formulation

Exposure Assessment

Ecological Effects Assessment

Risk Characterization

Figure 6-1 Ecological Risk Assessment Framework (USEPA, 1997)

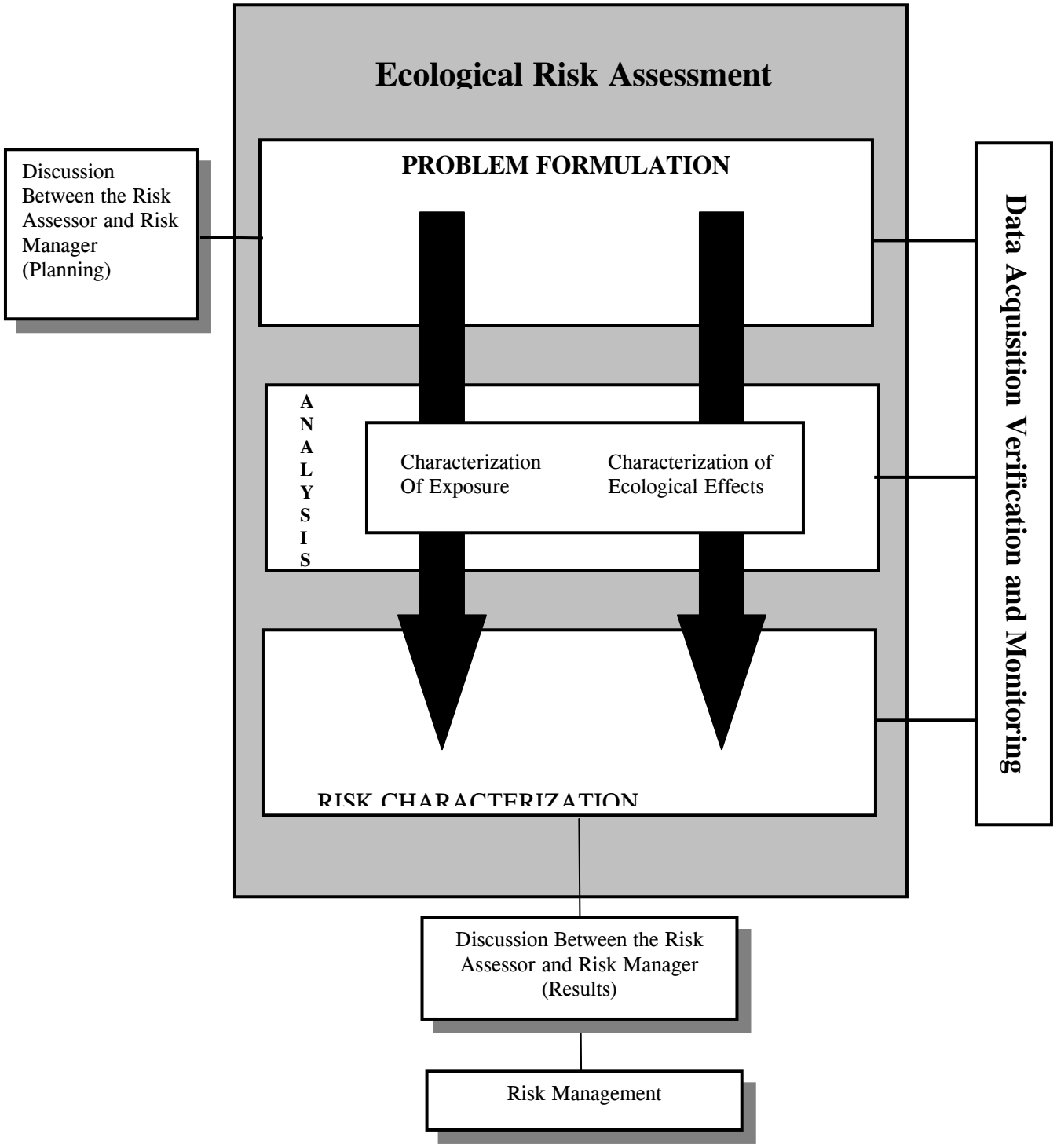
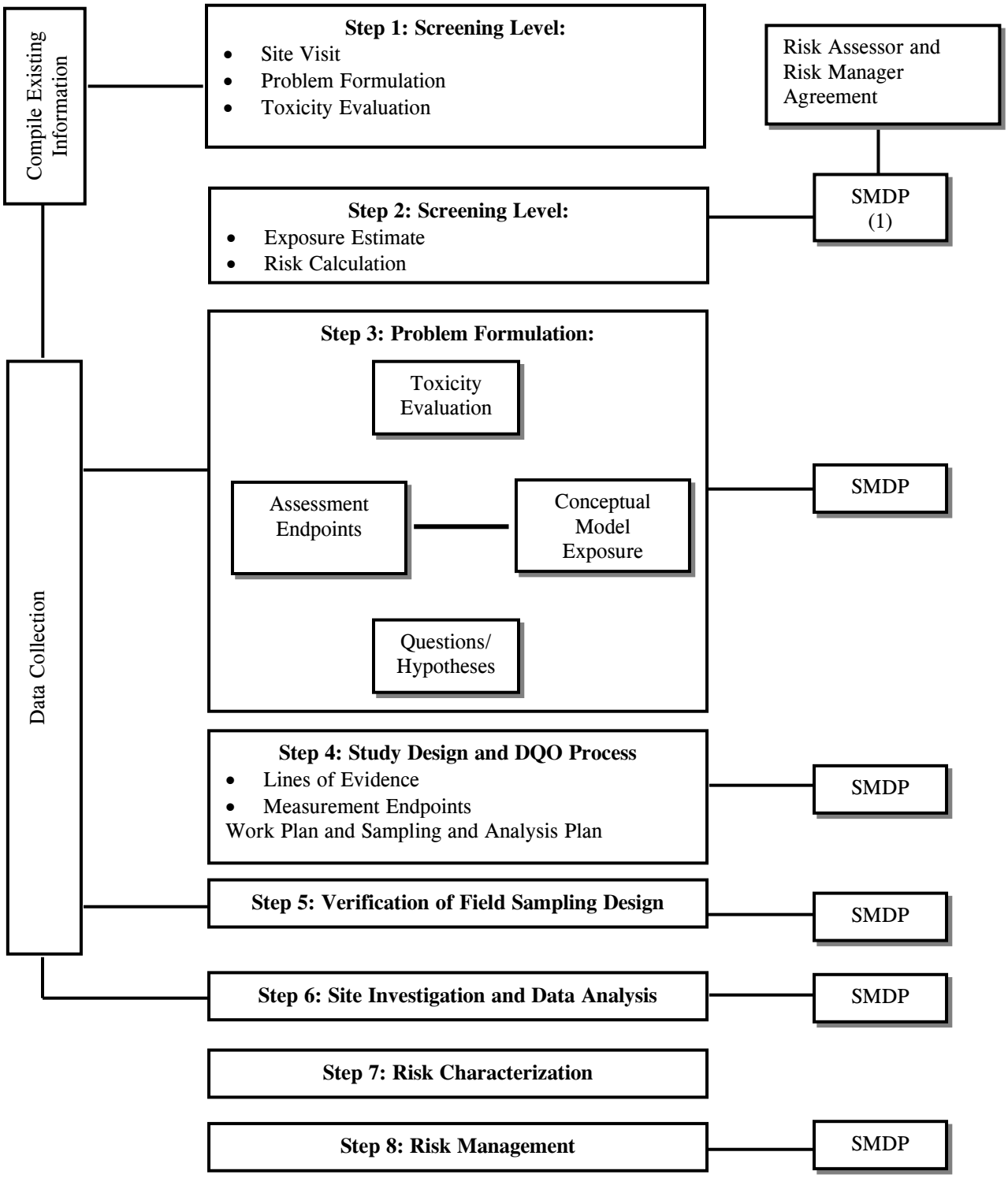


Figure 6-2 Eight-Step Ecological Risk Assessment Process for Superfund (USEPA, 1997)



The ecological risk screening will provide conclusions and recommendations regarding ecological risk at the site. The Army will use these data to make ecological risk management recommendations for each SSA. The scientific/management decision point reached from the ecological risk screening will include one of the following:

- There is adequate information to conclude that ecological risks are negligible and therefore there is no need for further action at the SSA on the basis of ecological risk;

- The information is not adequate to make a decision at this point and further refinement of data is needed to augment the ecological risk screening; or

- The information collected and presented indicates that a more thorough assessment is warranted.

6.2.1 Problem Formulation

Problem formulation is the first phase of a ecological risk screening and discusses the goals, breadth, and focus of the screening. It involves the collection and analysis of existing data to the greatest extent possible. Problem formulation includes general descriptions of RFAAP SSAs, with emphasis on size of the SSAs, proximity to operational areas and/or sensitive habitats, and the habitats and ecological receptors present. This phase also involves characterization of site contaminants, contaminant sources, migration routes, and an evaluation of complete routes of contaminant exposure to important ecological receptors. Assessment and measurement endpoints that will be evaluated are also selected. Finally, a conceptual model is developed that describes how contaminants associated with the sites in question may come into contact with ecological receptors. Much of this step will have been completed during the site reconnaissance, the review of historical information, and the development of the work plan, as discussed in Sections 2.0 and 3.0, respectively.

The following sections provide more detailed descriptions of the steps involved in the development of the problem formulation component of the ecological risk screening.

6.2.1.1 Site Characterization

The objectives of this step are to initially identify and characterize the site(s) ecological resources, and to preliminarily describe the nature and extent of chemical contamination at the site(s) in question. Information pertaining to site land-use (past, current and future), size, proximity to operable areas and/or sensitive habitats, and habitats and ecological resources will be developed during the site characterization. The SSP is a screening level process that will be used to determine if a site should proceed further through the RFI stage. As such, detailed field sampling and quantitative analysis of biota will not be performed during the SSP. If contamination is identified which may impact ecological receptors, a recommendation in the SSP report would include biota sampling.

This step will actually begin with the site visit discussed in Section 2.0. Information about local ecological resources (including threatened and endangered species) will also be obtained from maps of the study area, available scientific literature, and federal and state agencies (e.g., U.S.

Fish and Wildlife Service, Virginia Department of Game and Inland Fisheries, Department of Natural Heritage database, etc.). The site characterization will also describe likely contaminant sources, release mechanisms, complete migration pathways, the fate of chemicals resulting from site-related activities, as well as important ecological resources that could be adversely affected by these chemicals.

6.2.1.2 Identification of Chemicals of Potential Ecological Concern

COPCs will be identified by comparison of maximum site concentrations to approved Region III BTAG screening values and/or by simple food-web modeling. Initial screening of analytical data will be conducted using general screening values considered protective of all wildlife. Chemicals with MDCs (or a 95% UCL if appropriate) exceeding screening values and/or chemicals for which no screening values are available will be initially identified as COPCs to be carried through to the risk characterization step of the ecological risk screening. Values may be derived from sources such as, Federal and state standard Ambient Water Quality Criteria, Ontario Ministry of the Environment LEL values for freshwater habitats (Ontario Ministry of Environment and Energy, 1993), Great Lakes Research TEL values (Smith et al., 1996) for freshwater habitats, and EPA and ORNL surface soil screening levels (USEPA, 2000b and Will and Suter, 1995a).

6.2.1.3 Identification of Exposure Pathways and Potential Receptors for Analysis

The pathways by which ecological receptors may be exposed to COPCs at the site(s) will be identified along with the receptor groups that could be adversely affected by these chemicals. Several potential exposure pathways may exist at the site(s). For example, terrestrial vegetation may be exposed to contaminants via direct aerial deposition and root translocation, although aerial deposition is highly variable and difficult to quantify. Terrestrial animals may be exposed to soil contaminants through ingestion of contaminated food items and by incidentally ingesting soil while grooming fur, preening feathers, digging, grazing close to the soil, or feeding on items to which soil has adhered (such as roots and tubers). Terrestrial animal receptors may also come into contact with contaminants in surface water by using surface water for drinking water, although this exposure route represents a negligible portion of total exposure for most receptors.

Aquatic and semi-aquatic organisms at the RFAAP may be exposed to contaminants via direct contact with surface water and sediments, incidental ingestion of surface water and sediments, and consumption of contaminated food items. Aquatic and semi-aquatic organisms may also be exposed to constituents from contaminated groundwater that flows into surface water.

For purpose of the SSA ecological risk screening, exposure pathways representing important and likely meaningful routes of contaminate uptake will be assessed for appropriate receptor groups. If sufficient information exists to examine more obscure exposure routes (e.g. aerial deposition or inhalation) or if the assessment of an exposure route will substantially contribute to the risk understanding (e.g. drinking water) it will be examined to assess whether it warrants the evaluation.

Based on the identification of site-specific habitats, food webs, COPCs, and exposure pathways, recommendations will be made for species or species groups to be selected for evaluation in the risk screening. These may include the following receptor groups:

- For terrestrial systems: terrestrial plants, terrestrial invertebrates, reptiles and amphibians, invertebrate-eating birds (e.g., robin), invertebrate-eating mammals (e.g., shrew), carnivorous mammals (e.g. red fox), and carnivorous birds (e.g., red-tailed hawk) may be included. In addition, plant-eating mammals (e.g., rabbit), and omnivorous mammals (e.g. raccoon) may be included.

- For aquatic systems: aquatic plants, benthic invertebrates, fish, reptiles and amphibians, fish-eating birds (e.g. great blue heron), and fish-eating mammals (e.g. mink) may be included.

6.2.1.4 Identification of Assessment and Measurement Endpoints

One of the major tasks in screening problem formulation is the selection of assessment and measurement endpoints. An assessment endpoint is defined as "an explicit expression of actual environmental values that are to be protected" (USEPA, 1992d). Measurement endpoints are "measurable ecological characteristics that are related to the valued characteristic chosen as the assessment endpoint" (USEPA 1992d). Measurement endpoints serve as tools for ranking and evaluating environmental values that are to be protected. While declines in populations and shifts in community structure can be quantified, studies of this nature are generally time-consuming and difficult to interpret. However, measurement endpoints indicative of observed effects on individuals are relatively easy to measure in laboratory toxicity studies and can be related to the site specific assessment endpoint.

Toxicity data and assessment endpoints shall be discussed with BTAG, and agreed upon, in accordance with the USEPA Guidance (USEPA 1997). This step also includes the development of a conceptual site model (CSM) and identification of the specific objectives and scope of the ecological risk screening. The CSM is designed to diagrammatically identify potentially exposed receptor populations and applicable exposure pathways, based on the physical nature of the site and the potential contaminant source areas. Generally, a separate CSM will be developed for each SSA because the contaminant source, migration pathways, assessment and measurement endpoint, and exposure pathways are site-specific. However, in appropriate cases, more than one SSA can be included in a single CSM if, for example, there are common exposure and/or migration pathways.

6.2.2 Exposure Assessment

This section of the ecological risk screening includes identification of contaminant concentration data used to represent ecological exposure in various media. For each exposure pathway selected for quantitative evaluation, conservative exposure point concentrations (EPCs) will be used and the receptor specific exposure will be quantified. EPCs will be estimated using environmental sampling data either alone or in conjunction with simple environmental fate and transport models.

The food chain modeling will be performed in accordance with current USEPA CERCLA guidance for ecological risk assessment, and use conservative exposure parameter values (maximum ingestion rate, minimum body weight, 100% bioavailability) (USEPA, 1993b). The ecological exposure assessment will consist of two phases. The first, most conservative, phase will be based on conservative exposure assumptions such as:

Maximum analytical results for each medium of concern used as EPCs; and

Site use factor equals 1

The second phase will be based on conservative yet more realistic exposure assumptions such as:

- Site use factor determined based on the size of the SSA, proximity to operational areas and/or sensitive habitats, the quality of habitat present, and behavior of important ecological receptors; and

- Use of average body weight and average intake for selected wildlife receptors.

6.2.3 Ecological Effects Assessment

This step in the ecological risk screening develops toxic reference values (TRVs) for ecological receptors, to be used in the risk characterization. Acknowledging that data pertaining to ecological risk characterization is continually being updated, the Army shall consult with EPA on the most-up-to-date and appropriate data sources, when reaching this stage in the screening process. The toxicity of COPCs to terrestrial and aquatic organisms will be summarized using relevant toxicity data for the selected receptor species. The TRVs to be used in the evaluation of potential adverse effects to terrestrial and aquatic species will be derived from the literature, where possible.

In food web modeling, calculated doses will be compared to toxicological thresholds (no observed adverse effect levels [NOAELs] and lowest observed adverse effect levels [LOAELs]). The Army shall develop TRVs for wildlife receptors derived from NOAELs and LOAELs taken from various literature sources. BTAG will review these values and may provide technical assistance in selecting wildlife derived NOAELs and LOAELs. Only EPA and BTAG approved TRVs will be used in identifying COPCs at SSAs.

6.2.4 Risk Characterization

This step compares exposure point contaminant concentrations with benchmark concentrations protective of ecological receptors. The ratio of the maximum contaminant concentration to the benchmark value is called the HQ or Ecological Effects Quotient (EEQ), and is defined as follows:

$$EEQ = Emax/TRV$$

Where: EEQ = Ecological Effects Quotient for contaminant (unitless)

Emax = Maximum Concentration for contaminant (mg/L or mg/kg)

TRV = Toxicity Reference Value for contaminant (mg/L or mg/kg)

When the ratio of the maximum concentration to its respective benchmark value exceeds 1.0, further assessment may be needed. The EEQ value should not be construed as being probabilistic; rather, it is a numerical indicator of the extent to which a maximum concentration exceeds or is less than a benchmark. When EEQ values exceed 1.0, it is an indication that ecological receptors are potentially at risk based on conservative exposure assumptions.

The preliminary risk characterization will be based on the conservative preliminary exposure assumptions. A major part of the risk characterization is the interpretation of the preliminary estimates of risk in light of the conservative assumptions and uncertainties (see Section 6.2.5).

Additional evaluation of site-specific data may be necessary to confirm with greater certainty whether ecological receptors are actually at risk at the site, especially since most benchmarks are based on conservative exposure assumptions. A refined estimate of EEQs will be made using the refined exposure factors (Section 6.2.2). The results of the conservative and refined risk estimates will be evaluated in light of the uncertainties of the risk assessment process (Section 6.2.5). Furthermore, other factors, such as low frequency of detection, may mitigate potential risks for a COPC with an elevated EEQ value.

6.2.5 Uncertainty Analysis

When the above steps are completed, the results are interpreted and the uncertainties associated with the ecological risk screening are addressed. General uncertainties associated with the ecological risk screening will be qualitatively evaluated to determine the conservatism of the approach. For example, uncertainty in this site screening could arise if ecological based criteria are less than analytical method detection limits. In addition, background screening will be performed at this stage to aid in risk management decisions. Maximum detected concentrations of inorganic constituents may be compared to background values (see Section 6.1.4) to assist in assessing whether or not potential ecological risk is associated with site-related conditions.

7.0 SITE SCREENING PROCESS REPORT

Results of the desktop audit, nature and extent determination (if available), and the human health and ecological screening procedures will be presented in an SSP Report for each SSA with a recommendation for future action. The EPA will review the SSP Report for each SSA and based on results of the screening procedures, a decision will be made as to whether each SSA should be recommended for no further action, or for further action. A need for further action will be based on but not limited to the following: historical use of the SSA, history of documented release (if any), analytical data from the SSA, and the overall weight of the evidence. In general, further action at an SSA may be required under the following circumstances:

- Cumulative Excess Cancer Risk (CECR) greater than 1x10-5
- HI greater than 0.5 per target organ
- Maximum Detected Concentration > SSL for chemical migration from soil to ground water or other screening values (e.g., Virginia AST/UST TPH guidance level for soil; Virginia State and Federal MCLs, Virginia AST/UST TPH guidance level for ground water; or Federal and State Ambient Water Quality Criteria for surface water)
- Ecological risk considerations per Section 6.2

If none of the above circumstances occur, EPA may recommend no further action and memorialize this recommendation in a Decision Document.

If any of the above circumstances occur, further action may be required. Further action may consist of one or more of the following:

- Interim Removal Action, followed by sampling to confirm that risks have been reduced to acceptable levels
- Focused RFI (including additional sampling)
- RFI/CMS

8.0 DISPUTE RESOLUTION

Disputes arising during the course of the SSP shall be resolved using the dispute resolution procedures of the RCRA Corrective Action Permit, Part I, C.

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APPENDIX B

PHOTOGRAPHIC LOG

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PHOTO 1: SSA 18 – Unit 18a Building 4434 and Unit 18e Concrete Clarifiers

PHOTO 2: SSA 18 – Unit 18e Concrete Clarifiers

PHOTO 3: SSA 18 – Unit 18g Concrete Discharge Station

PHOTO 4: SSA 18 – Unit 18c Lime Silos

PHOTO 5: SSA 18 – Unit 18d Neutralization Tanks

PHOTO 6: SSA 18 – Unit 18f Steel Wastewater Surge Tank

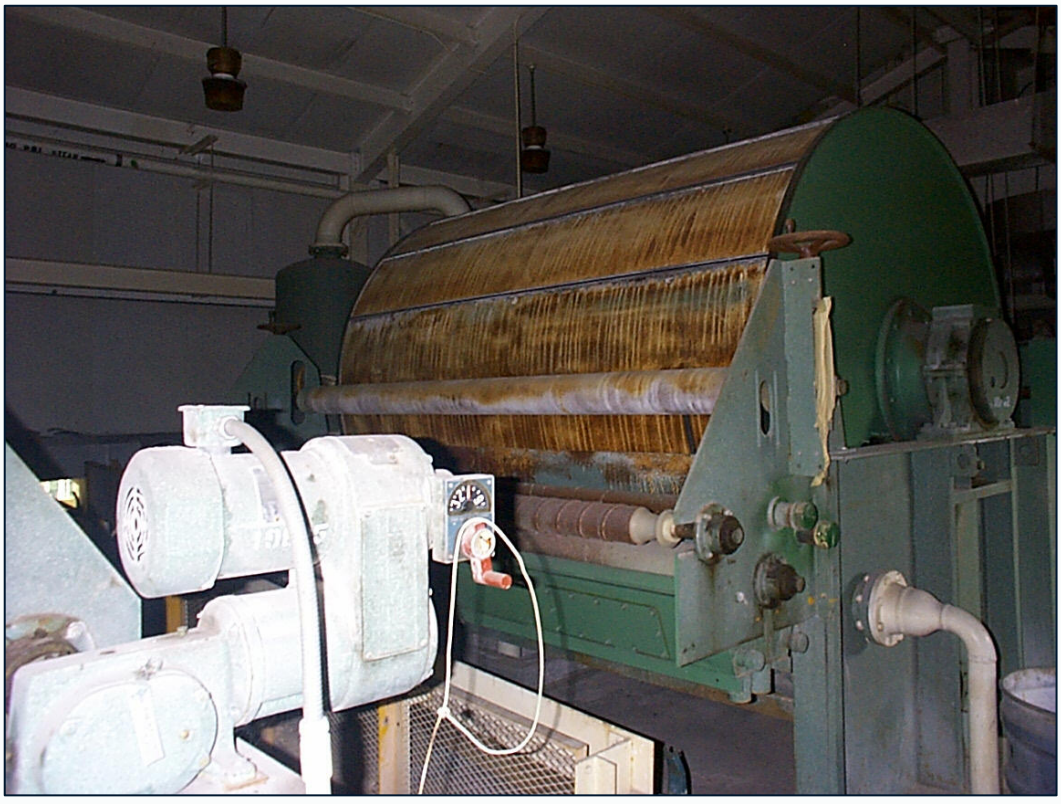

PHOTO 7: SSA 18 – Unit 18b Vacuum Drum Filter

PHOTO 8: SSA 72 – Oleum Plant Acidic Wastewater Sump

PHOTO 9: SSA 72 – Oleum Plant Acidic Wastewater Sump

PHOTO 10: SSA 30 and 79 – Asbestos Disposal Trenches 1&2

PHOTO 11: SSA 60 – Rubble Pile East of Administrative Building 220

PHOTO 12: SSA 77 – Garbage Incinerator from West

PHOTO 13: SSA 77 – Garbage Incinerator from East

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APPENDIX C

STANDARD OPERATING PROCEDURES

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Standard Operating Procedures

SOP SERIES	TITLE
10.0	**DOCUMENTATION**
10.1	Field Logbook
10.2	Surface Water, Groundwater, and Soil/Sediment Field Logbooks
10.3	Boring Logs
10.4	Chain-of-Custody Forms
20.0	**SUBSURFACE INVESTIGATION**
20.3	Well and Boring Abandonment
20.4	Test Pits
20.6	Ground-Penetrating Radar Surveys
20.7	Resistivity and Electromagnetic Surveys
20.11	Drilling Methods and Procedures
30.0	**SAMPLING**
30.1	Soil Sampling
30.2	Groundwater Sampling
30.4	Sediment Sampling with Scoop or Tube Sampler
30.6	Containerized Material
30.7	Sampling Strategies
30.9	Collection of Soil Samples By USEPA SW-846 Method 5035 Using Disposable Samplers
40.0	**FIELD EVALUATION**
40.1	Multi-parameter Water Quality Monitoring Instrument
40.2	Water Level and Well-Depth Measurements
50.0	**SAMPLE MANAGEMENT**
50.1	Sample Labels
50.2	Sample Packaging
70.0	**INVESTIGATION-DERIVED MATERIAL**
70.1	Investigation-Derived Material
80.0	**DECONTAMINATION**
80.1	Decontamination
90.0	**AIR MONITORING EQUIPMENT**
90.1	Photoionization Detector (HNu Model PI-101 and HW-101)

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STANDARD OPERATING PROCEDURE 10.1
FIELD LOGBOOK

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for recording daily site investigation activities.

Records should contain sufficient information so that anyone can reconstruct the sampling activity without relying on the collector's memory.

2.0 MATERIALS

- Field Logbook;
- Indelible ink pen; and
- Clear tape.

3.0 PROCEDURE

Information pertinent to site investigations will be recorded in a bound logbook. Each page/form will be consecutively numbered, dated, and signed. All entries will be made in indelible ink, and all corrections will consist of line out deletions that are initialed and dated. If only part of a page is used, the remainder of the page should have an "X" drawn across it. At a minimum, entries in the logbook will include but not be limited to the following:

- Project name (cover);
- Name and affiliation of personnel on site;
- Weather conditions;
- General description of the field activity;
- Sample location;
- Sample identification number;
- Time and date of sample collection;
- Specific sample attributes (e.g., sample collection depth flow conditions or matrix);
- Sampling methodology (grab or composite sample);
- Sample preservation, as applicable;
- Analytical request/methods;
- Associated quality assurance/quality control (QA/QC) samples;
- Field measurements/observations, as applicable; and
- Signature and date of personnel responsible for documentation.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

None.

6.0 REFERENCES

USEPA. 1990. *Sampler's Guide to the Contract Laboratory Program*. EPA/540/P-90/006, Directive 9240.0-06, Office of Emergency and Remedial Response, Washington, DC.

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STANDARD OPERATING PROCEDURE 10.2
SURFACE WATER, GROUNDWATER, AND SOIL/SEDIMENT FIELD LOGBOOKS

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for recording surface water, groundwater, and soil/sediment sampling information, as well as instrument calibration data in field logbooks.

2.0 MATERIAL

- Applicable field logbook (see attached forms); and
- Indelible ink pen.

3.0 PROCEDURE

All information pertinent to surface water, groundwater, or soil/sediment sampling will be recorded in the appropriate logbook. Each page/form of the logbook will be consecutively numbered. All entries will be made with an indelible ink pen. All corrections will consist of line out deletions that are initialed and dated.

3.1 SOIL/SEDIMENT

3.1.1 Field Parameters/Logbook (Form 10.2-a)

1. HIGH CONCENTRATION EXPECTED?: Answer "Yes" or "No.";
2. HIGH HAZARD?: Answer "Yes" or "No.";
3. INSTALLATION/SITE: Record the complete name of the installation or site;
4. AREA: Record the area designation of the sample site;
5. INST. NAME: Record the two-letter installation name for Radford Army Ammunition Plant – "RD";
6. SAMPLE MATRIX CODE: Record the appropriate sample matrix code. Common codes are "SD" for solid - sediment, "SI" for soil - gas, "SL for solid sludge, "SO" for surface other, "SS" for solid – soil, "SW" for surface wipe, "WD" for water – potable, "WG" for water – ground, "WS" water – surface, "WT" – water treated and "WW" water -waste;
7. SITE ID: Record a code up to 20 characters or numbers that is unique to the site;
8. ENV. FIELD SAMPLE IDENTIFIER: Record a code up to 20 characters specific for the sample;
9. DATE: Enter the date the sample was taken;
10. TIME: Enter the time (12-hour or 24-hour clock acceptable as long as internally consistent) the sample was taken;
11. AM PM: Circle "AM" or "PM" to designate morning or afternoon (12-hour clock);
12. SAMPLE PROG: Record "RFI" (RCRA Facility Investigation) or other appropriate sample program;
13. DEPTH (TOP): Record the total depth sampled;
14. DEPTH INTERVAL: Record the intervals at which the plug will be sampled;

15. UNITS: Record the units of depth (feet, meters);
16. SAMPLE MEASUREMENTS: Check the appropriate sampling method;
17. CHK: Check off each container released to a laboratory;
18. ANALYSIS: Record the type of analysis to be performed on each sample container;
19. SAMPLE CONTAINER: Record the sample container type and size;
20. NO.: Record the number of containers;
21. REMARKS: Record any remarks about the sample;
22. TOTAL NUMBER OF CONTAINERS FOR SAMPLE: Record the total number of containers;
23. SITE DESCRIPTION: Describe the location where the sample was collected;
24. SAMPLE FORM: Record the form of the sample (i.e., clay, loam, etc.) using The Unified Soil Classification System (USCS);
25. COLOR: Record the color of the sample as determined from standard Munsell Color Charts;
26. ODOR: Record the odor of the sample or "none";
27. PID: Record the measured PID values or other similar measurement instrument value;
28. UNUSUAL FEATURES: Record anything unusual about the site or sample;
29. WEATHER/TEMPERATURE: Record the weather and temperature; and
30. SAMPLER: Record your name.

3.1.2 Map File Form (refer to form 10.2-c)

1. SITE ID: Record the Site ID from the field parameter form;
2. POINTER: Record the field sample number for the sample being pointed to;
3. DESCRIPTION/MEASUREMENTS: Describe the location where the sample was taken, along with distances to landmarks;
4. SKETCH/DIMENSIONS: Diagram the surroundings and record the distances to landmarks;
5. MAP REFERENCE: Record which U.S.G.S. Quad Map references the site;
6. COORDINATE DEFINITION: Write the compass directions and the X- and Y-coordinates of the map run;
7. COORDINATE SYSTEM: Write "UTM" (Universal Transverse Mercator);
8. SOURCE: Record the 1-digit code representing the Map Reference;
9. ACCURACY: Give units (e.g., write "1-M" for 1 meter);
10. X-COORDINATE: Record the X-coordinate of the sample site location;
11. Y-COORDINATE: Record the Y-coordinate of the sample site location;
12. UNITS: Record the units used to measure the map sections;
13. ELEVATION REFERENCE: Record whether topography was determined from a map or a topographical survey;
14. ELEVATION SOURCE: Record the 1-digit code representing the elevation reference;

15. ACCURACY: Record the accuracy of the map or survey providing the topographical information;
16. ELEVATION: Record the elevation of the sampling site;
17. UNITS: Write the units in which the elevation is recorded; and
18. SAMPLER: Write your name.

3.2 SURFACE WATER

3.2.1 Field Parameter Logbook (Forms 10.2-b and 10.2-c)

1. CAL REF: Record the calibration reference for the pH meter;
2. pH: Record the pH of the sample;
3. TEMP: Record the temperature of the sample in degrees Celsius;
4. COND: Record the conductivity of the water;
5. Description of site and sample conditions (refer to 10.2-b);
6. Map File Form (refer to Section 3.1.2).

3.3 GROUNDWATER (FORMS 10.2- D)

3.3.1 Field Parameter Logbook (Form 10.2.b)

Refer to Section 3.2.1.

3.3.2 Map File and Purging Forms

1. WELL NO. OR ID: Record the abbreviation appropriate for where the sample was taken. Correct abbreviations can be found on pages 18-21 of the IRDMIS User's Guide for chemical data entry;
2. SAMPLE NO.: Record the reference number of the sample;
3. WELL/SITE DESCRIPTION: Describe the location where the sample was taken, along with distances to landmarks;
4. X-COORD AND Y-COORD: Record the survey coordinates for the sampling site;
5. ELEV: Record the elevation where the sample was taken;
6. UNITS: Record the units the elevation was recorded in;
7. DATE: Record the date in the form MM/DD/YY;
8. TIME: Record the time, including a designation of AM or PM;
9. AIR TEMP.: Record the air temperature, including a designation of C or F (Celsius or Fahrenheit);
10. WELL DEPTH: Record the depth of the well in feet and inches;
11. CASING HEIGHT: Record the height of the casing in feet and inches;
12. WATER DEPTH: Record the depth (underground) of the water in feet and inches;
13. WELL DIAMETER: Record the diameter of the well in inches;
14. WATER COLUMN HEIGHT: Record the height of the water column in feet and inches;
15. SANDPACK DIAM.: Record the diameter of the sandpack. Generally, this will be the same as the bore diameter;

16. EQUIVALENT VOLUME OF STANDING WATER: Use one of the following equations to determine one equivalent volume (EV);

    1 EV = volume in casing + volume in saturated sandpack. Or:

    $1\ EV = [\pi R_w^2 h_w + 0.30p(R_s^2 - R_w^2)h_s] * (0.0043)$

Where:

R_s = radius of sandpack in inches
R_w = radius of well casing in inches
h_s = height of sandpack in inches
h_w = water depth in inches

$0.0043 = gal/in^3$

and filter pack porosity is assumed as 30%, or

Volume in casing =
$(0.0043\ gal/in^3)(p)(12\ in/ft)(R_c^2)(W_h)$

Where:

R_c = radius of casing in inches, and
W_h = water column height in feet

Vol. in sandpack =
(0.0043 gal/in3)(p)(12 in/ft)(Rb2 - Rc2)(Wh)(0.30)

(if Wh is less than the length of the sandpack), or

Vol. in sandpack =
(0.0043 gal/in3)(p)(12 in/ft)(Rb2 - Rc2)(Sh)(0.30)

(if Wh is greater than the length of the sandpack).

where:

Rb = radius of the borehole, and
Sh = length of the sandpack.

Show this calculation in the comments section.

1. PUMP RATE: Record pump rate;
2. TOTAL PUMP TIME: Record total purge time and volume;
3. WELL WENT DRY? Write “YES” or “NO”;
4. PUMP TIME: Record pump time that made the well go dry;
5. VOLUME REMOVED: Record the volume of water (gal) removed before the well went dry;
6. RECOVERY TIME: Record the time required for the well to refill;

7. PURGE AGAIN?: Answer “YES” or “NO”;
8. TOTAL VOL. REMOVED: Record the total volume of water (in gallons) removed from the well;
9. CAL REF.: Record the calibration reference for the pH meter;
10. TIME: Record time started (INITIAL T(0)), 2 times DURING the sampling and the time sampling ended (FINAL);
11. pH: Record the pH at start of sampling (INITIAL), twice DURING the sampling, and at the end of sampling (FINAL);
12. TEMP: Record the water temperature (Celsius) at the start of sampling, twice DURING the sampling, and at the end of sampling (FINAL);
13. COND: Record the conductivity of the water at the start of sampling, twice DURING the sampling, and at the end of sampling (FINAL);
14. D.O.: Record the dissolved oxygen level in the water at the start of sampling, twice DURING the sampling, and at the end of sampling (FINAL);
15. TURBIDITY: Record the readings from the turbidity meter (nephelometer) and units at the start of sampling, twice DURING the sampling, and at the end of sampling (FINAL);
16. ORD: Record the oxidation/reduction (RedOx) potential of the water sample at the start of sampling, twice DURING the sampling, and at the end of sampling (FINAL);
17. HEAD SPACE: Record any positive readings from organic vapor meter reading taken in well headspace before sampling;
18. NAPL: Record the presence and thickness of any non-aqueous phase liquids (LNAPL and DNAPL)
19. COMMENTS: Record any pertinent information not already covered in the form; and
20. SIGNATURE: Sign the form.

3.4 FIELD CALIBRATION FORMS (REFER TO FORM 10.2-E)

1. Record time and date of calibration;
2. Record calibration standard reference number;
3. Record meter ID number;
4. Record initial instrument reading, recalibration reading (if necessary), and final calibration reading on appropriate line;
5. Record value of reference standard (as required);
6. COMMENTS: Record any pertinent information not already covered on form; and
7. SIGNATURE: Sign form.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

None.

6.0 REFERENCE

USEPA. 1991. *User's Guide to the Contract Laboratory Program*. EPA/540/O-91/002, Directive 9240.0-01D, Office of Emergency and Remedial Response, January.

FIELD PARAMETER/LOGBOOK FORM 10.2-a
SOIL AND SEDIMENT SAMPLES

HIGH CONCENTRATION EXPECTED? _____ HIGH HAZARD?

INSTALLATION/SITE _____ AREA _____

INST NAME _____ FILE NAME _____

SAMPLE MATRIX CODE _____ SITE ID _____
ENV. FIELD SAMPLE IDENTIFIER _____

DATE (MM/DD/YY) __/__/__ TIME _____ AM PM SAMPLE PROGRAM

DEPTH (TOP) _____ DEPTH INTERVAL _____ UNIT _____

SAMPLING METHOD:

SPLIT SPOON ___ AUGER ___ SHELBY TUBE ___ SCOOP ___ OTHER

CHK	ANALYSIS	SAMPLE CONTAINER	NO.	REMARKS

TOTAL NUMBER OF CONTAINERS FOR SAMPLE_____

DESCRIPTION OF SITE AND SAMPLE CONDITIONS

SITE DESCRIPTION:_____

_____

_____

SAMPLE FORM _____ COLOR _____ ODOR _____

PID (HNu)_____ UNUSUAL FEATURES_____

_____

WEATHER/TEMPERATURE

SAMPLER _____

FIELD PARAMETER/LOGBOOK FORM 10.2-b
GROUNDWATER AND SURFACE WATER SAMPLES

HIGH CONCENTRATION EXPECTED? _____ HIGH HAZARD?

INSTALLATION/SITE _____ AREA

INST CODE _____ FILE NAME _____ SITE TYPE

SITE ID _____ FIELD SAMPLE NUMBER

DATE (MM/DD/YY) __/__/__ TIME _____ AM PM SAMPLE PROG.

DEPTH (TOP) _____ DEPTH INTERVAL _____ UNITS

SAMPLING MEASUREMENTS

CAL REF. _____ pH _____ TEMPERATURE °C _____ CONDUCTIVITY _____ REDOX _____

DISSOLVED OXYGEN ____ TURBIDITY _____ OTHER

CHK	ANALYSIS	SAMPLE CONTAINER	NO.	REMARKS

TOTAL NUMBER OF CONTAINERS FOR SAMPLE_____

DESCRIPTION OF SITE AND SAMPLE CONDITIONS

SITE DESCRIPTION_____

SAMPLING METHOD_____

SAMPLE FORM _____ COLOR _____ ODOR _____

PID (HNu)_____

UNUSUAL FEATURES_____

WEATHER/TEMPERATURE_____ SAMPLER _____

EXAMPLE MAP FILE LOGBOOK FORM 10.2-c
SURFACE WATER, SOIL, AND SEDIMENT SAMPLES

SITE ID_____ POINTER_____

DESCRIPTION/MEASUREMENTS_____

SKETCH/DIMENSIONS :

MAP REFERENCE_____

COORDINATE DEFINITION (X is _____ Y is _____)

COORDINATE SYSTEM _____ SOURCE _____ ACCURACY_____

X-COORDINATE _____ Y-COORDINATE _____ UNITS_____

ELEVATION REFERENCE_____

ELEVATION SOURCE _____ ACCURACY _____ELEVATION_____

UNITS_____

SAMPLER_____

EXAMPLE MAP FILE AND PURGING LOGBOOK FORM 10.2-d
GROUNDWATER SAMPLES

WELL COORD. OR ID _____ SAMPLE NO._____

WELL/SITE DESCRIPTION_____

_____

X-COORD. _____ Y-COORD. _____ ELEV. _____ UNITS

DATE ____/____/____ TIME _____ AIR TEMP.

WELL DEPTH _____ FT. _____ IN. CASING HT. _____ FT. _____ IN.

WATER DEPTH _____ FT. _____ IN. WELL DIAMETER _____ IN.

WATER COLUMN HEIGHT _____ FT. _____ IN. SANDPACK DIAM. _____ IN.

EQUIVALENT VOLUME OF STANDING WATER _____ (GAL) (L)

VOLUME OF BAILER _____ (GAL) (L) or PUMP RATE _____ (GPM) (LPM)

TOTAL NO. OF BAILERS (5 EV) _____ or PUMP TIME _____ MIN.

WELL WENT DRY? [Yes] [No] NUM. OF BAILERS _____ or PUMP TIME

VOL. REMOVED _____ (GAL) (L) RECOVERY TIME

PURGE AGAIN? [Yes] [No] TOTAL VOL. REMOVED _____ (GAL) (L)

DATE & TIME	QUANTITY REMOVED	TIME REQ'D	pH	Cond	Temp	ORD	Turb	DO	Character of water (color / clarity / odor / partic.)
(before)									
(during)									
(during)									
(during									
(after)									

COMMENTS_____

SIGNATURE_____

EXAMPLE FIELD CALIBRATION FORM 10.2-e
FOR pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY,
ORD, AND DISSOLVED OXYGEN METERS

INITIAL CALIBRATION	FINAL CALIBRATION
DATE:	**DATE:**
TIME:	**TIME:**

pH METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

pH STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
7.0			
10.0			
4.0			

CONDUCTIVITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

COND. STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

TEMPERATURE METER CALIBRATION

METER ID_____

TEMP. STANDARD	INITIAL READING	RECALIB. READING	FINAL READING
ICE WATER			
BOILING WATER			
OTHER _____			

EXAMPLE FIELD CALIBRATION FORM 10.2-e
FOR pH, CONDUCTIVITY, TEMPERATURE, TURBIDITY,
ORD, AND DISSOLVED OXYGEN METERS

TURBIDITY METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

ORD METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

DISSOLVED OXYGEN METER CALIBRATION

CALIBRATION STANDARD REFERENCE NO:_____

METER ID_____

STANDARD	INITIAL READING	RECALIB. READING	FINAL READING

COMMENTS_____

SIGNATURE_____

STANDARD OPERATING PROCEDURE 10.3
BORING LOGS

1.0 INTRODUCTION

The purpose of this standard operating procedure (SOP) is to describe the methods to be followed for classifying soil and rock, as well as preparing borehole logs and other types of soil reports.

2.0 MATERIALS

The following equipment is required for borehole logging:

- HTRW ENG Form 5056-R and 5056A-R boring log forms;
- Daily inspection report forms;
- Chain-of-custody forms;
- Request for analysis forms;
- ASTM D 2488 classification flow chart;
- Soil and/or Rock color chart (i.e., Munsell®);
- Grain size and roundness chart;
- Graph paper;
- Engineer's scale;
- Previous reports and boring logs;
- Pocketknife or putty knife;
- Hand lens;
- Dilute hydrochloric acid (10% volume);
- Gloves;
- Personal protective clothing and equipment, as described in work plan addenda health and safety plan;
- Photoionization detector or other appropriate monitoring equipment per site-specific health and safety plan; and
- Decontamination supplies (SOP 80.1).

3.0 PROCEDURE

Each boring log should fully describe the subsurface environment and the procedures used to obtain this description.

Boring logs should be prepared in the field on USACE Engineer Form 5056-R and 5056-R. Logs should be recorded in the field directly on the boring log form and not transcribed from a field book.

A "site geologist" should conduct borehole logging and soil/rock identification and description or other professional trained in the identification and description of soil/rock.

3.1 BORING LOG INFORMATION

As appropriate, the following information should be recorded on the boring log during the course of drilling and sampling activities:

- Project information including name, location, and project number;
- Each boring and well should be uniquely numbered and located on a sketch map as part of the log;
- Type of exploration;
- Weather conditions including events that could affect subsurface conditions;
- Dates and times for the start and completion of borings, with notations by depth for crew shifts and individual days;
- Depths/heights in feet and in decimal fractions of feet;
- Descriptions of the drilling equipment including rod size, bit type, pump type, rig manufacturer and model, and drilling personnel;
- Drilling sequence and descriptions of casing and method of installation;
- Description and identification of soils in accordance with ASTM Standard D 2488;
- Descriptions of each intact soil sample for the parameters identified in Section 3.2;
- Descriptions and classification of each non-intact sample (e.g., wash samples, cuttings, auger flight samples) to the extent practicable;
- Description and identification of rock;
- Description of rock (core(s)) for the parameters identified in Section 3.7;
- Scaled graphic sketch of the rock core (included or attached to log) according to the requirements identified in Section 3.7;
- Lithologic boundaries, with notations for estimated boundaries;
- Depth of water first encountered in drilling, with the method of first determination (any distinct water level(s) below the first zone will also be noted);
- Interval by depth for each sample taken, classified, and/or retained, with length of sample recovery and sample type and size (diameter and length);
- Blow counts, hammer weight, and length of fall for driven samplers;
- Rate of rock coring and associated rock quality designation (RQD) for intervals cored;
- Drilling fluid pressures, with driller's comments;
- Total depth of drilling and sampling;
- Drilling fluid losses and gains should be recorded;
- Significant color changes in the drilling fluid returned;
- Soil gas or vapor readings with the interval sampled, with information on instrument used and calibration;

- Depth and description of any in-situ test performed; and
- Description of other field tests conducted on soil and rock samples.

3.2 SOIL PARAMETERS FOR LOGGING

In general, the following soil parameters should be included on the boring log when appropriate:

- Identification per ASTM D 2488 with group symbol;
- Secondary components with estimated percentages per ASTM D 2488;
- Color;
- Plasticity per ASTM D 2488;
- Density of non-cohesive soil or consistency of cohesive soil;
- Moisture condition per ASTM D 2488 (dry, moist, or wet);
- Presence of organic material;
- Cementation and HCl reaction testing per ASTM D 2488;
- Coarse-grained particle description per ASTM D 2488 including angularity, shapes, and color;
- Structure per ASTM D 2488 and orientation;
- Odor; and
- Depositional environment and formation, if known.

ASTM D 2488 categorizes soils into 13 basic groups with distinct geologic and engineering properties based on visual-manual identification procedures. The following steps are required to classify a soil sample:

1. Observe basic properties and characteristics of the soil. These include grain size grading and distribution, and influence of moisture on fine-grained soil.
2. Assign the soil an ASTM D 2488 classification and denote it by the standard group name and symbol.
3. Provide a written description to differentiate between soils in the same group if necessary.

Many soils have characteristics that are not clearly associated with a specific soil group. These soils might be near the borderline between groups, based on particle distribution or plasticity characteristics. In such a case, assigning dual group names and symbols (e.g., GW/GC or ML/CL) might be an appropriate method of describing the soil. The two general types of soils, for which classification is performed, coarse- and fine-grained soils, are discussed in the following sections.

3.3 COURSE-GRAINED SOIL IDENTIFICATION

For soils in the coarse-grained soils group, more than half of the material in the soil matrix will be retained by a No. 200 sieve (75-μm).

1. Coarse-grained soils are identified on the basis of the following:
   a) Grain size and distribution;
   b) Quantity of fine-grained material (i.e., silt and clay as a percentage); and
   c) Character of fine-grained material.
2. The following symbols are used for classification:

Basic Symbols			Modifying Symbols
G	=	gravel	W = well graded
S	=	sand	P = poorly graded
			M = with silty fines
			C = with clayey fines

3. The following basic facts apply to coarse-grained soil classification.

- The basic symbol G is used if the estimated percentage of gravel is greater than that for sand. In contrast, the symbol S is used when the estimated percentage of sand is greater than the percentage of gravel.
- Gravel ranges in size from 3-inch to 1/4-inch (No. 4 sieve) diameter. Sand ranges in size from the No. 4 sieve to No. 200 sieve. The Grain Size Scale used by Engineers (ASTM Standard D 422-63) is the appropriate method to further classify grain size as specified by ASTM D 2488.
- Modifying symbol W indicates good representation of all particle sizes.
- Modifying symbol P indicates that there is an excess or absence of particular sizes.
- The symbol W or P is used only when there are less than 15% fines in a sample.
- Modifying symbol M is used if fines have little or no plasticity (silty).
- Modifying symbol C is used if fines have low to high plasticity (clayey).

Figure 10.03a is a flowchart for identifying coarse-grained soils by ASTM D 2488.

3.4 FINED-GRAINED SOIL IDENTIFICATON

If one-half or more of the material will pass a No. 200 sieve (75 μm), the soil is identified as fine-grained.

1. Fine-grained soils are classified based on dry strength, dilatancy, toughness, and plasticity.
2. Classification of fine-grained soils uses the following symbols:

Basic Symbols			Modifying Symbols		
M	=	silt (non plastic)	L	=	low liquid limit (lean)
C	=	clay (plastic)	H	=	high liquid limit (fat)
O	=	organic			
Pt	=	peat			

3. The following basic facts apply to fine-grained soil classification:
    - The basic symbol M is used if the soil is mostly silt, while the symbol C applies if it consists mostly of clay.
4. Use of symbol O (group name OL/OH) indicates that organic matter is present in an amount sufficient to influence soil properties. The symbol Pt indicates soil that consists mostly of organic material.

- Modifying symbols (L and H) are based on the following hand tests conducted on a soil sample:
    - — Dry strength (crushing resistance).
    - — Dilatancy (reaction to shaking).
    - — Toughness (consistency near plastic limit).

- Soil designated ML has little or no plasticity and can be recognized by slight dry strength, quick dilatency, and slight toughness.
- CL indicates soil with slight to medium plasticity, which can be recognized by medium to high dry strength, very slow dilatancy, and medium toughness.

Criteria for describing dry strength per ASTM D 2488 are as follows:

Description	Criteria
None	Dry sample crumbles into powder with pressure of handling
Low	Dry specimen crumbles into powder with some finger pressure
Medium	Dry specimen breaks into pieces or crumbles with considerable finger pressure
High	Dry specimen cannot be broken with finger pressure but will break into pieces between thumb and a hard surface
Very high	Dry specimen cannot be broken between the thumb and a hard surface stiffness

Criteria for describing dilatancy per ASTM D 2488 are as follows:

None	No visible change in the sample
Slow	Water appears slow on the surface of the sample during shaking and does not disappear or disappears slowly upon squeezing
Rapid	Water appears quickly on the surface of the sample during shaking and disappears quickly upon squeezing

Criteria for describing toughness per ASTM D 2488 are as follows:

Description	Criteria
Low	Only slight pressure is required to roll the thread near the plastic limit and the thread and lump are weak and soft
Medium	Medium pressure is required to roll the thread to near the plastic limit and the thread and lump have medium stiffness
High	Considerable pressure is required to roll the thread to near the plastic limit and the thread and lump have very high stiffness

Figure 10.03b is a flowchart for identifying fine-grained soils by ASTM D 2488.

3.5 DENSITY AND CONSISTENCY

Relative density for coarse-grained soils and consistency for fine-grained soils can be estimated using standard penetration test blow count data (ASTM D 1586). The number of blows required for each 6 inches of penetration or fraction thereof is recorded. If the sampler is driven less than 18 inches, the number of blows per each complete 6-inch interval and per partial interval is recorded.

For partial increments, the depth of penetration should be recorded to the nearest 1 inch. If the sampler advances below the bottom of the boring under the weight of rods (static) and/or hammer, then this information should be recorded on the log.

The following are some "rule-of-thumb" guidelines for describing the relative density of coarse-grained soils:

Blow Count	Relative Density for Sand
0–4	Very loose
4–10	Loose

10–30	Medium dense
30–50	Dense
>50	Very Dense

The following are some "rule-of-thumb" guidelines for describing the consistency of fine-grained soils:

Blow Count	Consistency for Clays	Description
0–2	Very Soft	Sample sags or slumps under its own weight
2–4	Soft	Sample can be pinched in two between the thumb and forefinger
4–8	Medium Stiff	Sample can be easily imprinted with fingers
8–16	Stiff	Sample can be imprinted only with considerable pressure of fingers
16–32	Very Stiff	Sample can be imprinted very slightly with fingers
>32	Hard	Sample cannot be imprinted with fingers; can be pierced with pencil

3.6 OTHER DESCRIPTIVE INFORMATION

The approximate percentage of gravel, sand, and fines (use a percentage estimation chart) should be recorded per ASTM D 2488 as follows:

Modifiers	Descriptions
Trace	Less than 5%
Few	5%–10%
Little	15%–25%
Some	30%–45%
Mostly	50%–100%

Color/discoloration should be recorded and described using a soil color chart, such as the Munsell® Soil Color Charts. A narrative and numerical description should be given from the color chart, such as Brown 10 YR, 5/3 (Munsell®). Odor should be described if organic or unusual.

Plasticity should be described as follows:

Description	Criteria
Non-plastic	A 1/8-inch thread cannot be rolled at any water content
Low	Thread can barely be rolled and lump cannot be formed when drier than plastic limit.
Medium	Thread is easy to roll; plastic limit can be reached with little effort and lump crumbles when drier than plastic limit.
High	Considerable time is required to reach the plastic limit and lump can be formed without crumbling when drier than plastic limit

Moisture condition should be recorded as dry (absence of moisture), moist (damp but no visible water) or wet (visible free water).

Cementation should be recorded (carbonates or silicates) along with the results of HCL reaction testing. The reaction with HCL should be described as none (no visible reaction), weak (some reaction with slowly forming bubbles) or strong (violent reaction with bubbles forming immediately).

Particle description information for coarse-grained soil should be recorded where appropriate per ASTM D 2488 including maximum particle size, angularity (angular, subangular, subrounded, or rounded), shape (flat, elongated or flat and elongated), and color.

Structure (along with orientation) should be reported using the following ASTM D 2488 descriptions:

Description	Criteria
Stratified	Alternating layers of varying material or color with layers greater than 6 millimeters thick
Laminated	Alternating layers of varying material or color with layers less than 6 millimeters thick
Fissured	Breaks along definite planes of fracture with little resistance
Slickensided	Fracture planes that appear polished or glossy, can be striated
Blocky	Inclusion of small pockets of different soils
Homogeneous	Same color and appearance throughout

3.7 ROCK CORE PARAMETERS FOR LOGGING

In general, the following parameters should be included on the boring log when rock coring is conducted:

- Rock type;
- Formation;
- Modifier denoting variety;
- Bedding/banding characteristics;
- Color;
- Hardness;
- Degree of cementation;
- Texture;
- Structure and orientation;
- Degree of weathering;
- Solution or void conditions;
- Primary and secondary permeability including estimates and rationale; and
- Lost core interval and reason for loss.

A scaled graphic sketch of the core should provided on or attached to the log, denoting by depth, location, orientation, and nature (natural, coring-induced, or for fitting into core box) of all core breaks. Where fractures are too numerous to be shown individually, their location may be drawn as a zone.

The RQD values for each core interval (run) should be calculated and included on the boring log. The method of calculating the RQD is as follows per ASTM D 6032:

RQD = [Σ length of intact core pieces > 100 mm (4-inches)] x 100%/total core length.

3.8 PROCEDURES FOR ROCK CLASSIFICATION

For rock classification record mineralogy, texture, and structural features (e.g., biotite and quartz fine grains, foliated parallel to relict bedding oriented 15 to 20 degrees to core axis, joints coated with iron oxide). Describe the physical characteristics of the rock that are important for engineering considerations such as fracturing (including minimum, maximum, and most common and degree of spacing), hardness, and weathering.

1. The following is to be used as a guide for assessing fracturing:

AEG Fracturing	Spacing
Crushed	up to 0.1 foot
Intense	0.1–0.5 foot
Moderate	0.5 foot–10 feet
Slight	1.0 foot–3.0 feet
Massive	>3.0 feet

2. Record hardness using the following guidelines:

Hardness	Criteria
Soft	Reserved for plastic material
Friable	Easily crumbled by finger pressure
Low	Deeply gouged or carved with pocketknife
Moderate	Readily scratched with knife; scratch leaves heavy trace of dust
Hard	Difficult to scratch with knife; scratch produces little powder and is often faintly visible
Very Hard	Cannot be scratched with knife

3. Describe weathering using the following guidelines:

Weathering	**Decomposition**	**Discoloration**	**Fracture Condition**
Deep	Moderate to complete alteration of minerals feldspars altered to clay, etc.	Deep and thorough	All fractures extensively coated with oxides, carbonates, or clay
Moderate	Slight alteration of minerals, cleavage surface lusterless and stained	Moderate or localized and intense	Thin coatings or stains
Weak	No megascopic alteration of minerals	Slight and intermittent and localized	Few strains on fracture surfaces
Fresh	Unaltered, cleavage, surface glistening		

3.9 PROCEDURE FOR LOGGING REFUSE

The following procedure applies to the logging of subsurface samples composed of various materials in addition to soil as may be collected from a landfill or other waste disposal site.

1. Observe refuse as it is brought up by the hollow stem auger, bucket auger, or backhoe.
2. If necessary, place the refuse in a plastic bag to examine the sample.
3. Record observations according to the following criteria:
   - Composition (by relative volume), e.g., paper, wood, plastic, cloth, cement, or construction debris. Use such terms as “mostly” or “at least half.” Do not use percentages;
   - Moisture condition: dry, moist, or wet;
   - State of decomposition: highly decomposed, moderately decomposed, slightly decomposed, etc.;
   - Color: obvious mottling and/or degree of mottling;

- Texture: spongy, plastic (cohesive), friable;
- Odor;
- Combustible gas readings (measure down hole and at surface); and
- Miscellaneous: dates of periodicals and newspapers, ability to read printed materials, degree of drilling effort (easy, difficult, and very difficult).

3.10 SUBMITTAL REQUIREMENTS

Each original boring log should be submitted to the Contracting Officer Representative (CRO) after completion of the boring. When a monitoring well will be installed in a boring, the boring log and well installation diagram should be submitted together.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

Not applicable.

6.0 REFERENCES

ASTM Standard D 422-63 (2002)e1. 2002. *Standard Test Method for Particle-Size Analysis of Soils.*

ASTM Standard D 1586–99 (1999). 1999. *Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils.*

ASTM Standard D 2488-06. 2006. *Standard Practice for Description and Identification of Soils Visual-Manual Procedure).*

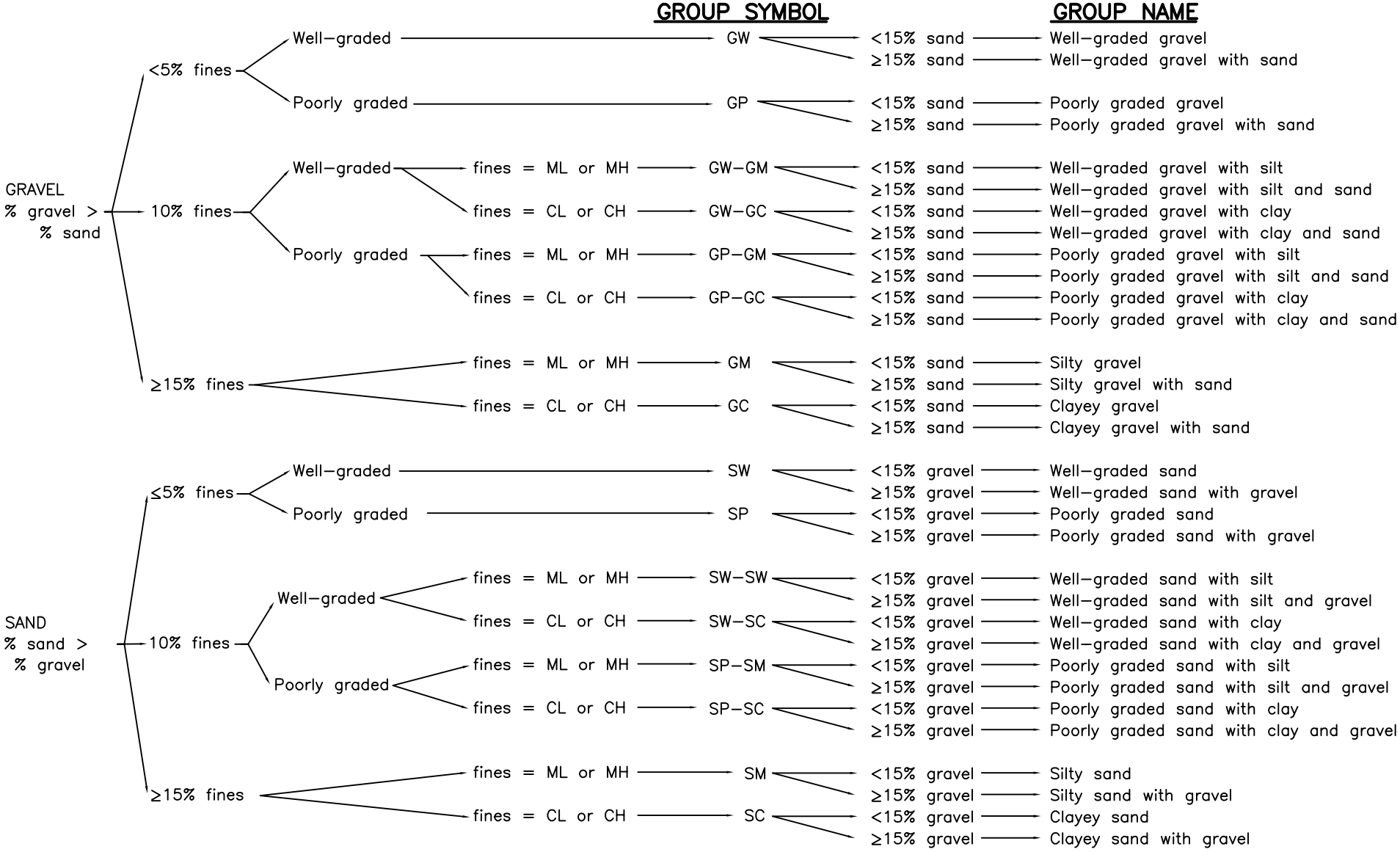
ASTM Standard D 5434-03. 2003. *Guide for Field Logging of Subsurface Explorations of Soil and Rock.*

ASTM Standard D 6032-02 (2006). 2006. *Standard Test Method for Determining Rock Quality Designation (RQD) of Rock Core.*

Compton, R. R. 1962. *Manual of Field Geology.* John Wiley & Sons, Inc., New York.

USACE. 1998. *Monitoring Well Design, Installation, and Documentation at Hazardous, Toxic, and Radioactive Waste Sites.* EM 1110-1-4000, 1, November.

U.S. Department of the Interior. 1989. *Earth Manual.* Water and Power Resources Service, Washington, DC.



NOTE: PERCENTAGES ARE BASED ON ESTIMATING AMOUNTS OF FINES, SAND, AND GRAVEL TO THE NEAREST 5%.

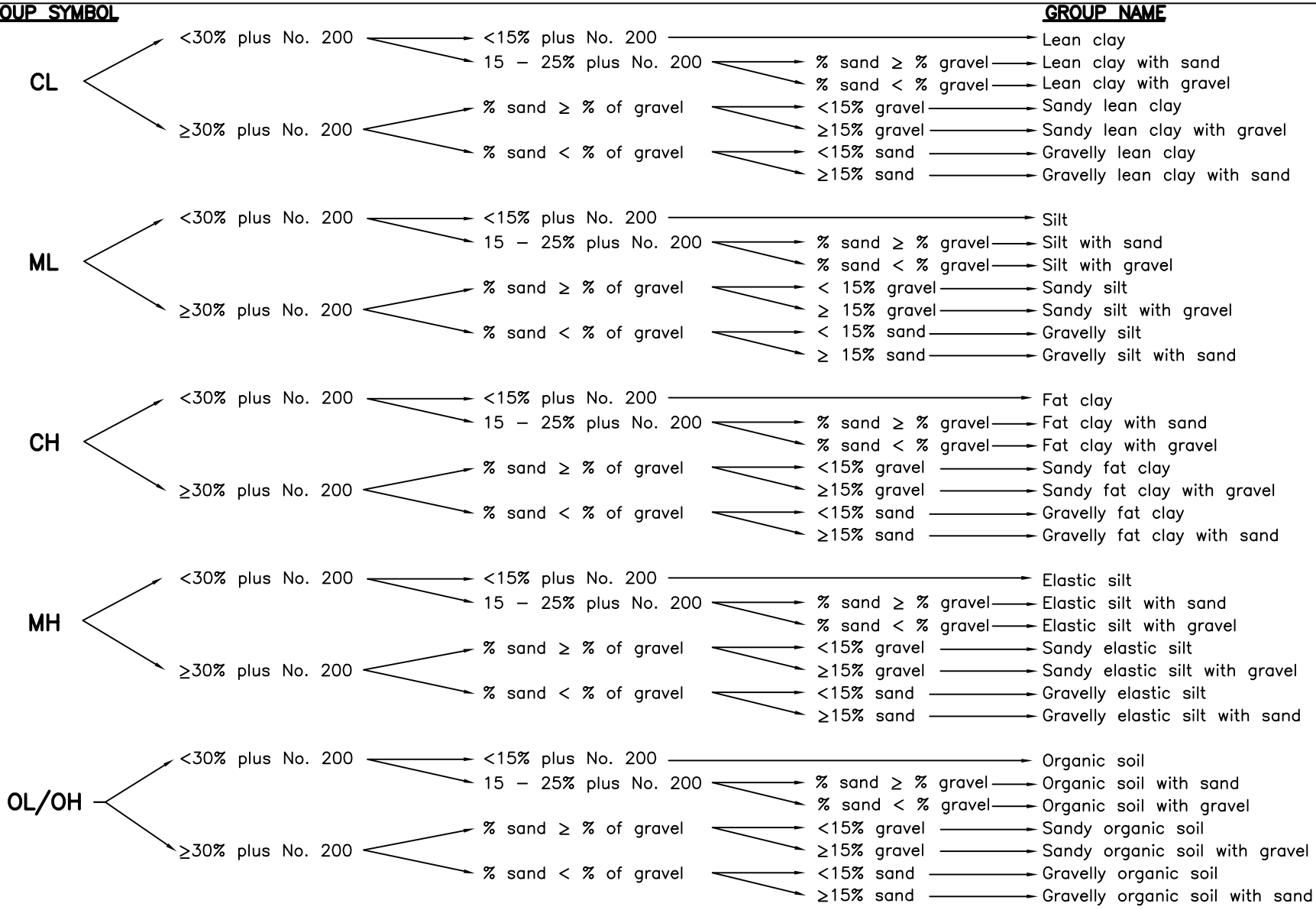
SOURCE: ASTM D 2488

Radford Army Ammuntion Plant

FIGURE 10.03a

FLOW CHART FOR IDENTIFYING COARSE-GRAINED SOILS

Date: *October 2007*	**Prepared By:** *DBC/TLD*
Scale: *N.T.S.*	**File Name:** *SOP Figure 10.03a_Coarse*



NOTE: PERCENTAGES ARE BASED ON ESTIMATING AMOUNTS OF FINES, SAND, AND GRAVEL TO THE NEAREST 5%.

SOURCE: ASTM D 2488

Radford Army Ammuntion Plant	
Date: *October 2007*	**Prepared By:** *DBC/TLD*
Scale: *N.T.S.*	**File Name:** *SOP Figure 10.03b_Fine*

FIGURE 10.03b

FLOW CHART FOR IDENTIFYING FINE-GRAINED SOILS

STANDARD OPERATING PROCEDURE 10.4
CHAIN-OF-CUSTODY FORM

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for use of the chain-of-custody form. An example is provided as part of this SOP. Other formats with similar levels of detail are acceptable.

2.0 MATERIALS

- Chain-of-custody form; and
- Indelible ink pen.

3.0 PROCEDURE

1. Record the project name and number.
2. Record the project contact's name and phone number.
3. Print sampler's names in "Samplers" block.
4. Enter the Field Sample No.
5. Record the sampling dates for all samples.
6. List the sampling times (military format) for all samples.
7. Indicate, "grab" or "composite" sample with an "X."
8. Record matrix (e.g., aqueous, soil).
9. List the analyses/container volume across top.
10. Enter the total number of containers per Field Sample No. in the "Subtotal" column.
11. Enter total number of containers submitted per analysis requested.
12. State the carrier service and airbill number, analytical laboratory, and custody seal numbers.
13. List any comments or special requests in the "Remarks" section.
14. Sign, date, and time the "Relinquished By" section when the cooler is relinquished to the next party.
15. Upon completion of the form, retain the shipper copy and place the forms and the other copies in a zip seal bag to protect from moisture. Affix the zip seal bag to the inside lid of the sample cooler to be sent to the designated laboratory.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

None.

6.0 REFERENCES

USEPA. 1990. *Sampler's Guide to the Contract Laboratory Program.* EPA/540/P-90/006, Directive 9240.0-06, Office of Emergency and Remedial Response, Washington, DC, December 1990.

USEPA. 1991. *User's Guide to the Contract Laboratory Program..* EPA/540/O-91/002, Directive 9240.0-01D, Office of Emergency and Remedial Response, January 1991.

USEPA. 1998. *EPA Requirements for Quality Assurance Project Plans.* EPA/600/R-98/018, QA/R5, Final, Office of Research and Development, Washington, D.C.

FIGURE 10.4-a
EXAMPLE CHAIN-OF-CUSTODY FORM

Project Number	Project Name				Matrix	A N A L Y S E S									LAB :
Project Contact (Name and Phone Number)															AIRBILL No:
Samplers:															Courier:
Field Sample No.	Date (MM-DD-YY)	Time	Comp	Grab										Subtotal	REMARKS
TOTAL															
Relinquished by:		Date/time		Received by:		Relinquished by:						Date/Time		Received by:	
Relinquished by:		Date/time		Received by: (for lab)		Date/Time						Remarks			

STANDARD OPERATING PROCEDURE 20.3
WELL AND BORING ABANDONMENT

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to establish the protocols by which all borings and wells will be abandoned. The primary objective of boring or well abandonment activities is to permanently abandon the boring or well so that the natural migration of groundwater or soil vapor is not significantly influenced.

2.0 MATERIALS

- Well abandonment equipment including appropriate grout mixing/placement equipment, and heavy equipment as appropriate (drill rig, crane, backhoe, etc.);
- Pure sodium bentonite powder with no additives (bentonite);
- Bentonite pellets (seal);
- Cement (Portland Type II); and
- Approved source water.

3.0 PROCEDURE

The volume of grout required for borehole or well abandonment should be calculated prior to proceeding with abandonment. These calculations should consider loss of material to the formation, changes in borehole diameter, potential zones of washout, and shrinkage of material. Calculations should be recorded on an abandonment record (see Section 3.1.4).

In general, cement grout should be used for boring and well abandonment per the specifications in Section 3.1 and procedures identified in the following sections. Specialized narrow diameter soil borings (3-inches or less) associated with direct push methods or hand augers may be abandoned using bentonite pellets or chips (see Section 3.5).

Any replacement borings or wells associated with the abandonment should be offset at least 20 feet from any abandoned site in a presumed up- or cross-gradient direction.

3.1 GROUT

Grout used in construction will be composed by weight of the following:

- Type II Portland cement (Type IV Portland Cement if sulfate concentrations are greater than 1,500 ppm);
- Bentonite (2 to 5% dry bentonite per 94-lb sack of dry cement); and
- A maximum of 6 to 7 gallons of approved water per 94-lb sack of cement.

Neither additives nor borehole cuttings will be mixed with the grout. Bentonite will be added after the required amount of cement is mixed with the water.

All grout material will be combined in an aboveground container and mechanically blended to produce a thick, lump-free mixture. The mixed grout will be recirculated through the grout pump before placement.

Grout placement will be performed using a commercially available grout pump and a rigid tremie pipe. Removal and grouting will be accomplished in stages, aquifer by aquifer, sealing the boring from the bottom to ground surface. This will be accomplished by placing a grout pipe to the bottom and pumping grout through the pipe until undiluted grout reaches the bottom of the next higher section of casing or, for the top-most section, until grout flows from the boring at ground surface.

After 24 hours, the abandoned drilling site will be checked for grout settlement. Any settlement will be filled with grout and rechecked 24 hours later. This process will be repeated until firm grout remains at the ground surface.

3.2 BORINGS

The term "borings" as used in this SOP applies to any drilled hole made that is not completed as a well. This includes soil test borings, soil sampling borings, and deep stratigraphic borings. Whether completed to the planned depth or aborted for any reason before reaching that depth, borings will be grouted and will be normally closed within 12 hours.

To achieve an effective seal, the borehole to be abandoned should be free of debris and foreign matter that may restrict the adhesion of the grout to the borehole wall. Borehole flushing with a tremie pipe may be required to remove such materials prior to grouting.

Each boring to be abandoned should be sealed by grouting from the bottom of the boring to the ground surface. This will be accomplished by placing a tremie pipe to the bottom of the borehole and pumping grout through the pipe at a steady rate. The grouting should be completed slowly and continuously to prevent channeling of material. The tremie pipe should be raised when pumping pressure increases significantly or when undiluted grout reaches the surface.

After 24 hours of completing the abandonment, the abandoned boring or well should be checked for any grout settlement. The settlement depression should be filled with grout and rechecked 24 hours later. Grout should be placed with a tremie pipe if the open hole is 15 feet or deeper or if the hole is not dry. Otherwise, the grout may be poured from the surface.

3.3 NARROW BORINGS

Narrow borings, those with diameter less than 3 inches, advanced by hand auger or direct push methods, may be sealed using bentonite pellets or chips rather than a grout mixture. Often times a grout pump is not available to mix the grout when these methods have been used. Bentonite pellets or chips will be poured into the boring from the ground surface. Then bentonite will hydrate by absorbing moisture from the ground; unapproved water should not be added to the boring. After 24 hours, the abandoned boring will be checked, and any grout settlement will be topped off with more bentonite. The process will be repeated until bentonite remains at ground surface unless site condition indicates otherwise.

3.4 WELLS

The following procedure applies to wells aborted before completion and existing wells determined to be ineffective or otherwise in need of closure.

General Considerations

A number of techniques are available for abandoning monitoring wells and other monitoring devices including:

- Abandonment in place by grouting the well screen and casing in place;
- Removal of the well by pulling; and
- Overdrilling.

The particular method used for abandonment should be specified in the work plan addenda developed for a site-specific investigation. Several factors must be considered when selecting the appropriate abandonment technique including well construction, well condition, and subsurface conditions.
In general the preferred method for abandonment of wells is to remove all existing well materials to:

- Reduce the potential for the formation of a vertical conduit to occur at the contact between the casing and annular seal;
- Reduce the potential for well materials interfering with the abandonment procedures; and
- Decrease the potential for reaction between the well materials and grout used for abandonment.

In general, all well materials will be removed during abandonment (including screen and casing) by either pulling out the casing, screen, and associated materials or by overdrilling using a rotary or hollow stem auger drilling procedure.

Abandonment with Well Materials In Place

In the event that it is not possible to remove the casing and screen, the casing and screen will be perforated using a suitable tool. A minimum of four rows of perforations several inches long and a minimum of five perforations per linear foot of casing or screen is recommended.

After the screen and casing have been appropriately perforated, the well should be abandoned by grouting from the bottom of the well to the ground surface using a tremie pipe as described in Section 3.2. The tremie pipe should be raised when pumping pressure increases significantly or when undiluted grout reaches the surface.

After 24 hours of completing the abandonment, the abandoned well should be checked for any grout settlement. The settlement depression should be filled with grout and rechecked 24 hours later. Grout should be placed with a tremie pipe if the open hole is 15 feet or deeper or if the hole is not dry. Otherwise, the grout may be poured from the surface.

Abandonment by Removal

Site conditions permitting, relatively shallow monitoring wells may be successfully abandoned by removal providing that the well is generally good condition and sections of casing (including screen) can be successfully removed with materials intact.

This method of abandonment is generally accomplished by removing (pulling) sections of casing and screen out of the subsurface using a drill rig, backhoe, crane, etc. of sufficient capacity. Materials with lower tensile strength such as polyvinyl chloride (PVC) generally cannot be removed by pulling if they have been appropriately cemented in place.

Once the well materials have been removed from the borehole, the borehole should be abandoned by grouting in the same manner discussed for borings in Section 3.2. If the borehole collapses after removal of well materials, then the borehole should be over drilled to remove all material and then grouted to the surface.

Overdrilling

With this method of abandonment, the well materials are removed by overdrilling (overreaming) the well location. Overdrilling using rotary techniques may be accomplished using an overreaming tool. This tool consists of a pilot bit that is approximately the same size as the inner diameter of well casing and a reaming bit that is slightly larger than the diameter of the borehole. As drilling proceeds, all well materials are destroyed and returned to the surface. After completion of the overdrilling, the borehole should be immediately grouted with a tremie pipe as described in Section 3.2.

In the case of overburden wells, a hollow stem auger may be used for overdrilling providing that this method of drilling appropriate for the subsurface conditions. The hollow stem auger should be equipped with outward facing carbide-cutting teeth with a diameter 2 to 4 inches larger than the well casing. With this method, the casing guides the cutting head and remains inside the auger. When the auger reaches the bottom of the well boring and the well materials have been removed, the borehole may be grouted with a tremie pipe (Section 3.2) through the augers as the augers are gradually withdrawn.

Considerations for Fractured Bedrock and Karst Wells

Multi-cased wells completed into bedrock as screened wells, open wells, or open-lined wells may be abandoned with the outer casing left in place providing that the integrity of this casing and associated annular seal is good. A cement bond log (acoustic amplitude boring geophysical log) may be used to evaluate the integrity of the casing and annular seal, if the outer casing is to be left in place.

Borings or wells completed in karst zones may be difficult to abandon because of the potential presence of large conduits, which may make it difficult to grout. Where large conduits exist or difficulties are encountered when abandoning a boring or well, fill the portion of the borehole penetrating the solution cavity with inert gravel (quartz, claystone, etc.). Packers can be used to isolate critical intervals for filling with grout above and below these zones.

3.5 RESTORATION

All work areas around the borings or wells abandoned should be restored to a condition essentially equivalent to that before the borings and wells were installed.

3.6 INVESTIGATION-DERIVED MATERIAL

Investigation-derived material should be managed in accordance with the requirements of SOP 70.1 and the work plan addenda associated with the site investigation

3.7 DOCUMENTATION

For each abandoned boring or well, a record should be prepared to include the following as appropriate:

- Project and boring/well designation;
- Location with respect to replacement boring well (if any);
- Open depth of well/annulus/boring prior to grouting;
- Casing or items left in hole by depth, description, composition, and size;
- Copy of the boring log;
- Copy of construction diagram for abandoned well;

- Reason for abandonment;
- Description and total quantity of grout used initially;
- Description and daily quantities of grout used to compensate for settlement;
- Disposition of investigation-derived material;
- Water or mud level prior to grouting and date measured; and
- Remaining casing above ground surface, height above ground surface, size, and disposition of each.

Daily investigation activities at the site related to boring and well abandonment should be recorded in field logbooks as described in SOPs 10.1 and 10.2.

4.0 PRECAUTIONS

Refer to the health and safety plan associated with the Work Plan Addenda and the Master Health and Safety Plan.

5.0 REFERENCES

ASTM Standard D 5299-99 (2005). 2005. *Standard Guide for Decommissioning of Ground Water Wells, Vadose Zone Monitoring Devices, Boreholes, and Other Devices for Environmental Activities.*

USACE. 1998. *Monitoring Well Design, Installation, and Documentation at Hazardous, Toxic, and Radioactive Waste Sites.* EM 1110-1-4000, 1 November.

STANDARD OPERATING PROCEDURE 20.4
TEST PITS

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for the excavation of test pits and provide general guidelines for sample collection from the test pits.

Test pit excavations are conducted to investigate and identify possible areas of contamination. Thus, samples taken from the excavation will be positively biased according to visual inspection (i.e., soil discoloration, soil staining) and field screening. Areas showing evidence of possible contamination will be sampled directly. If no evidence of contamination is present during excavation, then samples will be collected in two equally spaced intervals or at intervals specified in work plan addenda for site-specific investigations. In either case, no less than two representative samples per excavation site should be collected. Excavation (and sampling) shall terminate if the water table is encountered before terminal depth.

2.0 MATERIALS

- Master Work Plan;
- Work Plan Addenda;
- Field log books;
- Appropriate health and safety equipment for monitoring conditions in the work zone and excavation area including a photoionization detector (PID) or other types of monitoring equipment;
- Personal protective equipment and clothing (PPE) per the site-specific health and safety plan;
- Backhoe and associated equipment;
- Appropriate soil sampling equipment such as stainless steel scoops, trowels, spoons, and bowls/trays SOP 30.1);
- Appropriate sample bottles, labels, chain-of-custody forms, and sample shipping supplies etc;
- Tarps or plastic sheeting;
- Measuring tape;
- Camera and film; and
- Decontamination equipment and supplies.

3.0 PROCEDURE

3.1 DOCUMENTATION

Field activities and sampling information should be recorded in the field logbooks as outlined in SOPs 10.1 and 10.2.

Cross-sections and sketches of the layout will be prepared upon completion of the excavation. The sketches will indicate soil horizons and geologic observations. Soil horizons will be differentiated based upon variations in soil color (i.e., Munsell Chart), texture, coarse fragment content, structure, and consistence. Refer to SOP 10.3 for boring log completion procedures. In addition, depth and thickness of horizontal depth

to bedrock (if encountered) and indicators of seasonal high water table (presence of redoximorphic features) will be recorded. Sketches will also indicate the location of any samples collected. Photographs of the excavation will be taken and locations noted on the field map.

3.2 DECONTAMINATION

Decontamination of the backhoe, trowels or spoons, bowls, field tape measure, and other associated equipment will be carried out before use and between each test pit as outlined in work plan addenda and SOP 80.1.

3.3 SITE PREPARATION

Mark out dimensions of excavation and possible hazards (e.g., utilities, former structures). The backhoe must be equipped with a protective shield and the operator properly trained in the use of level B respiratory and dermal protection. The backhoe bucket and arm must be thoroughly decontaminated by steam cleaning before use and between each test pit location as described in work plan addenda and SOP 80.1. Discuss all hazards with equipment operator before any intrusive activities.

Set up exclusion zone with caution tape and position backhoe upwind of excavation site. All activities must be conducted in accordance with the health and safety plan developed for work plan addenda.

3.4 EXCAVATION AND SAMPLING

The backhoe operator shall be directed to excavate until the sampler indicates the desired depth has been reached. If the pit is less than 3 ft deep, the sampler can enter the pit and collect the samples using a decontaminated stainless steel trowel or spoon as described in SOP 30.1. As the pit becomes deeper, the sampler will collect the soil samples directly from the center of the bucket of the backhoe in an area not in contact with the sides of the bucket. The samples will then be transferred from the bucket into the appropriate sample container following sampling techniques outlined in SOP 30.1. Screening processes and analytical parameters for field screening soil samples will vary from site to site as specified per scope of work.

Begin excavating in increments of 6 to12 inches per pass. Deeper passes may be necessary if the soil is rocky. Total excavation width will be of adequate dimensions to visually characterize the soil profile as observed on the excavation walls, typically not exceeding the width of the backhoe bucket. However, total width of the excavation will be dependent on the depth of the excavation, thus wider dimensions may be necessary for characterization of deeper pits. Excavation will be continuously monitored with health and safety monitoring equipment. Safety measures must be exercised when working near and around the backhoe arm and excavation pit. Health and safety procedures and any installation safety procedures must be strictly followed.

All soil removed during excavation shall be placed on a tarp or plastic sheeting. Soil exhibiting signs of contamination based on visual or olfactory observations, as well as monitoring results, will be separated from uncontaminated soil and containerized for site removal.

Samples will be collected at desired intervals as specified in work plan addenda. Sampling procedures will follow the requirement of work plan addenda and SOP 30.1.

3.5 BACK FILL

Once the terminal depth of the excavation is reached or the water table is encountered and all samples are collected, the trench will be backfilled with certified clean fill. Soils removed during excavation shall be containerized and disposed of at an approved landfill or moved to an approved storage area for subsequent disposal. All backfilled material will be tamped to a proper compacted level to ensure no major settling will occur. After all backfilling and compacting procedures are complete, the area will be raked and seeded or resurfaced with asphalt, as appropriate. When the area is properly secured, decontamination procedures shall begin.

4.0 PRECAUTIONS

- Appoint an excavation competent person;
- Conduct daily inspections of excavation and surrounding area;
- Excavation entry is prohibited without approval of the excavation competent person;
- Protect employees in excavations deeper than four feet by means of properly designed protective systems;
- Protective systems must comply with 29 CFR 1926 Subpart P Appendices B, D, and E;
- Excavations will be clearly identified and barricaded to keep unauthorized individuals out.

5.0 REFERENCE

USEPA. 1987. *A Compendium of Superfund Field Operations Methods.* December.

STANDARD OPERATING PROCEDURE 20.6
GROUND-PENETRATING RADAR SURVEYS

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to provide a general description and technical management guidance concerning the use of Ground-Penetrating Radar (GPR) Surveys.

2.0 MATERIALS

- Work plans;
- Field logbook;
- Site maps;
- GPR and associated equipment;
- Data Sheets;
- Personal protective equipment and clothing (PPE) per site-specific health and safety plan.

3.0 PROCEDURE

3.1 DESCRIPTION OF METHODS

3.1.1 Theory and Principles of Operation

Commercially available Ground-Penetrating Radar (GPR) equipment operates on the principle of time-domain reflectometry, in which the differences in strength and the time delay between a transmitted electromagnetic pulse and its reflection from an object are measured. The time delay (t) is directly related to the propagation velocity of the electromagnetic waves (v) and to the distance between the transmitter and the object (D) as follows:

$$t = \frac{2D}{v}$$

Because surface GPR is normally used at or near the surface of the ground, the distance (D) corresponds directly to the depth of the buried targets that reflect the radar signals.

The strength of a radar signal is a complex function of the distance traveled through the medium, the dielectric constant, the magnetic permeability, and the electrical conductivity. Radar signals are attenuated rapidly in materials with a high dielectric constant. The attenuation of radar signals in subsurface media is a strong function of the mineralogy and the water content. Thus, materials such as dry sands and gravels are least absorptive of radar signals, whereas wet clays are highly absorptive. The absorptive properties of the medium limit the penetration depth, i.e., and the depth at which targets can be detected.

In operation, the GPR repetitively transmits short-duration (typically 5-10 nanoseconds) pulses of high-frequency (typically 50 GHz) electromagnetic energy through a transmitting antenna that is moved along the ground surface at a constant speed. Reflected pulses are detected by a receiving antenna at a location corresponding to the distance traveled by the antenna during the transmission and reflection of the pulse, at

which point another pulse is transmitted. At a typical antenna speed of 2 miles per hour (3 ft per second), a complete transmit/receive cycle occurs about every 2 inches along the path of the antenna.

Radar antennas are available that operate at frequencies centered on 50, 80, 120, 300, 500, and 900 MHz and 1 GHz. Whereas the higher frequencies are able to detect smaller targets, the penetration depth is roughly inversely proportional to frequency. Thus, each GPR survey requires an analysis of the trade-off between resolution and depth of penetration so that the optimal frequency can be selected.

The strength of a radar reflection is a function of the composition, size, shape, and depth of the target. Reflections are strong from objects exhibiting large differences in dielectric constant from the surrounding medium and that are large in size compared with the radar signal wavelength.

3.1.2 General Applicability

GPR signals are reflected from any interface that corresponds to an abrupt change in dielectric constant. Therefore, both metallic and nonmetallic objects (including voids), as well as changes in geologic structure, can be detected by this method. Because of the higher frequencies used, target resolution is considerably improved over seismic or resistivity sounding methods. However, the high frequencies also result in strong attenuation of the signals, particularly in clay materials with high moisture content. At 100 MHz, the useful penetration depth in clay soil with 20% moisture content is about 3 feet, whereas in dry clay or sand with 20% moisture the penetration depth extends to about 30 feet. By changing the frequency of the antenna, greater or lesser depths of penetration can be accomplished.

GPR can be a powerful method for locating and mapping buried drums, wooden objects, foundations, non-containerized wastes, underground utilities, and any other artifacts (including historical artifacts) at a site. Depending on whether sufficient penetration can be achieved, the method can also be used to map saturated zones and bedrock contours and locate sinkholes or fracture systems. GPR has also been used to map contaminants indirectly, both polar and non-polar.

3.1.3 Instrumentation

The standard array of GPR instrumentation consists of transmitting and receiving antennas, which are pulled along the ground; a control unit, containing power supply and signal processing circuitry, which is connected to the antenna by a cable; and an oscillograph or analog tape recorder. The system can be vehicle-mounted, and the transmitter can be connected via radio link to the signal processing and recording equipment. Systems have been modified to include digitizing, onsite computer processing, and digital, graphic display equipment.

3.2 DATA ACQUISITION

3.2.1 Field Procedures

Establishing a grid of parallel survey lines across the site and moving the radar antenna along each of these lines perform GPR surveys. A suitable means must be provided for determining the location of the radar unit along each of the lines and for documenting this information on the recording medium. Typical systems measure the time and velocity of antenna motion, or determine the position of the antenna by synchronization signals from the wheels or tracks of the vehicle used to tow the antenna or by means of an electronic marking device.
Depending on the data quality objectives and site conditions, different frequency antennas are needed. The GRP contractor will beta-test all methods in one small representative area to verify that the selected antennas produce reasonable, defensible data. In the event selected antennas or the GPR method does not meet the project's data quality objectives, the antennas and method will be eliminated from the survey.

To assess the depth of anomalies noted on radar traces, it is necessary to convert the travel time data that are actually recorded. The velocity of electromagnetic waves in the subsurface medium at the site is determined

at a particular site by excavation to observed targets or known test targets and measuring their depths. The velocity should be determined at several points in the area of interest. Another method to determine the depth to a target is by assessing the velocity of the medium. This can be accomplished by performing wide-angle reflection/refraction measurements known as WARR. Separating the transmitter and receiver portions of the antenna at a constant rate over a known distance and recording the refraction pattern accomplish this. By determining the slope of the refraction pattern, a velocity can be obtained.

Electronic data generated during GPR surveys shall backed up at the end of every data for both field and processed data. A backup of all hard copy data shall also be maintained.

3.2.2 Data Format

Reflected radar signals are electronically processed and displayed as an intensity-modulated time spectrum, where the time corresponds to target depth as described above. The series of signals corresponding to the reflected pulses as the antenna moves along a path forms a three-dimensional data set containing distance of traverse, depth, and intensity information.

Typically, the data are recorded on magnetic tape and/or displayed on an X-Y oscillograph, with distance displayed along the X-axis, time (depth) displayed along the Y-axis, and the intensity given by the degree of darkness of the trace. In a typical survey, a series of parallel tracks are traversed by the GPR, and the series of resulting oscillograph traces thus provide XYZ location information on, as well the intensity of reflection from targets of interest.

Although much of the data obtained in a GPR survey are automatically recorded by the instrumentation, additional information to unambiguously identify and interpret each trace should be recorded on standard data sheets. As a minimum, the data sheet should contain the following information:

- Project name, number and location;
- Company or organization;
- Date and time of day;
- Operator's name;
- Line and trace designation (also recorded directly on the signal recording medium);
- Receiving levels and filter settings;
- Antenna frequency(s);
- Direction and speed of antenna movement;
- Weather and temperature;
- Relative soil moisture content and soil type;
- Site map coordinates at the beginning and end of the trace. At least one point in the survey must be tied into the state plane coordinate system for follow-on work;
- Notes, remarks, or comments; and
- Electromagnetic velocity in the subsurface medium at the nearest calibration point.

3.3 DATA INTERPRETATION

Except for those systems that provide extensive data processing, interpretation of anomalies in GPR traces requires considerable subjective evaluation by a qualified geophysicist. Extensive experience is essential to

distinguish target reflections from inherent system noise and interferences. In many cases, the anomalies from targets of interest are small compared with varying reflections from the antenna system, the ground surface, geologic perturbations, and other interferences. Similarly, an acceptable interpretation of target depth from travel time data requires knowledge of geophysical and geological characteristics across the site.
A radar antenna transmits a "cone" rather than a thin beam of electromagnetic energy. Therefore, reflections are obtained from objects not directly below the antenna. As the antenna moves across the plane of an object, reflections are obtained for a considerable distance along the antenna path. The signal travel times vary during this process, corresponding to the distance between the antenna and the object. A discrete spherical target, therefore, will exhibit a hyperbolic reflection pattern on the radar trace, with the apex of the hyperbola corresponding to the location and depth of the object. Multiple or odd-shaped targets or targets of considerable size (compared with the radar wavelength) will exhibit complex reflection patterns consisting of overlapping hyperbolas. Thus, a true "picture" of subsurface objects is not obtained, and experience is necessary to translate the complex tracings into information on target depths size or shape.

Radar signals can be digitized which permits digital recording, computer processing and enhanced display of the location and intensity data. Typical computer processing includes removing extraneous signal interferences, changing hyperbolic reflection patterns to signals more representative of the size or shape of targets, color-coding of intensity data, blocking of data sets to correspond to the site map, and map-view displays of targets at a given depth.

3.4 APPLICATIONS MANAGEMENT

3.4.1 Prerequisites

Appropriate planning of GPR surveys requires an understanding of the geohydrological and geophysical characteristics of the site. The type and structure of soils and geologic formations should be indicated. The description of the site should include the depth, size, and shape and type of potential targets to be detected, as well as obstructive site features such as terrain and underground structures. Additionally, existence of and depth to known buried objects should be listed and mapped, and electromagnetic sources of interference to the survey should be considered.

3.4.2 Work Planning and Scheduling

If possible, GPR surveys should be performed concurrently (if warranted) with other geophysical surveys and in advance of excavation or drilling at a site. Radar data complements information from other geophysical methods such as, electromagnetic induction, seismic refraction, magnetometry, terrain conductivity, and resistivity, in arriving at an interpretation of subsurface geohydrologic features and buried waste materials.

The time and effort required to perform GPR surveys varies greatly depending on the sophistication of the available equipment and the complexity of the site. Assuming a two-person team, simple hand-operated radar systems can cover from ¼ to ½ acre per day for the survey, proper documentation, and simple interpretation. Vehicle-mounted systems with automatic data recording and processing can cover from 2 to 5 acres per day. Sophisticated data processing, detailed interpretations, and high-quality displays require considerable computer usage and approximately twice the time required for the actual field survey.
The specific objectives of the GPR survey should be defined in work plan addenda and should include the following elements:

- Type of survey (level of detail) to be accomplished, and area to be covered;
- Type, depth, size, and composition of targets of interest;
- Locational accuracy required;
- Schedule limitations;

- Degree of sophistication required for data presentation and interpretation;
- Specific deliverables required; and
- Logistics.

3.4.3 Quality Control (QC)

3.4.4 General

Because of the specialized nature of the method and the highly subjective interpretations needed to process the data, GPR surveys are subject to misapplication, erroneous interpretation, and collection of inadequate or incomplete data. This susceptibility to misuse requires that an adequate quality control program be established. Quality control aspects common to most geophysical field programs include the following:

- Program management personnel (i.e., the project geologist or geophysicist, RI leader, or site manager) with technical expertise in the subject for preparation of statements of work, proposal reviews, work plans, and reports.
- Defined scope of work, specifications, and data validation procedures.
- Defined field quality control procedures.
- No data should be rejected from a data set without appropriate justification; field data sheets should contain all observed data and the conditions that could affect data validation.
- All field data parameters should be recorded in permanent ink in a bound logbook with each page signed and dated by the operator. Original unaltered logbooks should be retained in the RI/FS contractor's files.
- Properly calibrated instruments provide an added measure of data validity and permit correlation and comparison of the associated data with site features and geohydrologic characteristics not evident at the time of the field effort. Some geophysical survey objectives can be met by relative measurements across an area or with depth.
- An evaluation should be made of noise, interferences, and obstructions at a site and should be recorded in the field. These real-time quality control procedures aid field personnel in correction of noise sources, validating suspected external sources, and early detection of problems that may jeopardize the survey objectives.

3.4.5 Calibration

The determination of target depth from travel time measurements requires calibration of the instrumentation for these two parameters. Travel time is calibrated periodically in the field by using a secondary-standard, previously calibrated pulse generator to produce timing marks directly on the radar trace. The travel time to a target is determined by the position of the target reflection along the timing marks. This calibration should be performed several times daily, and each radar trace should be referenced to the most recent calibration.
Calibration of the radar traces for depth determination may be performed as follows:

- For reconnaissance surveys or for surveys where lateral resolution is more important than depth, the traces can be roughly calibrated by estimating the velocity of electromagnetic materials in the media at the site. The crudeness of the calibration is evidenced by considering that the velocity can vary by more than an order of magnitude, depending on the soil/rock properties and the moisture content.
- For surveys requiring reasonable resolution of target depth, the travel time to targets of known depths must be determined at each site. A radar trace is made over the known targets, and the reflection

patterns then provide direct depth-calibration points on the trace. Sites with uniform lithology may require only a few depth calibrations, but generally, it is necessary to perform these calibrations at several locations and at several depths throughout the area of interest because dielectric constants may vary across the site. Each radar trace should be referenced to the calibration most representative of the trace coordinates at the site. The preferred method is to use buried objects of known depth as calibration targets or to excavate to detected objects and measure the depth. A less desirable (but often necessary) procedure is to bury standard targets at various depths within the area of interest.

- WARR measurements should be made on a daily basis at various positions at the site, especially in areas where subsurface conditions may vary greatly.

3.4.6 Daily Quality Control

All radar traces and interpreted data sets should be accompanied by quality control data that indicate the level of quality of the data. Periodic replicate measurements should be made so that measurement precision can be established. Time and/or depth calibrations should be performed on a daily basis.

A calibration that yields significant changes in instrument parameters or travel time may indicate the need for repetition of data or increased density of travel time calibrations in the area of interest. Graphical data should be reviewed during the field activities to determine data quality, and whether the survey results appear to be consistent with geophysical knowledge of the site.

3.5 HEALTH AND SAFETY CONSIDERATIONS

All procedures for hazardous waste site entrance, traverse, and egress that apply to general field operations also apply to GPR surveys. The GPR survey consists of traversing the site on foot or in vehicles, and the extent of the activities results in considerable periods of time during which personnel are exposed to any adverse conditions that may exist. An appropriate level of protection against these risks must be planned and provided.

Hand-towed GPR systems involve physical activity (particularly on sloping or rough terrain) that is much more strenuous than when vehicle-mounted systems are used. Precautions must be taken against exposure to heat or cold in accordance with the type of activity that is planned. Extreme weather conditions will have an adverse effect on the time required to complete a survey, thereby increasing the duration of personal exposure to the elements and to hazardous site conditions.

3.6 POTENTIAL PROBLEMS AND LIMITATIONS

A wide-variety of problems may be encountered during GPR surveys. Problems can be expected to arise in the following areas:

3.6.1 Limitations Inherent to Geophysical Methods

A basic limitation of geophysical methods is that a given set of data cannot always be associated with a particular set of subsurface conditions. In general, surface geophysical measurements alone cannot provide a complete assessment of subsurface conditions. When appropriately integrated with other information from subsurface borings, borehole geophysics, etc., GPR can be an effective, accurate, and cost effective method of obtaining subsurface information.

Geophysics at Radford Army Ammunition Plant will, where coverage permits, integrate surface and down hole methods to develop more accurate and refined interpretations of subsurface conditions that possible with either type of method alone.

3.6.2 Planning and Execution

Rarely is a survey accomplished exactly according to the original plan. Site features not previously specified and other variations can occur that force changes in the details of the approach. However, the objectives of the survey, the general methodology, the amount and quality of data required, and the degree of data interpretation requested should remain unchanged. Project work scopes should be written with some degree of latitude to allow a change in plans whenever justified.

3.6.3 Material Properties Contrast

It may be difficult to identify a particular subsurface boundary or feature if the subsurface materials have an insufficient velocity contrast or gradual boundary.

3.6.4 Noise and Interferences

Measurements can be severely affected by both natural and man-made sources of interference. Sources of system noise that degrade the quality of radar traces include improper spacing of antennas above ground, improper cable placement, location of antennas too close to other system components, and facility instrument operation. Because reflections are obtained from any object with a dielectric constant differing from the surroundings, large masses of buried or surface rocks, metal, debris, wet soil, or aboveground structures can mask targets of interest. Some antennas are not shielded on top, and similar interfering reflections will be obtained from overhead objects such as trees, power lines, and buildings. The site personnel must recognize the limitations posed by these obstructions and take steps to minimize the interferences.

Topographic and geologic features can also interfere with acquisition of high-quality target detection data. Small depressions in the ground surface, the presence of boulders, clay lenses, and moist soil zones affect both the detectability of a target and determination of its depth from the travel time.

Sources of electromagnetic energy in the vicinity, such as radio or television transmitters or navigational radar antennas, can result in spurious signals in the radar traces. In some cases, these problems can be minimized by judicious selection of radar and/or data communications frequency and by scheduling the surveys during periods of transmission inactivity.

3.6.5 Weather Conditions

Because water is a good absorber of radar signals, wet weather has a very serious effect on the ability to perform GPR surveys. Physical difficulties in executing a survey over wet terrain also may be expected. The field activities should be planned, if possible, during periods when dry weather can be expected. Schedules for surveys should account for the probability that moist soil conditions will exist.

3.6.6 Technical Difficulties

Preventable difficulties include equipment malfunction or misapplication, poor operator training, and lack of applications experience. Other difficulties may arise because the geophysical characteristics of the site are not as initially conceptualized. Early recognition and response by technical management can minimize the effect of any problems. Interim, real-time scrutiny of the data by the site geophysicists is essential. The geophysicist must be responsive regarding equipment replacement, repair, or changes in personnel. The site manager and the site geologist should be cognizant of technical difficulties beyond the control of the field personnel and should recognize the need to change plans, change performers, or cancel a survey, as appropriate.

4.0 REFERENCES

Discussion of various geophysical survey techniques and applications can be found in the following:

ASTM Standard D 6429-99. 1999. *Standard Guide for Selecting Surface Geophysical Methods.*

ASTM Standard D 6432-99. 1999. *Standard Guide for Using the Surface Ground Penetrating Radar Method for Subsurface Investigation.*

Benson, Richard C., Robert A Glaccum and Michael R. Noel. *Geophysical Techniques for Sensing Buried Wastes and Waste Migration*, Technos, Inc., Miami, FL, contract No. 68-03-3050, USEPA Environmental Monitoring Systems Laboratory, Las Vegas, NV.

Costello, Robert L. 1980. *Identification and Description Geophysical Techniques*, Report No. DRXTH-TE-CR-80084, US Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, MD; Defense Technical Information System Number ADA 123939.

McKown G. L., G. A. Sandness, and G. W. Dawson, 1980. *Detection and Identification of Buried Waste and Munitions*, Proceedings of the 11th American Defense Preparedness Association Environmental Systems Symposium, Arlington, VA.

Olhoeft, Gary R. 1989. *Geophysics Advisor Expert System: Version 1.0*, Interagency Agreement DW 14932497, USEPA EMSL, Las Vegas, NV.

USACE. 1995. *Geophysical Exploration for Environmental and Engineering Investigations.* EM 1100-1-19802. 31 August.

STANDARD OPERATING PROCEDURE 20.7
RESISTIVITY AND ELECTROMAGNETIC INDUCTION SURVEYS

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to provide a general description and technical management guidance on the use of Resistivity and Electromagnetic Induction (Terrain Conductivity) Surveys.

2.0 MATERIALS

- Work Plans;
- Field Logbook;
- Site maps;
- Electromagnetic induction unit; and
- Personal protective equipment and clothing (PPE) per the site-specific health and safety plan.

3.0 PROCEDURE

3.1 DESCRIPTION OF METHODS

3.1.1 Theory and Principles of Operations

Resistivity. A resistivity survey measures the electrical resistivity of a geohydrologic section indirectly. A DC or low-frequency AC electrical current is injected into the ground through electrodes embedded in the ground surface. The flow of current within the subsurface produces an electric field with lines of equal potential perpendicular to the current flow. This potential field (voltage) is measured between a second pair of electrodes also embedded in the ground surface.

The actual resistivity is a complex function of the applied current, observed voltage, and the characteristics of the subsurface section that provide multiple current flow paths. The apparent subsurface resistivity can be calculated as a function of the applied current, the measured voltage, the separation of the electrodes, and the geometry of the current and potential electrode pairs. For the simplest electrode configuration in which all four electrodes are equally spaced in the order current-potential-current (i.e., the Wenner array) the apparent resistivity is given by the following equation:

$$a = \frac{2\pi AV}{I}$$

Where:
a = apparent resistivity in ohm-meters or ohm-feet,
V = the measured potential difference in volts, and
I = the applied current in amperes.

The calculations are similar for other electrode configurations except geometric factors other than 2 are used. Equipment operating manuals provide nomographs for determination of apparent resistivity from field measurements for all standard electrode configurations. These calculations are simple and can be performed on a hand-held calculator.

Of the many possible geometric configurations of current and potential electrodes, some of the most commonly used arrays are as follows:

- Linear array with electrodes in the order current-potential-potential-current. A Wenner array results if the spacing between each successive pair of electrodes is equal. For a Schlumberger array, the distance between the two potential electrodes is a small fraction of the distance between the two current electrodes.
- Linear array with electrodes in the order current-current-potential-potential. In this dipole-dipole configuration, the separation of the two current and the two potential electrodes is equal, with an equal or greater separation of the two dipole pairs.

Resistivity surveys may be conducted to determine either vertical or horizontal electrical anomalies. *Vertical electrical soundings* (VES) are made by symmetrically expanding a Wenner or Schlumberger array in line about a point, i.e., the electrode spacing is increased for successive readings. Measurements of potential and input current are made for each set of electrode spacings, and the apparent resistivity is calculated as described below. The resultant plot of spacing versus apparent resistivity is interpreted to yield the resistivity distribution with depth beneath the midpoint between the potential electrodes. However, the resistivity being measured is that of the materials beneath the entire array.

For *horizontal profiling*, apparent resistivity from a series of measurements is plotted as a function of the X- and Y-coordinates of the site. One or more of the following procedures accomplishes horizontal profiling:

- A series of VES profiles at several locations are compared;
- Measurements are made with fixed-electrode spacing along a line or over an area; and/or
- Dipole-dipole measurements are made with the current or potential dipole at a fixed location and the other dipole located at increasing distances along a line. This process provides a resistivity "cross-section" beneath the line.

The Wenner and Schlumberger configurations are most often used for vertical investigation, whereas the dipole-dipole configuration is most often used for lateral surveys.

Electromagnetic Induction (EM). In the Electromagnetic Induction (EM) method, the electrical conductivity of a geohydrologic section is measured by transmitting a high-frequency electromagnetic field into the earth, producing eddy currents that generate secondary electromagnetic fields that can be detected by a receiver. The eddy currents are induced in the earth by an aboveground transmitter coil, and the resulting secondary electromagnetic fields are coupled to an aboveground receiver coil. Thus, EM measurements do not require direct ground contact, as is the case for resistivity measurements, and surveys across a line or area may be performed quite rapidly.

EM instruments are calibrated to read subsurface conductivity directly in units of millimhos per meter, Where:

$$\textit{1,000}\ \text{milliohm per meter} = \frac{1}{\text{ohm-meter}}$$

This relation indicates that the conductivity obtained from EM measurements varies inversely with the resistivity measured using a resistivity survey. However, because the subsurface sections associated with the two methods are generally of different depth or cross-sectional area, there is not an exactly inverse relationship between conductivity and resistivity surveys.

The conductivity value obtained by an EM instrument depends on the combined effects of the number of soil and rock layers, their thicknesses and depths, and the inherent conductivities of the materials. The quantity

actually measured is an apparent conductivity of the earth volume between the ground surface and an effective penetration depth, which is defined as the depth at which variations in conductivity no longer have a significant effect on the measurement. The sampling depth is related to the spacing between the transmitter and receiver coils of the instrument, approximately as follows:

Sampling depth = 1.5 (coil spacing) (Vertical Dipole)
= 0.75 (coil spacing) (Horizontal Dipole)

Vertical profiling can be accomplished by multiple measurements about a point, with varying coil spacings. Horizontal profiling is performed by making measurements along traverses with fixed coil spacing.

3.1.2 Application

The measurement of a subsurface resistivity or conductivity at a hazardous waste site provides a valuable contribution to site characterization for the following reasons:

1. Conductivity (resistivity) is a function of the geohydrologic section and is overwhelmingly influenced by the presence of water. Therefore, conductivity (resistivity) can provide indirect evidence on the porosity and permeability of subsurface materials and the degree of saturation. These parameters, in turn, are directly related to subsurface lithology, and to the potential for infiltration/migration of contaminants from a source area.
2. Conductivity (resistivity) is influenced by the presence of dissolved electrolytes in soil or rock pore fluids. Contaminant plumes in the vadose (unsaturated) and saturated zones can be mapped if there is sufficient change in conductivity to be detected by EM or resistivity measurements.

   In general, contaminant plumes of inorganic wastes are most easily detected because conductivity may be increased by 1 to 3 orders of magnitude above background values. The limit of detection is a change from a background of 10% to 20%. Plumes of non-polar organic constituents from spills or leaking containers may be detected if sufficient soil moisture has been displaced to affect the ground conductivity to a measurable degree.
3. Conductivity (resistivity) can be used to detect the presence of buried wastes if the degree of saturation, containerization, or inherent electrical properties of the waste produces sufficient variation from the soil matrix. The degree of detail provided by typical surveys cannot distinguish the size, shape, or mass of sources except in a qualitative manner.

For these reasons, resistivity and conductivity surveys should be investigated as potentially appropriate site characterization tools when any of the following information is desirable:

- Detection and mapping of contaminant plumes; the rate of plume movement may also be deduced from measurements made over time;
- Estimates of depth, thickness, and resistivity of subsurface layers, depth to the water table, or probable geologic composition of a layer;
- Detection, mapping, and depths of burial pits, landfills, clay caps or lenses, or deposits of buried waste;
- Determination of locations for drilling to intercept contamination or to investigate aquifer properties; and
- Corroboration of limited chemical and geohydrologic data at a site.

In general, surface geophysical measurements alone cannot provide a complete assessment of subsurface conditions, When appropriately integrated with other investigative information from subsurface borings, borehole geophysics, etc., surface geophysical surveys can be an effective, accurate, and cost effective method of obtaining subsurface information. Geophysics at Radford Army Ammunition Plant will, where

coverage permits, integrate surface and down hole methods to develop more accurate and refined interpretations of subsurface conditions that possible with either type of method alone.

3.1.3 Instrumentation

Resistivity. The basic components of a field resistivity system are two current and two potential electrodes, electrical cables, centralized power unit (current source), and resistivity meter. Automated instrumentation is commonly used to conduct two or three-dimensional surveys. One such system is the Advanced Geosciences, Inc. (AGI) Sting/Swift system, which includes a central power unit, resistivity meter (Sting), control unit (Swift), and switched electrode cables for use with up to 254 electrodes. This AGI allows for automated measurements, complete control of the measurement array, programmable measurement cycles, large capacity storage of data with linkup to a personal computer. The Sting/Swift system allows for rapid collection of resistivity data and testing of arrays. Measurement ranges for the Sting/Swift system are 0.1 milliohm to 400kohms (resistance) and 0 to 500 volts full-scale auto ranging (volts).

Electromagnetic Induction (EM). Generally EM instruments are available in two forms:

1. Single-piece models operable by one person, with a fixed coil spacing 12 feet; these provide sampling depths on the order of 10 and 20 feet. The Geonics EM31DL is one example of this type of instrument.
2. Dual-coil models, operable by two persons, with variable coil spacing up to about 40 feet (sampling depth up to about 60 feet). The Geonics EM 34-3XL is an example of this type of instrument.

The 12-foot fixed coil and the dual coil apparatus are most commonly used in hazardous waste site investigations. In either case, an additional person to record data and identify measurement locations is highly desirable and more time efficient. The instruments are calibrated to read directly in conductivity units, and values are typically read and recorded on a data sheet. Some units have been modified to provide direct digital recording on magnetic tape.

3.2 DATA ACQUISITION

3.2.1 Field Procedures

Initial Operations. As with most geophysical surveys, conductivity or resistivity surveys involve the following initial steps:

- **Planning.** Known or assumed geohydrologic features of the site, potential source locations and migration characteristics of hazardous constituents, are used to select specific techniques and equipment to establish appropriate locations and depths for geophysical measurements (see Section 5.1.2). The level of detail necessary (data quality objectives) determines the amount of effort and, in simple terms, the required number and density of data points. As a minimum, the data quality will depend on the method and specific equipment selected and the supporting hardware and software capabilities.

  An "expert" system known as the Geophysics Advisor Expert System, developed by the Environmental Monitoring Systems Laboratory (EMSL) in Las Vegas, may be used as a planning tool to assist in selecting an appropriate geophysical method. This system prompts the user through a series of site-specific questions that will eventually rank various geophysical methods as to their feasibility at a specific site.

  Most of the details can be planned before site activities; however, some leeway must be accorded to the field procedures to account for variable site conditions and weather.

- **Site Layout.** One of the most labor-intensive and time-consuming aspects of the fieldwork involves layout of grids and surveying or careful measurement of locations to allow geophysical surveys to be accomplished in a systematic, documentable manner. Location coordinates of sufficient resolution to accomplish the objectives of the survey must uniquely identify every data point.

- **Array and Spacing Tests.** Select one area or line that typifies the site. Test different array types and spacing. Analyze the data to see if the results match induction or normal resistivity and drilling logs from nearby wells. Select the optimal array type and spacing configuration, and proceed with the survey. If induction or normal resistivity logs are not available for wells at or near the site, log these wells before executing the surface surveys.

Resistivity Measurements. Resistivity electrodes must be installed in the proper array and spacing at a particular site grid location (according to specific manufacturers directions). The cables connecting the electrodes to the current source and potentiometer are then attached, and the current flow is initiated. Voltage is measured directly on the potentiometer. The process is repeated at the next site grid location (for horizontal profiling) or with the next electrode spacing (for vertical electric soundings) as necessary for QC purposes.

General rules for electrode spacings are difficult to specify because of site-specific variation; depending on the site geohydrology and source characteristics. As a general rule of thumb, the maximum electrode spacing should be at least three to five times that of the maximum target depth.

Electromagnetic Induction Measurements. At a given site grid location, the specified orientation of the apparatus is established, i.e., with the axis of the coils either parallel or perpendicular to the direction of the survey line. The meter reading is recorded and the apparatus is moved to the next site grid location.

For the dual-coil method, both the intercoil spacing and coplanarity of the coils must be established before recording the data. Surveys are normally conducted with the coil axes horizontal and at right angles to the survey direction.

EM profiles can be accomplished in a continuous manner using vehicle-mounted equipment in conjunction with strip charts, magnetic tape recorders, or digital recorders. Location information must be appended by tic marks or voice-over and some means provided to reference written field logs in a consistent manner.

3.2.2 Data Format

General. Information obtained during a resistivity or EM survey should be presented according to a standard data format, using standardized data sheets with original field entries. As a minimum, the heading for each data sheet should contain the following information:

- Project, task, site, and location identification;
- Company or organization;
- Date (and time, if applicable);
- Operator's name and signature;
- Method/technique identification;
- Instrument make, model, serial number, and calibration date/frequency (if applicable);
- Test location (according to the survey plan);
- Electrode or coil type and configuration;
- Line or site grid location(s);
- Weather and site conditions and temperatures;
- Identity of relevant calibration and QC data; and

- Records of data for each sounding or profile on a single sheet, if possible;

Resistivity. Survey data should include, in a tabular format, the following information:

- Electrode location, per the survey plan;
- Electrode spacing, in feet or meters;
- Input current applied, in amperes; and
- Measured potential, in volts.

Electromagnetic Induction. Survey data should include, in a tabular format, the following information:

- Coil location, per the survey plan;
- Coil spacing;
- Coil configuration (unless specified in the heading); and
- Meter reading, in millimhos per meter.

Special precautions to systematize and preserve data will be required for data that are recorded continuously on strip charts, magnetic tape recorders, or digital recorders. Strip charts should be permanently affixed to the field logbook. The first original hard copy of output from magnetic tape should be treated similarly. Identifying header information must be recorded directly on the tape.

3.3 DATA INTERPRETATION

3.3.1 Resistivity Data

For each data point, the apparent resistivity is calculated according to the formula appropriate for the type of electrode array employed. For horizontal profiling, curves of apparent resistivity versus distance along a line defined by the site grid locations are plotted. These curves of lateral changes in resistivity at a given electrode spacing (therefore, at a given survey depth) provide a cross-section for interpretation of the anomalous subsurface features. Multiple parallel profile lines can be combined to produce an area map of apparent resistivity at a particular depth.

For vertical electrical soundings, the series of apparent resistivities are plotted versus corresponding electrode spacings on log-log graph paper. The curves can be compared qualitatively with known or suspected subsurface conditions or with idealized layer-models to determine layer thicknesses and depths. Computer processing is typically applied for analysis of complex data sets and inverse layer modeling.

3.3.2 Electromagnetic Induction Data

Corrections may be applied to EM data for accuracy and drift, variation in location from pre-established coordinates, topography, changes in scale, and non-linearities associated with high conductivity values. In all cases, such corrections must be fully supported by data originally recorded or annotated in the field. Profile data along traverses are obtained as plots of conductivity versus distance. As with resistivity profiling, parallel traverse data may be combined to provide conductivity contour maps of a site. Two or more profiles at different sampling depths, as well as sounding data at a given location, provide information on the relative conductivities of shallow and deeper layers. Contour plots may provide valuable information on the extent and direction of groundwater flow and contaminant transport.

Detailed comparison of EM sounding measurements with layer models of the site can be made. This type of interpretation has been used at sites with relatively simple, uniform geohydrology to determine overburden and bedrock spatial and depth relationships. In some cases, very detailed interpretations, including aquifer flow properties, location of permeable zones, and interaquifer transfer, are possible.

3.4 POTENTIAL PROBLEMS

Resistivity and EM surveys are geophysical methods that, although standardized and frequently applied, are subject to a wide variety of problems. Problems can be expected to arise in the following areas:

- **Planning and Execution.** Rarely is a survey accomplished exactly according to the original plan. Site features not previously specified and myriad other variations can occur that force changes in the details of the approach. However, the data quality objectives of the survey, the general methodology, the amount of data required, and the degree of data interpretation requested should remain unchanged. Project work scopes should be written with some degree of latitude to allow a change in plans whenever justified.
- **Noise and Interferences.** Measurements can be affected severely both by natural and man-made sources of electrical and electromagnetic noise. Nearby power lines, stray ground currents, and atmospheric discharges adversely affect both types of surveys. Large masses of buried metal, fences, railroad tracks and underground pipes or cables can strongly distort measurements and reduce instrument sensitivity to features of interest. These problems generally can be accounted for or overcome but must be recognized early in the survey so that appropriate avoidance measures can be implemented. Known or suspected sources of interference should be included in the initial planning for a project.
- **Weather Conditions**. It is possible to conduct the surveys under almost any conditions that permit traverse of the site. However, snow cover, standing water, heavy rainfall, or thoroughly saturated surface soils may severely restrict the ability to meet project objectives and schedules. Scheduling contingencies should be included whenever possible, especially during periods when inclement weather is expected.
- **Technical Difficulties.** Preventable difficulties include equipment malfunction or misapplication, poor operator training, and lack of applications experience. Other difficulties may arise because the geophysical response of the site is not as initially conceptualized. Early recognition and response by technical management can minimize the effect and severity of any problems. Interim, real-time scrutiny of the data by the site geophysicist is essential. The geophysicist must be responsive regarding equipment replacement, repair, or changes in personnel. The site manager and the site geologist should be cognizant of technical difficulties beyond the control of the field personnel and should recognize the need to change plans, field personnel, or cancel a survey, as appropriate.
- **Topographic Changes.** Significant changes in topography should be addressed when planning and making measurements.

3.5 QUALITY CONTROL

3.5.1 General

Geophysical surveys, including resistivity and conductivity surveys, are subject to misapplication, erroneous interpretations, and use of incomplete or inadequate data. All of these avoidable errors can severely affect both the cost of subsequent site investigations and the validity of the site characterization. This susceptibility to misuse and potential for negative effect demands an assurance that appropriate quality control measures have been implemented. Quality control aspects common to most types of geophysical field programs are as follows:

- Integrating surface-based results (indirect measurements) with well sampling results, drilling logs, and down hole (direct measurement) geophysical logs.

- Program management personnel with technical expertise in preparing statements of work; reviewing proposals, work plans, and reports; and supervising technical subcontracts and field-related programs.
- Insistence on a defined scope of work, clear specifications, and data validation procedures.
- Appropriate justification before rejection of data points from a data set. Field data sheets should contain all observed data and the conditions that could affect data validity.
- Field data should be recorded in permanent ink in a bound logbook with each page signed and dated by the operator. Original unaltered logbooks should be retained in the site file.
- Complete and clear understanding of manufacturer's operation manual for the particular apparatus being used.
- Properly calibrated instrument provides an added measure of data validity and permits correlation and comparison of the associated data with site features and geohydrologic characteristics not evident at the time of the field effort. Some geophysical survey objectives can be met by relative measurements across an area or with depth.
- An evaluation should be made of noise, interferences, and obstructions at a site. Such measurements, inferences, and explanations should be recorded in the field. These real-time quality control procedures aid field personnel in correction of noise sources over which they have control, in validating suspected external sources, and in early detection of problems that may jeopardize the survey objectives.

3.5.2 Resistivity Surveys

The resistivity apparatus consists of a current source and potentiometer, both of which must be calibrated at least twice a day, e.g., once at the beginning of the day and once at the end of the day.

The current source (source of the energy driving the system) is calibrated by placing an ammeter in series with the electrode cables. The reading obtained on the reference ammeter is then compared with the value read from the ammeter on the current source. The current source ammeter is then adjusted to the reading on the reference ammeter.

The potentiometer is the other apparatus that must be calibrated. This is normally accomplished by placing a precision resistor in series with the current load. A precision resistor is an electronic device that has a predetermined (as specified by the manufacturer) resistance to the electric current passing through the device, i.e., reduction in amperage. The potentiometer is then placed across the resistor. The potential measured should be equal to the product of the known resistance and the indicated current. Precision resistors can be purchased at most electronics supply stores.

All data sets should be accompanied by quality control data that indicate the level of quality of each individual data point. Periodically taking replicate measurements or re-running with the spacing and array configuration accomplishes this. These measurements should be averaged or statistically compared so that measurement precision can be estimated. Each data set should also be referenced to the most recent calibration. Data obtained before a calibration requiring significant changes in instrument controls is suspect. (NOTE: A significant change in instrument readings as a result of recalibration is interpreted as successive calibration values that vary by more than 10%).

Resistivities should be calculated and plotted during data acquisition to determine the overall quality of the data and whether the survey results are consistent with the site conceptualization. Data points representing discontinuities in the curves should be validated by repetition and, if necessary, a fine grid of measurements made to determine whether the anomaly represents a site feature of interest, a spurious reading, or an obstructive interference.

3.5.3 Electromagnetic Induction Surveys

Calibration. The manufacturer calibrates EM instruments over massive rock outcrops of known characteristic that are used as a geologic standard to measure the absolute conductivity over a uniform section of earth. The user should maintain the EM apparatus in calibration by noting drift in the readings at a stable "secondary standard" site. A secondary standard site is a location established in the field that is used to check the accuracy (calibration of the instrument and the drift precision of the instrument). A secondary standard site is a location used daily on large projects to check instrument accuracy, much the same way the manufacturer uses massive rock outcrops for precision and accuracy determination.

Unacceptable drift or erratic operation shall be corrected by replacement with an instrument in proper working order. Values that are obtained from measurements over the stable secondary standard site that vary by more than 10% to 15% are considered to be unacceptable drift, if environmental conditions remain somewhat constant (i.e., heavy precipitation can make measurements radically different).

All aspects of the daily quality control measures discussed for resistivity measurements apply also to EM measurements. Repeated periodic measurements (at least twice a day) should be made at one or more locations and orientations at the site to determine the precision of measurements and to detect instrument drift.

4.0 HEALTH AND SAFETY CONSIDERATIONS

All procedures for hazardous waste site entrance, traverse, and egress that apply to general field operations also apply to conduct of geophysical surveys. Resistivity and conductivity surveys depend on traverse of the site on foot or in vehicles, and there are extended periods during which personnel are subject to adverse environments at the site. In addition, resistivity measurements require implanting electrodes beneath the surface, which increases the risk of contact with toxic or hazardous agents. An appropriate level of protection against these risks must be provided during the surveys.

The geophysical methods discussed herein do not require extremely strenuous activity, and exposure to heat or cold is similar to that during other field activities. Extreme weather conditions will have adverse effects on the time required to obtain validated data, thereby increasing the duration of personal exposure to the elements and to hazardous site influences.

In resistivity surveys, substantial levels of electrical charges and voltage may be present across the current electrodes, and field procedures must be designed to ensure that no personnel are in contact with the electrodes when the current source is energized. The site-specific Health and Safety Plan must address emergency procedures in the event of electrical shock and possible loss of consciousness.

5.0 REFERENCES

Discussion of various survey techniques and applications can be found in the following references:

ASTM Standard D 6429-99 (2006). 2006. *Standard Guide for Selecting Surface Geophysical Methods.*

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STANDARD OPERATING PROCEDURE 20.11
DRILLING METHODS AND PROCEDURES

1.0 SCOPE AND APPLICATION

The use of an appropriate drilling procedure is contingent upon the existing conditions at the project site. The purpose of this standard operating procedure (SOP) is to outline procedures for the various methods of soil and rock drilling identified in the Master Work Plan. In addition it provides procedures for using sampling devices commonly used during soil and rock drilling such as split-barrel sampling, thin walled tube sampling, direct push samplers, and rock coring. For a particular site investigation, the associated work plan addendum will identify the appropriate drilling method and method of sampling, along with proposed sampling depths and intervals and any special procedures or methods.

2.0 MATERIALS

The following types of materials are generally appropriate for drilling:

2.1 SPLIT-BARREL SAMPLING

- Split barrel sampler;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

2.2 THIN WALLED TUBE SAMPLING

- Thin walled tubes;
- Sealing materials for sample such as sealing wax, metal disks, wood disks, tape, cheesecloth, caps, etc;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

2.3 DIRECT PUSH SAMPLING

- Direct push unit with hydraulic ram, hammer, etc;
- Sample collection devices, associated equipment and expendable supplies such as sample liners, sample retainers, appropriate lubricants, etc;
- Hollow extension rods;
- Auxiliary tools for handling, assembling, and disassembling tools and samplers;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and

- Decontamination supplies and equipment per SOP 80.1.

2.4 HOLLOW-STEM AUGER DRILLING

- Drill rig and associated equipment;
- Hollow stem auger assemblies for drilling to appropriate depth including auger heads, drive assembly, pilot assembly, and hollow-stem auger sections;
- Auxiliary devices such as wrenches, auger forks, hoisting hooks, swivels, and adaptors;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

2.5 DIRECT AIR ROTARY DRILLING

- Drill rig with rotary table and Kelly or top-head drive unit;
- Drill rods, bits, and core barrels (as appropriate);
- Casing;
- Sampling devices and equipment, as appropriate;
- Air compressor and filters, pressure lines, discharge hose, swivel, dust collector, and air-cleaning device (cyclone separator);
- Auxiliary tools for handling, assembling, and disassembling tools and samplers;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

2.6 DRILL-THROUGH CASING DRIVER

- Drill rig equipped with a mast-mounted, percussion driver;
- Casing, drill rods, and drill bits or hammers;
- Air compressor and filters, pressure lines, discharge hose, swivel, dust collector, and air-cleaning device (cyclone separator);
- Sampling devices and equipment, as appropriate;
- Auxiliary tools for handling, assembling, and disassembling tools and samplers;
- Welding equipment and materials for installation of casing;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

2.7 DIRECT WATER-BASED ROTARY DRILLING

- Drill rig with derrick, rotary table and Kelly or top-head drive unit;
- Drill rods, bits, and core barrels (as appropriate);
- Casing;
- Water based drilling fluid, with approved additives as appropriate;
- Mud tub, suction hose, cyclone de-sander(s), drilling fluid circulation pump, pressure hose, and swivel;
- Auxiliary tools for handling, assembling, and disassembling tools and samplers;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

2.8 DIRECT ROTARY WIRELINE-CASING ADVANCEMENT DRILLING

- Drill rig with either hollow spindle or top-head drive;
- Drill rods, coring or casing bits, overshot assembly, pilot bit, and core barrel;
- Water based drilling fluid, with approved additives as appropriate;
- Mud tub, suction hose, drilling fluid circulation pump, pressure hose, and swivel;
- Auxiliary tools for handling, assembling, and disassembling tools and samplers;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

2.9 DIAMOND CORE DRILLING

- Direct rotary drill rig and associated equipment (see Sections 2.4, 2.5 or 2.6);
- Core barrels and core bits;
- Core lifters;
- Core boxes, engineers scale, permanent marking pen, and camera for photographing cores;
- Auxiliary tools for handling, assembling, and disassembling tools and samplers;
- Borehole logging materials per SOP 10.3 and sampling equipment and materials, as appropriate per SOP 30.1;
- Containers to manage investigation-derived material per SOP 70.1; and
- Decontamination supplies and equipment per SOP 80.1.

3.0 PROCEDURES

3.1 PENETRATION TEST AND SPLIT-BARREL SAMPLING OF SOILS

The following general procedure may be followed as outlined in ASTM Standard Test Method D 1586.

1. Advance the boring to the desired sampling depth using an appropriate drilling method (see sections below) and remove excessive cuttings from the borehole.
2. Attach the split-barrel sampler to the sampling rods and lower into the borehole. Do not allow the sampler to drop onto the soil to be sampled.
3. Position the hammer above and attach the anvil to the top of the drilling rods.
4. Rest the dead weight of the sampler, rods, anvil, and drive weight on the bottom of the boring and apply a seating blow. If excessive cuttings are encountered at the bottom of the borehole, remove the sampler and rods from borehole and remove the cuttings.
5. Mark the drill rods in three successive 6-inch increments so that the advance of the sampler can be observed.
6. Drive the sampler with blow from the 140 pound hammer and count the number of blows applied in each 6-inch increment until:
   a. Fifty (50) blows have been applied during one of the three 6-inch increments.
   b. A total of 100 blows have been applied.
   c. There is no observed advance of the sampler during the application of 10 successive blows of the hammer.
7. The sampler is advanced the complete 18-inches without the limiting blow counts occurring as described above.
8. Record the number of blows that is required to achieve each 6-inch increment of penetration or fraction of this increment on the boring.
   a. The first 6 inches is considered the seating driver.
   b. The sum of the second and third 6-inch penetration intervals is termed the “standard penetration resistance” or “N-value.”
   c. If the sampler is driven less than 18 inches as discussed in No. 6, then the number of blow for each partial increment will be recorded.
   d. For partial increments, the depth of penetration should be recorded to the nearest 1-inch on the boring log.
   e. If the sampler advances below the bottom of the boring under the weight of rods (static) and/or hammer, then this information will be recorded on the boring log.
9. The raising and dropping of the 140 pound hammer may be accomplished by:
   a. Using a trip, automatic, or semi-automatic hammer drop system that lifts the hammer and allows it to drop 30± 1 inches.
   b. Using a cathead shall be essentially free of rust, oil, or grease and have a diameter in the range of 6 to 10 inches. The cathead should be operated at a minimum speed of rotation of 100 revolutions per minute. No more than 2-1/4 rope turns on the cathead may be used when conducting the penetration test.

10. For each hammer blow, a 30-inch lift and drop shall be used.
11. After completing the penetration test, retrieve the sampler and open. Record the percent recovery or the length of sample recovered. Following the procedures outlined in SOP 30.1 when collecting environmental soil samples.
12. Borehole logging should be completed per SOP 10.3.
13. Split-barrel samples must be decontaminated before and after each use per the requirements of SOP 80.1.

3.2 THIN WALLED TUBE SAMPLING

The following general procedure may be followed for collection of relatively undisturbed, thin walled tube samples (e.g., Shelby tube) as outlined in ASTM Standard Practice D 1587.

1. Clean out the borehole to targeted sampling depth using most appropriate method, which avoids disturbing the material to be sampled. If groundwater is encountered, maintain the liquid level in the borehole at or above the groundwater level during sampling.
2. Place the sample tub so that its bottom rests on the bottom of the borehole.
3. Advance the sampler without rotation by a continuous relatively rapid motion.
4. Determine the length of the advance by the resistance and condition of the formation, the length of the advance should never exceed 5 to 10 diameters of the tube in sands and 10 to 15 diameters of the tube in clay.
5. When the formation is too hard for push type of sampling, the tube may be driven or the practice used for ring-lined barrel sampling may be used per ASTM Standard D 3550. When a sample is driven, the weight and fall of the hammer must be recorded along with the penetration achieved.
6. The maximum length of sample advance will be no longer than the sample-tube length minus an allowance for the sample head and a minimum of 3-inches for sludge-end cuttings.
7. Upon removal of the tube, measure the length of the sample in the tube. Remove the disturbed material in the upper end of the tube and re-measure the sample length.
8. Remove at least one-inch of material from the lower end of the tube for soil description and identification per SOP 10.3. Measure the overall sample length. Seal the lower end of the tube. If directed, the material from the end of the tube will not be removed for soil identification and description; in this case the tube will be sealed promptly.
9. Prepare sample labels and affix (or markings) on the tube.

3.3 DIRECT PUSH SOIL BORING

The following general procedures outlined in this section may be followed as described in ASTM Standard Test Method D 6282.

General considerations for this method include the following:

- A variety of direct push drive systems may be used to advance soil borings based on the intended sampling depths and subsurface conditions and include the following:

Shallower Depths and Less Difficult Conditions

- Percussive driving systems – use hydraulically operated hammers and mechanically operated hammers.
- Static push drive systems – use hydraulic rams to apply pressure and exert static pull (e.g., cone penetrometer systems).
- Vibratory/sonic systems – use a vibratory device, which is attached to the top of the sampler extension rods.

Greater Depths and More Difficult Conditions

- Sonic or resonance drilling systems – use a high power vibratory system to advance larger diameter single or dual tube systems.
- Rotary drilling equipment – use hydraulic system of drill rig for direct push.

- The equipment used for direct push must be capable of apply sufficient static force, or dynamic force, or both, to advance the sampler to the required depth of collection. Additionally, this equipment must have adequate retraction force to remove the sampler and extension/drive rods once the sample has been collected.
- Avoid using excessive down pressure when advancing the drilling tools/sampler. Excessive pressure may cause the direct push unit to offset from the boring location and may damage drilling tools and samplers.
- Sample liners should be compatible with the material being sampled and the type of analysis to be conducted on the sample. Sealing of liners for submittal to the laboratory for physical testing should be accomplished according to ASTM Standard D 4220 (Standard Practice for Preserving and Transporting Soil Samples).
- The general procedure for completing direct push soil borings is the following:
  1. Stabilize direct push unit and raise mast at desired location.
  2. Attach the hammer assembly to the drill head if not permanently attached. Attach the anvil assembly in the prescribed manner, slide the direct push unit the position over the borehole, and ready the tools for insertion.
  3. Inspect the direct push tools before and after use. Decontaminate all down hole tools before and after use per SOP 80.1.
  4. Inspect drive shoes for damaged cutting edges, dents or thread failures and these conditions could cause loss of sample recovery and slow the rate of advancement.
  5. Assemble samplers and install where required, install sample retainers where needed, and install and secure sampler pistons to ensure proper operation where needed (see Steps 14 through 20 for the various sampler assembly procedures, etc.).
  6. After sampler has been appropriately installed (see Steps 14 through 20 for installation procedures, etc.) advance the boring to the target sampling depth using an appropriate direct push technique, as identified above under general considerations.
  7. Collect the soil sample from the target sampling depth using one of the methods identified in Steps 14 through 20.
  8. Retrieve the sampler and appropriately process the soil sample as identified in Steps 14 through 20 below and in SOP 30.1.
  9. Log the borehole per the requirements of SOP 10.3.
  10. If collecting another soil sample, decontaminate the sampler for reuse per the requirements of SOP 80.1 or use another decontaminated sampler.

11. Appropriately manage investigation-derived material (discarded samples, decontamination fluids, etc.) per SOP 70.1.
12. Upon completion of the boring and collection of the desired soil samples, abandon the boring per the requirements of SOP 20.2.
13. The following single tube sampling systems (generally piston rod) may be used to collect soil samples (see Steps 14 through 16 below):
    a. Open Solid Barrel Sampler;
    b. Closed Solid Barrel Sampler (e.g. Geoprobe Macro-Core® Piston Rod Sampler); and
    c. Standard Split Barrel Sampler (see Section 3.1).
14. The following two tube sampling systems may be used to collect soil samples (see Steps 17 through 20 below):
    a. Split Barrel Sampler;
    b. Thin Wall Tubes;
    c. Thin Wall Tube Piston Sampler; and
    d. Open Solid Barrel Samplers.
15. Sampling with the single tube, open solid barrel sampler:
    a. Attach the required liner to the cutting shoe by insertion into the machined receptacle are or by sliding over the machined tube.
    b. Insert the liner and shoe into the solid barrel and attach the shoe.
    c. Attach the sampler head to the sampler barrel.
    d. Attach the sampler assembly to the drive rod and the drive head to the drive rod.
    e. Position the sampler assembly under the hammer anvil and advance the sampler assembly into the soil at a steady rate slow enough to allow the soil to be cut by the shoe and move up into the sample barrel.
    f. At the completion of the sampling interval, removal the sampler from the borehole. Remove the filled sampler liner from the barrel by unscrewing the shoe. Cap the liner for laboratory testing or split open for field processing (see SOP 30.1).
    g. Log the borehole per the requirements of SOP 10.3.
16. Sampling with the closed, solid barrel sampler (e.g., Macro-Core® sampler).
    a. Insert or attach the sample liner to the shoe and insert the assembly into the solid barrel sampler. Install the sample, retaining basket, if desired.
    b. Attach the latch coupling or sampler head to the sampler barrel, and attach the piston assembly with point and "O" rings if free water is present, to the latching mechanism.
    c. Insert the piston or packer into the liner to its proper position so that the point leads the sampler shoe. Set latch, charge packer, or install locking pin, and attach assembled sampler to drive rod.
    d. Add drive head and position under the hammer anvil. Apply down pressure, and hammer if needed, to penetrate the soil strata above the targeted sampling interval.
    e. When the sampling interval is reached, insert the piston latch release and recovery tool, removing the piston, or insert the locking pin removal/extension rods through the drive rods, turn counter clockwise, and remove the piston locking pin so the piston can float on top of the sample, or release any other piston holding device.
    f. Direct push or activate the hammer to advance the sampler the desired interval.

g. Retrieve the sampler from the borehole by removing the extension/drive rods. Remove the shoe, and withdraw the sample line with sample for processing (see SOP 30.1).

h. Clean and decontaminate the sampler, reload as described above and repeat the same procedure for collection of addition samples.

i. Log the borehole per the requirements of SOP 10.3.

17. Sampling with standard split barrel (split spoon) sampler generally consists of the following:

a. Attach the split barrel sampler to an extension rod or drill rod.

b. Using a mechanical or hydraulic hammer drive the ampler into the soil the desired interval. The maximum interval that should be driven is equal to the sample chamber length of the split barrel sampler, which is either 18-inches or 24-inches.

c. Retrieve the sampler from the borehole by removing the extension/drive rods.

d. Split the sampler open for field processing (see SOP 30.1).

e. Clean and decontaminate the sampler (SOP 80.1), re-attach and repeat the same procedure for collection of additional samples.

f. Log the borehole per the requirements of SOP 10.3.

18. Sampling with a two tube, split barrel sampler generally consists of the following:

a. Assemble the outer casing with the drive shoe on the bottom, attach the drive head to the top of the outer casing, and attach the sampler to the extension rods.

b. Connect the drive head to the top of the sampler extension rods, and insert the sampler assembly into the outer casing.

c. The cutting shoe of the sampler should contact the soil ahead of the outer casing to minimize sample disturbance.

d. The sample barrel should extend a minimum of 0.25 inches ahead of the outer casing.

e. Mark the outer casing to identify the required drive length, position the outer casing and sampler assembly under the drill head.

f. Move the drill head downward to apply pressure on the tool string. Advance the casing assembly into the soil at a steady rate, which is slow enough to allow the soil to be cut by the shoe and move up inside the sample barrel.

g. Occasional hammer action during the push may assist recovery.

h. If smooth push advancement is not possible because of subsurface conditions, use the hammer to advance the sampler.

i. Stop the application of pressure or hammering when target interval has been sampled. Move the drill head off the drive head. Attach a pulling device to the extension rods or position the hammer bail and retrieve the sampler from the borehole.

j. At the surface, remove the sampler from the extension rods and process the sample per Section 3.01 and SOP 30.1.

k. Log the borehole per the requirements of SOP 10.3.

19. Sampling with a two tube, thin wall tube sampler generally consists of the following:

a. Attach the tube to the tube head using removable screws.

b. Attach the tube assembly to the extension rods and position at the base of the outer casing shoe protruding a minimum of 0.25 inches to contact the soil ahead of the outer casing.

c. Advance the tube with or without the outer casing at a steady rate.

d. After completing the sampling interval, let the tube remain stationary for one minute. Rotate the tube slowly two revolutions to shear off the sample.

e. Remove the tube from the borehole and measure the recovery, and log the borehole per the requirements of SOP 10.3.

f. For field processing, extrude the sample from the tube sampler and process per SOP 30.1. Alternatively, the tube may be sealed and shipped to the laboratory.

20. Sampling with two tube, thin wall tube, piston sampler generally consists of the following:

a. Check the fixed piston sampling equipment for proper operation of the cone clamping assembly and the condition of the "O" rings.

b. Slide the thin wall tube over the piston, and attach it to the tube head. Position the piston at the sharpened end of the thin wall tube just above the sample relief bend.

c. Attach the tube assembly to the extension rods and lower the sampler into position through the outer casing. Install the actuator rods through the extension rod, and attach to the actuator rod in the sampler assembly.

d. Attach a holding ring to the top of the actuator rod string and hook the winch cable or other hook to the holding ring to hold the actuator rods in a fixed position.

e. Attach the pushing fork to the drill head/probe hammer and slowly apply downward pressure to the extension rods advancing the thin wall tube over the fixed piston into the soil for the length of the sampling interval.

f. After completing the sampling interval, let the tube remain stationary for one minute. Rotate the tube slowly one revolution to shear off the sample.

g. Remove the tube sampler from the borehole and measure the recovery, and log the borehole per the requirements of SOP 10.3.

h. For field processing, extrude the sample from the tube sampler and process per SOP 30.1.

21. Sampling with an two tube, open solid barrel sampler generally consists of the following:

a. This sampling technique may be used when soil conditions prevent advancement of a split barrel sampler or advancement of an outer casing.

b. The solid, single, or segmented barrel sampler requires the use of a liner.

c. Use sampler in advance of outer casing when this casing cannot be advanced.

d. Follow the procedures outlined for two tube, split barrel sampling.

3.4 HOLLOW-STEM AUGER DRILLING

The following general procedure may be followed as outlined in ASTM Standard Guide D 5784.

1. Stabilize drill rig and raise mast at desired location.
2. Attach an initial assembly of hollow-stem auger components (hollow stem auger, hollow auger head, center rod and pilot assembly, as appropriate) to the rotary drive of the drill rig.
3. Push the auger assembly below the ground surface and initiate rotation at a low velocity.
4. Decontamination of auger head may be necessary after this initial penetration if this surface soil is contaminated.
5. Continue drilling from the surface, usually at a rotary velocity of 50 to 100 rotations per minute to the depth where sampling or in-situ testing is required or until the drive assembly is within approximately 6 to 18 inches of the ground surface.
6. As appropriate, collect a soil sample from the required depth interval. The sample may be conducted by

a. Removing the pilot assembly, if used, and inserting and driving a sampler through the hollow stem auger of the auger column; or

b. Using a continuous sampling device within the lead auger section, where the sampler barrel fills with material as the auger is advanced.

7. Additional sections of hollow stems augers may be added to drill to a greater depth. After these auger sections are added, rotation of the hollow-stem auger assembly may be resumed.

8. When drilling through material suspected of being contaminated, the installation of single or multiple (nested) outer casings may be required to isolate zones suspected contamination (see SOP 20.1). Outer casings may be installed in a pre-drilled borehole or using a method in which casing is advanced at the same of drilling.

   Monitoring wells or piezometers may be installed using hollow-stem augers by:

   a. Drilling with or without sampling to the target depth.

   b. Removal of the pilot assembly, if used, and insertion of the monitoring well (or piezometer) assembly.

   c. The hollow stem auger column should be removed incrementally as the monitoring well (or piezometer) completion materials are placed (see SOP 20.1 for grouting).

9. If materials enter the bottom of the auger hollow stem during the removal of the pilot assembly, it should be removed with a drive sampler or other appropriate device.

10. If sampling or *in-situ* testing is not required during completion of the boring, the boring may be advanced with an expendable knock out plate or plug of an appropriate material instead of a pilot assembly.

11. Drill cuttings should be appropriately controlled and contained as IDM per SOP 70.1. It may be necessary to drill through a hole of sheet of plywood or similar material to prevent cuttings from contacting the ground surface.

12. The hollow-auger assembly and sampling devices must be decontaminated before and after each use per the methods specified in SOP 80.1.

13. Borehole logging should be completed per SOP 10.3.

14. Borehole abandonment, when required, should be conducted according to SOP 20.3.

3.5 DIRECT AIR ROTARY DRILLING

The following general procedure may be followed as outlined in ASTM Standard Guide D 5784.

1. Stabilize drill rig and raise mast at desired location. Appropriately position the cyclone separator and seal it to the ground surface considering the prevailing wind direction (exhaust).

2. Establish point for borehole measurements.

3. Attach an initial assembly of a bit, down hole hammer, or core barrel with a single section of drill rod, below the rotary table or top-head drive unit, with the bit placed below the top of the dust collector.

4. Activate the air compressor to circulate air through system.

5. Initiate rotation of bit.

6. Continue with air circulation and rotation of the drill-rod column to the depth where sampling or in-situ testing is required or until the length of the drill rod section limits further penetration.

7. Monitor air pressure during drilling operations. Maintain low air pressure at bit to prevent fracturing of surrounding material.

8. Stop rotation and lift the bit slightly off the bottom of the hole to facilitate removal of drill cuttings and continue air circulation until the drill cuttings are removed from the borehole annulus.

9. Open reaching a desired depth of sampling, stop the air circulation and rest bit on bottom of hole to determine the depth. Record the borehole depth and any resultant caving in. If borehole caving is apparent set a decontaminated casing to protect the boring.
10. When sampling, remove the drill rod column from the borehole or leave the drill rod assembly in place if the sampling can be performed through the hollow axis of the drill rods and bit.
11. Compare the sampling depth to clean-out depth by first resting the sampler on the bottom of the hole and compare that measurement with the clean-out depth measurement.
12. If bottom-hole contamination is apparent (indicated by comparison of sample depth to clean-out depth), it is recommended that the minimum depth below the sampler/bit be 18 inches for testing. Record the depth of sampling or in-situ testing and the depth below the sampler/bit.
13. The procedure described in Steps 8 through 12 should be conducted for each sampling or testing interval.
14. Drilling to a greater depth may be accomplished by attaching an additional drill rod section to the top of the previously advanced drill-rod column and resuming drilling operations as described above.
15. When drilling through material suspected of being contaminated, the installation of single or multiple (nested) outer casings may be required to isolate zones suspected contamination (see SOP 20.1 for grouting requirements). Outer casings may be installed in a pre-drilled borehole or using a method in which casing is advanced at the same of drilling.
16. Monitoring wells or piezometers may be installed by:
    a. Drilling with or without sampling to the target depth.
    b. Removal of the drill rod assembly and insertion of the monitoring well (or piezometer) assembly.
    c. Addition of monitoring well (or piezometer) completion materials (see SOP 20.1).
17. Drill cuttings should be appropriately controlled and contained as IDM per SOP 70.1.
18. The drill rod assembly, sampling devices, and other drilling equipment contacting potentially contaminated material must be decontaminated before and after each use per the methods specified in SOP 80.1.
19. Borehole logging should be completed per SOP 10.3.
20. Borehole abandonment, when required, should be conducted according to SOP 20.3

3.6 DRILL-THROUGH CASING DRILLING

The following general procedure may be followed as outlined in ASTM Standard Guide D 5872.

1. Stabilize drill rig and raise mast at desired location. Appropriately position the cyclone separator and seal it to the ground surface considering the prevailing wind direction (exhaust).
2. Establish point for borehole measurements.
3. Attach an initial assembly of a bit or down hole hammer with a single section of drill rod and casing to the top-head drive unit.
4. Activate the air compressor to circulate air through system.
5. Drilling may be accomplished by:
    a. Method 1- the casing will fall, or can be pushed downward behind the bit. To drill using Drive the casing first followed by drilling out the plug inside the casing.
    b. Method 2 - Advancing the casing and bit as a unit, with the drill bit or hammer, extending up to 12-inches below the casing.
    c. Method 3 - Under reaming method where bit or hammer pens a hole slightly larger than the casing so that Method 1, drive the casing first and drill out the plug in the casing by moving the bit or hammer beyond the casing and then withdrawing it into the casing. Air exiting the bit will

remove the cuttings up the hole. Separate cuttings from the return air with a cyclone separator or similar device.

6. To drill using Method 2, advance casing and bit as unit with the bit or hammer extending up to 12-inches beyond the casing depending on the conditions. While drilling, occasionally stop the casing advancement, retract the bit or hammer inside the casing to clear and maintain air circulation to clear cuttings.
7. To drill using Method 3, use a special down hole bit or hammer to open a hole slightly larger than the outside diameter of the casing so that the casing will fall or can be pushed downward immediately behind the bit. After advancing the casing, retract the radial dimension of the drill bit to facilitate removal of the down hole bit or hammer and drill tools inside the casing. Cuttings are removed from the borehole with the air that operates the bit or hammer and can be separated from the air with a cyclone separator or similar device.
8. Monitor air pressure during drilling operations. Maintain low air pressure at bit or hammer to prevent fracturing of surrounding material.
9. Continue air circulation and rotation of the drill rod column until drilling is completed to the target depth (for sampling, in-situ sampling, etc.) or until the length of the drill-rod section limits further penetration.
10. Stop rotation and lift bit or hammer slightly off the bottom of the hole to facilitate removal of drill cuttings and continue air circulation until the drill cuttings are removed from the borehole annulus.
11. After reaching a desired depth of sampling, stop the air circulation and rest the bit on bottom of hole to determine the depth. Record the borehole depth and any resultant caving in. If borehole caving is apparent set a decontaminated casing to protect the boring.
12. When sampling, remove the drill rod column from the borehole. Compare the sampling depth to clean-out depth by first resting the sampler on the bottom of the hole and compare that measurement with the clean-out depth measurement.
13. If bottom-hole contamination is apparent (indicated by comparison of sample depth to clean-out depth), it is recommended that the minimum depth below the sampler/bit be 18 inches for testing. Record the depth of sampling or in-situ testing and the depth below the sampler/bit.
14. The procedure described in Steps 11 through 14 should be conducted for each sampling or testing interval.
15. Drilling to a greater depth may be accomplished by attaching an additional drill rod section and casing section to the top of the previously advanced drill-rod column/casing and resuming drilling operations as described above.
16. Monitoring wells or piezometers may be installed by:
    a. Casing advancement in increments, with or without sampling to the target depth.
    b. Removal of the drill rods and the attached drill bit while the casing is temporarily left in place to support the borehole wall.
    c. Insertion of the monitoring well (or piezometer) assembly.
    d. Addition of monitoring well (or piezometer) completion materials (see SOP 20.1).
17. Drill cuttings should be appropriately controlled and contained as IDM per SOP 70.1.
18. The drill rod assembly, casing, sampling devices, and other drilling equipment contacting potentially contaminated material must be decontaminated before and after each use per the methods specified in SOP 80.1.
19. Borehole logging should be completed per SOP 10.3.
20. Borehole abandonment, when required, should be conducted according to SOP 20.3.

3.7 DIRECT WATER-BASED ROTARY DRILLING

The following general procedure may be followed as outlined in ASTM Standard Guide D 5783.

1. Stabilize drill rig and raise mast at desired location. Appropriately position the mud tub and install surface casing and seal at the ground surface.
2. Establish point for borehole measurements.
3. Attach an initial assembly of a bit or core barrel with a single section of drill rod, below the rotary table or top-head drive unit, with the bit placed with the top of the surface casing.
4. Activate the drilling-fluid circulation pump to circulate drill fluid through the system.
5. Initiate rotation of bit and apply axial force to bit.
6. Document drilling conditions and sequence (fluid loss, circulation pressures, depths of lost circulation, etc.) as described in SOP 10.3.
7. Continue with drill fluid circulation as rotation and axial force are applied to the bit until drilling to the depth
    a. Where sampling or in-situ testing is required;
    b. Until the length of the drill rod section limits further penetration; or
    c. Until core specimen has completely entered the core barrel (when coring) or blockage has occurred.
8. Stop rotation and the lift bit slightly off the bottom of the hole to facilitate removal of drill cuttings and continue fluid circulation until the drill cuttings are removed from the borehole annulus.
9. After reaching a desired depth of sampling, stop the fluid circulation and rest the bit on bottom of hole to determine the depth. Record the borehole depth and any resultant caving in. If borehole caving is apparent set a decontaminated casing to protect the boring.
10. When sampling, drill rod removal is not necessary if the sampling can be performed through the hollow axis of the drill rods and bit.
11. Compare the sampling depth to clean-out depth by first resting the sampler on the bottom of the hole and compare that measurement with the clean-out depth measurement.
12. If bottom-hole contamination is apparent (indicated by comparison of sample depth to clean-out depth), it is recommended that the minimum depth below the sampler/bit be 18 inches for testing. Record the depth of sampling or in-situ testing and the depth below the sampler/bit.
13. The procedure described in Steps 8 through 11 should be conducted for each sampling or testing interval.
14. Drilling to a greater depth may be accomplished by attaching an additional drill rod section to the top of the previously advanced drill-rod column and resuming drilling operations as described above.
15. When drilling through material suspected of being contaminated, the installation of single or multiple (nested) outer casings may be required to isolate zones suspected contamination (see SOP 20.1 for grouting requirements). Outer casings may be installed in a pre-drilled borehole or using a method in which casing is advanced at the same of drilling.
16. Monitoring wells or piezometers may be installed using hollow-stem augers by:
    a. Drilling with or without sampling to the target depth.
    b. Removal of the drill rod assembly and insertion of the monitoring well (or piezometer) assembly.
    c. Addition of monitoring well (or piezometer) completion materials (see SOP 20.1).
17. Drill cuttings and fluids should be appropriately controlled and contained as IDM per SOP 70.1.

18. The drill rod assembly, sampling devices, and other drilling equipment contacting potentially contaminated material must be decontaminated before and after each use per the methods specified in SOP 80.1.
19. Borehole logging should be completed per SOP 10.3.
20. Borehole abandonment, when required, should be conducted according to SOP 20.3.

3.8 DIRECT ROTARY WIRELINE CASING ADVANCEMENT DRILLING

The following general procedure may be followed as outlined in ASTM Standard Guide D 5876.

1. Stabilize drill rig and raise mast at desired location. Appropriately position the mud tub (for water based rotary) and install surface casing and seal at the ground surface.
2. Record the hole depth by knowing the length of the rod-bit assemblies and comparing its position relative to the established surface datum.
3. Attach an initial assembly of a lead drill rod and a bit or core barrel below the top-head drive unit, with the bit placed with the top of the surface casing.
4. Activate the drilling-fluid circulation pump to circulate drill fluid through the system.
5. Initiate rotation of bit and apply axial force to bit.
6. Document drilling conditions and sequence (fluid loss, circulation pressures, depths of lost circulation, down feed pressures etc.) as described in SOP 10.3.
7. In general, the pilot bit or core barrel can be inserted or removed at any time during the drilling process and the large inside diameter rods can act as a temporary casing for testing or installation of monitoring devices.
8. Continue with drill fluid circulation as rotation and axial force are applied to the bit until drilling to the depth
    a. Where sampling or in-situ testing is required;
    b. Until the length of the drill rod section limits further penetration; or
    c. Until core specimen has completely entered the core barrel (when coring) or blockage has occurred.
9. Stop rotation and lift the bit slightly off the bottom of the hole to facilitate removal of drill cuttings and continue fluid circulation until the drill cuttings are removed from the borehole annulus.
10. After reaching a desired depth of sampling, stop the fluid circulation and rest the bit on bottom of hole to determine the depth. Record the borehole depth and any resultant caving in. If borehole caving is apparent set a decontaminated casing to protect the boring.
11. When sampling, drill rod removal is not necessary if the sampling can be performed through the hollow axis of the drill rods and bit.
12. Compare the sampling depth to clean-out depth by first resting the sampler on the bottom of the hole and compare that measurement with the clean-out depth measurement.
13. If bottom-hole contamination is apparent (indicated by comparison of sample depth to clean-out depth), it may be necessary to further clean the hole by rotary recirculation.
14. Continuous sampling may be conducted with a soil core barrel or rock core barrel (see Section 1.7).
15. The pilot bit or core barrel may need to be removed during drilling such as when core barrels are full or there is evidence of core blocking. Before the drill string is reinserted, the depth of the boring should be rechecked to evaluate hole quality and determine whether casing may be required.

16. Water testing may be performed in consolidated deposits by pulling back on the drill rods and passing inflatable packer(s) with pressure fitting to test the open borehole wall (see ASTM Standards D 4630 and D 4631).
17. Drilling to a greater depth may be accomplished by attaching an additional drill rod section to the top of the previously advanced drill-rod column and resuming drilling operations as described above.
18. When drilling through material suspected of being contaminated, the installation of single or multiple (nested) outer casings might be required to isolate zones suspected contamination (see SOP 20.1 for grouting requirements). Outer casings may be installed in a pre-drilled borehole or using a method in which casing is advanced at the same of drilling.
19. Monitoring wells or piezometers may be installed by:
    a. Drilling with or without sampling to the target depth.
    b. Removal of the pilot bit or core barrel and insertion of the monitoring well (or piezometer) assembly.
    c. Addition of monitoring well (or piezometer) completion materials (see SOP 20.1).
20. Drill cuttings and fluids should be appropriately controlled and contained as IDM per SOP 70.1.
21. The drill rod assembly, sampling devices, and other drilling equipment contacting potentially contaminated material must be decontaminated before and after each use per the methods specified in SOP 80.1.
22. Borehole logging should be completed per SOP 10.3.
23. Borehole abandonment, when required, should be conducted according to SOP 20.3.

3.9 DIAMOND CORE DRILLING

The following general procedure may be followed as outlined in ASTM Standard Practice D 2113.

1. Use core-drilling procedures, such as the water-rotary drilling method outlined in Section 3.6.
2. Seat the casing on bedrock or firm formation to prevent raveling of the borehole and to prevent loss of drilling fluid. Level the formation that the casing will be seated on as needed.
3. Begin core drilling using an N-size double-tube, swivel-type core barrel or other approved size or type. Continue core drilling until core blockage occurs or until the net length of the core has been drilled.
4. Remove the core barrel from the borehole, and dis-assemble the core barrel as necessary to remove the core.
5. Reassemble the core barrel and return it to hole.
6. Continue core drilling.
7. Place the recovered core in the core box with the upper (surface) end of the core at the upper-left corner of the core box. Wrap soft or friable cores, etc. as needed or required. Use spacer blocks or slugs properly marked to indicate any noticeable gap in recovered core that might indicate a change or void in the formation. Fit fracture, bedded, or jointed pieces of core together as they naturally occurred.
8. The core within each completed box should be photographed after core surface has been cleaned or peeled, as appropriate, and wetted. Each photo should be in sharp focus and contain a legible scale in feet and tenths of feet (or metric if appropriate). The core should be oriented so that the top of the core is at the top of the photograph. A color chart should be included in the photograph frame as a check on photographic accuracy. The inside lid of the box should also be shown.
9. The inside of the box lid should be labeled at a minimum with the facility name, project name, boring number, box number, and core interval.

10. A preliminary field log of the core must be completed before the core box has been packed for transport (see SOP 10.3). Detailed logging may be conducted at a later time providing the core is appropriately handled and transported.
11. Four levels of sample protection may be used depending on character of the rock and the intended use of the rock core including:
    a. *Routine care* – for rock cored in 5 to 10 foot runs. Consists of placing in structurally sound boxes. Lay flat tubing may be used prior to placing the core.
    b. *Special care* – for rock samples to be tested that are potentially moisture sensitive, such as shale. This care consists of sealing with a tight fitting wrapping of plastic film and application of wax at the ends of the sample.
    c. *Critical care* – for rock samples that may be sensitive to shock and vibration and/or temperature. Protect by encasing each sample in cushioning material, such as sawdust, rubber, polystyrene, foam, etc. A minimum one-inch thick layer of cushioning material should be used. Thermally insulate samples that are potentially sensitive to changes in temperature.
    d. *Soil-Like care* – handle per ASTM Standard D 4220.
12. Drilling conditions and sequence (fluid loss, circulation pressures, depths of lost circulation, down feed pressures, core blockage etc.) should be documented on the boring log as described in SOP 10.3.
13. Drill cuttings and fluids should be appropriately controlled and contained as investigation-derived material per SOP 70.1.
14. The drill rod assembly, sampling devices, and other drilling equipment contacting potentially contaminated material must be decontaminated before and after each use per the methods specified in SOP 80.1.
15. Borehole logging should be completed per SOP 10.3.
16. Borehole abandonment, when required, should be conducted according to SOP 20.3.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

Refer to site-specific health and safety plan included in work plan addenda.

6.0 REFERENCES

ASTM Standard D 2113-06 (2006). 1993. *Standard Practice for Rock Core Drilling and Sampling of Rock for Site Investigation.*

ASTM Standard D 1586-99. 1999. *Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils.*

ASTM Standard D 1587-00 (2007) e1. 2007. *Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes.*

ASTM Standard D 3550-01 (2007). 2007. *Standard Practice for Think Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils.*

ASTM Standard D 4220-95 (2007). 2007. *Standard Practices for Preserving and Transporting Soil Samples.*

ASTM Standard D 4630-96 (2002). 2002. *Standard Test Method for Determining Transmissivity and Storage Coefficient of Low-Permeability Rocks by In Situ Measurements Using the Constant Head Injection Test.*

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ASTM Standard D 5079-02 (2006). 2006. *Standard Practices for Preserving and Transporting Rock Core Samples.*

ASTM Standard D 5782-95 (2006). 2006. *Standard Guide for Use of Direct Air-Rotary Drilling for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices.*

ASTM Standard D 5783-95 (2006). 2006. *Standard Guide for Use of Direct Rotary Drilling with Water-Based Drilling Fluid for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices.*

ASTM Standard D 5784-95 (2006). 2006. *Standard Guide for Use of Hollow-Stem Augers for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices.*

ASTM Standard D 5872-95 (2006). 2006. *Standard Guide for Use of Casing Advancement Drilling Methods for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices.*

ASTM Standard D 5876-95 (2005). 2005. *Standard Guide for Use of Direct Rotary Wireline Casing Advancement Drilling Methods for Geoenvironmental Exploration and the Installation of Subsurface Water-Quality Monitoring Devices.*

ASTM Standard D 6282-98 (2005). 2005. *Standard Guide for Direct Push Soil Sampling for Environmental Site Characterizations.*

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STANDARD OPERATING PROCEDURE 30.1
SOIL SAMPLING

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for sampling surface and subsurface soils.

2.0 MATERIALS

- Stainless steel scoop, spoon, trowel, knife, spatula, (as needed);
- Split-spoon, Shelby tube, or core barrel sampler;
- Hand auger or push tube sampler;
- Drill rig and associated equipment (subsurface soil);
- Stainless steel bowls;
- Photoionization detector or other appropriate instrument as specified in site-specific health and safety plan;
- Sampling equipment for collection of volatile organic samples;
- Appropriate sample containers;
- Appropriate sample labels and packaging material;
- Personal protective equipment and clothing (PPE) per site-specific health and safety plan; and
- Decontamination equipment and supplies (SOP 80.1).

3.0 PROCEDURE

3.1 DOCUMENTATION

Soil sampling information should be recorded in the field logbooks as described in SOPs 10.1 and 10.2.

3.2 SURFICIAL SOIL SAMPLES

The targeted depths for surficial soil samples (surface and near surface) will be specified in the work plan addenda developed for site-specific investigations.

1. All monitoring equipment should be appropriately calibrated before beginning sampling according to the requirements of the work plan addenda and SOP 90.1 or 90.2.
2. All sampling equipment should be appropriately decontaminated before and after use according to the requirements of the work plan addendum and SOP 80.1.
3. Use a spade, shovel, or trowel or other equipment (manufactured from material, which is compatible with the soil to be sampled) to remove any overburden material present (including vegetative mat) to the level specified for sampling.
4. Measure and record the depth at which the sample will be collected with an engineers scale or tape.

5. Remove the thin layer that was in contact with the overburden removal equipment using a clean stainless steel scoop or equivalent and discard it.
6. Begin sampling with the acquisition of any discrete sample(s) for analysis of volatile organic compounds (VOCs), with as little disturbance as possible. VOC samples will not be composited or homogenized.
7. When a sample will not be collected with a core type of sampler (push tube, split spoon, etc.), the sample for VOC analysis will be collected from freshly exposed soil. The method of collection will follow the procedures specified in SOP 30.8 (Methanol Preservation Method) or 30.9 (En Core® Method) based on the requirements of the work plan addenda.
8. Field screen the sample with properly calibrated photoionization detector (PID) or other appropriate instrument. Cut a cross-sectional slice from the core or center of the sample and insert the monitoring instrument(s). Based on the screening results, collect the VOC fraction, as applicable.
9. Collect a suitable volume of sample from the targeted depth with a clean stainless steel scoop (or similar equipment), push tube sampler, or bucket auger.
10. For core type of samplers, rough trimming of the sampling location surface should be considered if the sampling surface is not fresh or other waste, different soil strata, or vegetation may contaminate it. Surface layers can be removed using a clean stainless steel, spatula, scoop, or knife. Samples collected with a bucket auger or core type of sampler should be logged per the requirements of SOP 10.3.
11. If homogenization or compositing of the sampling location is not appropriate for the remaining parameters, the sample should be directly placed into appropriate sample containers with a stainless steel spoon or equivalent.
12. If homogenization of the sample location is appropriate or compositing of different locations is desired, transfer the sample to a stainless steel bowl for mixing. The sample should be thoroughly mixed with a clean stainless steel spoon, scoop, trowel, or spatula and then placed in appropriate sample containers per the requirements for containers and preservation specified in work plan addenda. Secure the cap of each container tightly.
13. Appropriately, label the samples (SOP 50.1), complete the chain-of-custody (SOP 10.4), and package the samples for shipping (SOP 50.2).
14. Return any remaining unused soil to the original sample location. If necessary, add clean sand to bring the subsampling areas back to original grade. Replace the vegetative mat over the disturbed areas.

3.3 SUBSURFACE SAMPLES

All sampling equipment should be appropriately decontaminated before and after use according to the requirements of the work plan addendum and SOP 80.1.

1. All monitoring equipment should be appropriately calibrated before sampling according to the requirement of the work plan addendum and SOP 90.1 or SOP 90.2.
2. All sampling equipment should be appropriately decontaminated before and after use according to the requirements of the work plan addendum and SOP 80.1.
3. Collect split-spoon; core barrel, Shelby tube, sonic core or other similar samples during drilling.
4. Upon opening sampler or extruding sample, immediately screen soil for VOCs using a PID or appropriate instrument. If sampling for VOCs, determine the area of highest concentration; use a

stainless steel knife, trowel, or lab spatula to cut the sample; and screen for VOCs with monitoring instrument(s).

5. Log the sample on the boring log before extracting from the sampler per the requirements of SOP 10.3.
6. Any required VOC samples will be collected first followed by the other parameters. VOC samples will not be composited or homogenized and will be collected from the area exhibiting the highest screening level. The method of VOC sample collection will follow the procedures specified in SOP 30.8 (Methanol Preservation Method) or 30.9 (En Core® Method) based on the requirements of the work plan addenda.
7. Field screen the sample with properly calibrated photoionization detector (PID) or other appropriate instrument. Cut a cross-sectional slice from the core or center of the sample and insert the monitoring instrument(s). Based on the screening results, collect the VOC fraction, as applicable.
8. Rough trimming of the sampling location surface should be considered if the sampling surface is not fresh or other waste, different soil strata, or vegetation may contaminate it. Surface layers can be removed using a clean stainless steel, spatula, scoop, or knife.
9. If homogenization or compositing of the sampling location is not appropriate for other parameters, the sample should be directly placed into appropriate sample containers with a stainless steel spoon or equivalent.
10. If homogenization of the sample location is appropriate or compositing of different locations is desired, transfer the sample to a stainless steel bowl for mixing. The sample should be thoroughly mixed with a clean stainless steel spoon, scoop, trowel, or spatula and placed in appropriate sample containers per the requirements for containers and preservation specified in work plan addenda. Secure the cap of each container tightly.

15. Appropriately, label the samples (SOP 50.1), complete the chain-of-custody (SOP 10.4), and package the samples for shipping (SOP 50.2).
16. Discard any remaining sample into the drums used for collection of cuttings.
17. Abandon borings according to procedures outlined in SOP 20.3.

3.4 INVESTIGATION-DERIVED MATERIAL

Investigation-derived material will be managed in accordance with procedures defined in the work plan addenda for the site being investigated and SOP 70.1.

NOTES: If sample recoveries are poor, it may be necessary to composite samples before placing them in jars. In this case, the procedure will be the same except that two split-spoon samples (or other types of samples) will be mixed together. The boring log should clearly state that the samples have been composited, which samples were composited, and why the compositing was done. In addition, VOC fraction should be collected from the first sampling device.

When specified, samples taken for geotechnical analysis (e.g., percent moisture, density, porosity, and grain size) will be undisturbed samples, such as those collected using a thin-walled (Shelby tube) sampler, sonic core sampler, etc.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

Refer to the site-specific health and safety plan.

Soil samples will not include vegetative matter, rocks, or pebbles unless the latter are part of the overall soil matrix.

6.0 REFERENCES

ASTM Standard D 1586-99. 1999. *Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils.*

ASTM Standard D 1587-00 (2007) e1. 2007. *Standard Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes.*

ASTM Standard D 5633-04. 2004. *Standard Practice for Sampling with a Scoop.*

USACE. 2001. *Requirements for the Preparation of Sampling and Analysis Plans.* EM 200-1-3. 1 February.

STANDARD OPERATING PROCEDURE 30.2
GROUNDWATER SAMPLING

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for the collection of groundwater samples from monitoring wells.

2.0 MATERIALS

- Work Plans;
- Field logbooks and field parameter forms;
- Plastic sheeting;
- Decontamination equipment and supplies (SOP 80.1);
- Variable-speed, low-flow submersible pump with safety drop cable;
- Nylon stay-ties;
- Generator;
- Dedicated Teflon tubing or Teflon lined polyethylene tubing;
- Flow-through-cell and probes for measuring pH, temperature, specific conductance, oxidation/reduction potential, dissolved oxygen, and turbidity (SOP 40.1);
- Electronic water-level indicator;
- Appropriate sample bottles, labels, chain-of-custody forms, and sample shipping supplies etc;
- Cooler with ice;
- Silicone tubing;
- 0.45-micron disposable filters (as appropriate).
- Personal protective equipment and clothing (PPE) per site-specific health and safety plan;
- Photoionization detector (PID) or other appropriate monitoring instrument per the site-specific health and safety plan; and
- Appropriate containers for investigation-derived material.

3.0 PROCEDURE

3.1 DOCUMENTATION

Groundwater sampling information should be recorded in the field logbooks as described in SOPs 10.1 and 10.2.

The following are general rules for the field parameter logbook for groundwater, as described in SOP 10.2:

- Only information for one site or installation per logbook. The same book maybe used for more than one sampling event.

- The first five pages will be reserved for index, general notes, etc. Sign and date each entry.
- Fill in the forms.
- Duplicate copies, index pages, and calibration sheets remain intact.

3.2 OVERVIEW OF SAMPLING TECHNIQUES

In general, two different techniques may be used to sample groundwater from monitoring wells at Radford Army Ammunition Plant (RFAAP):

- Low flow purging and sampling (Type I); and
- Conventional purging and low-flow sampling (Type II).

These two sampling techniques are intended to address the different groundwater conditions that may be encountered at RFAAP.

The Type I sampling technique will be used in the following situations:

- In wells where only one discrete water-producing zone is encountered;
- In wells with no discrete water bearing zone and a low yield (generally < 0.5 liters per minute); and
- In wells sampled during seasonal low groundwater conditions with greatly reduced yield.

The Type II sampling technique will be used in the following situations:

- In a well with potential or documented multiple flow zones and where individual flow zones will not be evaluated;
- In moderately producing wells (> 0.5 liters per minute) where no discrete flow zones were documented during drilling; and
- In wells sampled during seasonal high groundwater conditions with enhanced yield (and potentially additional flow zones).

Groundwater samples should be collected no sooner than 14 days after well development. Information from the boring logs, well completion records, and well development records should be reviewed before sampling a well to determine the most appropriate sampling technique. Pertinent information for each well to be sampled includes:

- Well construction;
- Depth and nature of water producing zones;
- Sustainable pumping rate of the well to be sampled;
- Well recharge characteristics; and
- Baseline turbidity.

Because of the heterogeneous nature of the fracture and solution-enhanced fractured bedrock at RFAAP, monitoring well purging and sampling techniques will need to be flexible. This flexibility is necessary to obtain representative samples that meet the data quality objectives (DQOs) specified in site-specific work plan addenda.

In general, when using the pumps specified in the following sections, situate any gasoline-powered generator on level ground approximately 15 ft downwind from the well. All generator maintenance (oil and fueling) is

to be performed off site. If the hose(s) and/or power cord of the pump is not on a reel, place the pump with its hose and power cord on the plastic sheeting downhill from the well.

3.3 TYPE I SAMPLING PROCEDURES

Type I low flow purging and sampling procedures include the following:

- The work area outside the well will be prepared by placing plastic sheeting on the ground around the well casing to avoid cross-contamination.
- All equipment used to purge and sample the wells will be thoroughly decontaminated before and after use according to the requirements of the work plan addenda and SOP 80.1.
- All equipment to be used for monitoring water quality parameters will be calibrated before beginning purging according to the requirements of the work plan addenda and SOP 40.1.
- Note the condition of the well and well head.
- Monitor the headspace of the well with a photoionization detector as the well cap is removed.
- Measure and record the depth to water with an electronic water level indicator. The measurement of well depth will not be taken until after sampling is completed so that potential re-suspension of any settled solids at the bottom of the well is avoided.
- Well depth at the time of purging will be obtained from well construction and existing data.
- Slowly lower a clean, stainless steel, adjustable flow rate, submersible pump and dedicated Teflon or Teflon-lined polyethylene tubing to the desired depth. As the pump is slowly lowered into the well, secure the safety drop cable, tubing, and electrical lines to each other using nylon stay-ties.
- For wells with very low sustainable pumping rates ($\leq$ 0.5 liters per minute), the pump should be set in the middle of the saturated screen section of the well or middle of the water column for open wells. The pump should be set 12 hours prior to purging so that the depth to water equilibrates and sediments disturbed during pump placement have time to settle.
- For wells with sustainable pumping rates (> 0.5 liters per minute), the pumps will be set at a desired depth prior to purging, allowing for the depth to water to equilibrate before sampling. The desired depth will be specified in work plan addenda based on site-specific conditions and DQOs.
- Connect the pump tubing to an in-line flow-through cell(s) and connect the multi-parameter probe to the cell(s). The end of the tubing exiting the in-line flow-through cell should be placed to discharge into an appropriate container(s) to collect purge water.
- Immediately prior to purging, the depth to water will be measured and record. Start pumping the water at a rate of 100 to 400 milliliters per minute. Avoid surging. The pumping rate should cause minimal drawdown (less than 0.2 ft). Water level measurements should be collected continuously to document stabilization of the water level. Pumping rates should, if needed, be reduced to the minimal capabilities of the pump to avoid dewatering the screen interval and ensure stabilization of indicator parameters.
- During purging, water quality indicator parameters will be monitored at the in-line flow-through cell(s) every 3 to 5 minutes. The parameters to be monitored include pH, specific conductance, oxidation/reduction potential (Eh), dissolved oxygen, and turbidity.
- Continue purging until stabilization of indicator parameters is achieved. Stabilization is defined as three consecutive readings that are within the following criteria:
  - $\pm$ 0.1 for pH;

- ±3% for specific conductance;
- ±10 mV for oxidation/reduction potential (Eh); and
- ±10% for turbidity and dissolved oxygen.

- If the parameters have stabilized, but the turbidity is not in the range of 5 to 10 NTU, then both filtered and unfiltered samples should be collected for any metals analysis. Filter metal samples should be collected with an in-line filter using a high capacity 0.45-micron particulate filter. This filter should be pre-rinsed according to the manufacturer's instructions.
- Once purging is completed, reduce the pumping rate to its lowest steady rate and disconnect the tubing from the in-line flow-though cell(s).
- Collect groundwater samples directly from the end of the tubing into clean containers provided by the laboratory. The container requirements and preservatives for groundwater samples are specified in work plan addenda. Allowing the pump discharge to flow gently down the inside of the container with minimal turbulence should fill all sample containers. Volatile organic compound (VOC) and gas sensitive parameter samples should be collected first followed by other parameters.
- In general, samples should be collected and containerized in the order of the volatilization sensitivity of the parameters. A preferred collection order for some common parameters is VOCs, extractable organics, metals, cyanide, sulfate and chloride, turbidity, and nitrate and ammonia. The parameters to be collected at any well location are site-specific and are specified in work plan addenda.
- Appropriately, label the samples (SOP 50.1), complete the chain-of-custody (SOP 10.4), and package the samples for shipping (SOP 50.2).
- After the sample collection is complete; remove the pump, tubing, and associated lines. Note: sample tubing will be dedicated to each well.
- Measure and record the total depth of the well.
- Secure the well be replacing and locking the lid.

3.4 TYPE II SAMPLING PROCEDURES

- The work area outside the well will be prepared by placing plastic sheeting on the ground around the well casing to avoid cross-contamination.
- All equipment used to purge and sample the wells will be thoroughly decontaminated before and after use according to the requirements of the work plan addenda and SOP 80.1.
- All equipment to be used for monitoring water quality parameters will be calibrated before beginning purging according to the requirements of the work plan addenda and SOP 40.1.
- Note the condition of the well and well head.
- Monitor the headspace of the well with a photoionization detector as the well cap is removed.
- Measure and record the depth to water with an electronic water level indicator. The measurement of well depth will not be taken until after sampling is completed so that potential re-suspension of any settled solids at the bottom of the well is avoided.
- Well depth at the time of purging will be obtained from well construction and existing data.
- Calculate the standing water column in the well by subtracting the depth to water from the total depth of the well as recorded during completion of the well.

- From the water depth, well diameter, sand pack length, etc., calculate the equivalent volume (1 EV) of water in the well.

  1 EV = volume in casing + volume in saturated sand pack. Therefore; if the water table lies below the top of the sand pack, use the following equation:

  $1\ EV = (pR_w^2h_w) + (0.30p(R_s^2-R_w^2)h_w) * (0.0043)$

  If the water table lies above the top of the sand pack use this equation:

  $1\ EV = [(pR_w^2h_w) + (0.30p(R_s^2-R_w^2)h_s)] * (0.0043)$

  Where: R_s = radius of sand pack in inches
  R_w = radius of well casing in inches
  h_s = height of sand pack in inches
  h_w = water depth in inches
  0.0043 gal/in^3
  Assumed filter pack porosity = 30%

Tables and graphs showing equivalent volumes for typical well constructions are available.

- Slowly lower a clean, stainless steel, adjustable flow rate, submersible pump and dedicated Teflon or Teflon-lined polyethylene tubing to the middle of the saturated screen interval or water column in an open borehole. As the pump is slowly lowered into the well, secure the safety drop cable, tubing, and electrical lines to each other using nylon stay-ties.
- Connect the pump tubing to an in-line flow-through cell(s) and connect the multi-parameter probe to the cell(s). The end of the tubing exiting the in-line flow-through cell should be placed to discharge into an appropriate container to collect purge water.
- Start purging the well at the minimally achievable pumping rate. Gradually increase the pumping rate to achieve the maximum flow rate of the pump or the maximum sustainable flow rate that does not draw down the static water level to a point below the top of the first water bearing zone, whichever is achieved first.
- During purging, water level measurements should be collected periodically to verify water levels in the well.
- During purging, water quality indicator parameters will be monitored at the in-line flow-through cell(s) every 3 to 5 minutes. The parameters to be monitored include pH, specific conductance, oxidation/reduction potential (Eh), dissolved oxygen, and turbidity.
- Note when each indicator parameter stabilizes. Stabilization is defined as three consecutive readings that are within the following criteria:
  - ± 0.1 for pH;
  - ±3% for specific conductance;
  - ±10 mV for oxidation/reduction potential (Eh); and
  - ±10% for turbidity and dissolved oxygen.
- Three calculated eVs of water in the will be purged prior to sampling. It will be documented if stabilization of the indicator parameters has not occurred after three calculated well volumes have been removed and sampling procedures begin.
- If the turbidity is not in the range of 5 to 10 NTU when purging has been completed, then both filtered and unfiltered samples should be collected for any metals analysis. Filter metal samples

should be collected with an in-line filter using a high capacity 0.45-micron particulate filter. This filter should be pre-rinsed according to the manufacturer's instructions.

- Once purging is completed, reduce the pumping rate to its lowest steady rate and disconnect the tubing from the in-line flow-though cell(s).
- Collect groundwater samples directly from the end of the tubing into clean containers provided by the laboratory. The container requirements and preservatives for groundwater samples are specified in work plan addenda. Allowing the pump discharge to flow gently down the inside of the container with minimal turbulence should fill all sample containers. Volatile organic compound (VOC) and gas sensitive parameter samples should be collected first followed by other parameters.
- Appropriately, label the samples (SOP 50.1), complete the chain-of-custody (SOP 10.4), and package the samples for shipping (SOP 50.2).
- After the sample collection is complete, remove the pump, tubing, and associated lines. Note: sample tubing will be dedicated to each well.
- Measure and record the total depth of the well.
- Secure the well be replacing and locking the lid.

3.5 INVESTIGATION-DERIVED MATERIAL

Investigation-derived material will be managed in accordance with procedures defined in the work plan addendum for the site being investigated and SOP 70.1.

4.0 MAINTENANCE

Refer to manufacturer's requirements for maintenance of pumps and generators.

5.0 PRECAUTIONS

Refer to the site-specific health and safety plan.

6.0 REFERENCES

ASTM Standard D 5903-96 (2006). 2006. *Planning and Preparing for a Groundwater Sampling Events.*

USACE. 2001. R*equirements for the Preparation of Sampling and Analysis Plans.* EM 200-1-3, 1 February.

USEPA. 1995. *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures United States Environmental Protection Agency*, Office of Solid Waste and Emergency Response, EPA/540/S-95/504, December 1995.

USEPA. 1997. *Recommended Procedure for Low-flow Purging and Sampling of Groundwater Monitoring Wells.* Bulletin No. QAD023, October.

STANDARD OPERATING PROCEDURE 30.4
SEDIMENT SAMPLING WITH SCOOP OR TUBE SAMPLER

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for obtaining representative sediments sampling using a scoop or hand corer.

Sediments include solid matter derived from rocks or biological materials that are suspended in, or settled from, water. This procedure can be applied to the collection of sediment samples from areas of deposition such as streams, rivers, ditches, lakes, ponds, and lagoons.

SOP 30.5 describes two methods of grab sampling (Ekman and Ponar) that are suitable for sampling surface or deep sediments. SOP 30.12 describes a method of sampling deep sediments by using a Vibracore sampler.

2.0 MATERIALS

- Work Plans;
- Field logbooks;
- Photoionization detector (PID) or other appropriate monitoring instruments as specified in site-specific health and safety plan;
- Appropriate sample bottles, labels, chain-of-custody forms, and sample shipping supplies etc;
- Stainless steel bowls;
- Stainless steel or polytetrafluoroethylene (PTFE) scoops, trowels, spoons, and knives;
- Hand core sediment sampler, liners (optional) and extensions;
- Hand auger with buckets, rods, and T-handles;
- Rubber boots/waders;
- Decontamination equipment and supplies (SOP 80.1);
- Plastic sheeting;
- Utility knife;
- Boat or other stable work platform, and personal flotation devices, as applicable; and
- Personal protective equipment and clothing (PPE) as specified in site-specific health and safety plan.

3.0 PROCEDURE

The water content of the sediment may vary greatly. Likewise, the sediments themselves may range from very soft to dense. It may be necessary to use a variety of equipment to obtain the required samples, even at a single site.

3.1 CONSIDERATIONS

Factors that determine the type of sediment water sampler used are primarily related to project objectives of surficial versus subsurface samples, site constraints of the water depth, sampling and sediment conditions, and cost-effectiveness of the sampler.

The most appropriate method(s) of sample collection and the appropriate depths of sampling (sampling strategies) will be specified in the work plan addendum based on site-specific conditions and data quality objectives (DQOs).

3.2 DOCUMENTATION

Sediment sampling information should be recorded in the field logbooks as described in SOPs 10.1 and 10.2. This information should include a description of the water body characteristics (size, depth, flow, etc.) and nature of sediments.

Sampling locations should be marked on a site map. Describe each location and place a numbered stake above the visible high water mark on the bank closest to the sampling location and/or mark adjacent trees with surveyor's flagging. The descriptions must be adequate to allow the sampling station to be relocated at some future date by someone other than the original sampling crew.

3.3 SAMPLE LOCATION AND TIMING

Sampling should proceed from downstream locations to upstream locations so that disturbance related to sampling does not affect the samples collected upstream. In addition, if surface water samples are to be collected at the same locations as the sediment samples, the surface water samples must be collected first.
Sampling should be conducting using appropriate sampling devices that minimize disturbance and sample washing as the sample is retrieved through the liquid column.

In general, sediment samples should be collected and containerized in the order of the volatilization sensitivity of the parameters. A preferred collection order for some common parameters is volatile organic compounds (VOCs), extractable organics, metals, cyanide, sulfate and chloride, turbidity, and nitrate and ammonia. The parameters to be collected at any location are site-specific and are specified in work plan addenda.

3.4 LOCATION

For all samples, mark the sampling location on a site map. Photograph (optional, recommended) and describe each location, and place a numbered stake above the visible high water mark on the bank closest to the sampling location. The photographs and description must be adequate to allow the sampling station to be relocated at some future date.

3.5 GENERAL PROCEDURES

1. All sampling equipment should be appropriately decontaminated before and after use according to the requirements of work plan addenda and SOP 80.1.
2. Spread new plastic sheeting on the ground at each sampling location to prevent cross-contamination. If sample access is restricted, use appropriate vessel or another stable working platform adjacent to the area to be sampled.
3. Document sample location and conditions appropriately in the field logbooks and on site maps.
4. Collect surface water sample as described in the work plan addenda and SOP 30.3, as necessary.
5. Collect sediment sample using the appropriate sampling device as described in the following sections.

3.6 SCOOP OR TROWEL METHOD

The scoop or trowel method is a very accurate procedure for collecting representative samples, but is limited to sampling exposed sediments or sediments in surface water less than 6-inches deep, with nominal flow.

1. Insert scoop or trowel into material and remove sample.
2. Begin sampling with the acquisition of any discrete sample(s) for analysis of volatile organic compounds (VOCs), with as little disturbance as possible. VOC samples will not be composited or homogenized.
3. The method of collection for VOC samples will follow the procedures specified in SOP 30.8 (Methanol Preservation Method) or 30.9 (En Core® Method) based on the requirements of the work plan addenda and sampling conditions.
4. Field screen the sample with properly calibrated photoionization detector (PID) or other appropriate instrument. Based on the screening results collect the VOC fraction, as applicable.
5. If homogenization or compositing of the sampling location is not appropriate for the remaining parameters, the sample should be directly placed into appropriate sample containers with a stainless steel spoon or equivalent.
6. If homogenization of the sample location is appropriate or compositing of different locations is desired, transfer the sample to a stainless steel bowl for mixing. The sample should be thoroughly mixed with a clean stainless steel spoon, scoop, trowel, or spatula and then placed in appropriate sample containers. Secure the cap of each container tightly. Sample container requirements are specified in work plan addenda.
7. Appropriately, label and package the samples according to the requirements specified in SOPs 50.1 and 50.2, respectively, and with any additional sample handling requirements specified in work plan addenda.

3.7 TUBE SAMPLER

Tube samplers are a simple and direct method for obtaining sediment samples. The tube sampler is forced into the sediment and then withdrawn and the sample collected. Non-cohesive sediments may limit the effectiveness of this type of sampler.

1. Ensure that the corers and (optional) liners are properly cleaned.
2. Gradually force the corer into the sediment.
3. Carefully retrieve the tube sampler.
4. Remove the sediment core from the tube sampler and place core on a clean working surface.
5. Begin sampling with the acquisition of any discrete sample(s) for analysis of VOCs, with as little disturbance as possible. VOC samples will not be composited or homogenized.
6. The method of collection for VOC samples will follow the procedures specified in SOP 30.8 (Methanol Preservation Method) or 30.9 (En Core® Method) based on the requirements of the work plan addenda and sampling conditions.
7. Field screen the sample with properly calibrated photoionization detector (PID) or other appropriate instrument. Based on the screening results collect the VOC fraction, as applicable.

8. If homogenization or compositing of the sampling location is not appropriate for the remaining parameters, the sample should be directly placed into appropriate sample containers with a stainless steel spoon or equivalent.
9. If homogenization of the sample location is appropriate or compositing of different locations is desired, transfer the sample to a stainless steel bowl for mixing. The sample should be thoroughly mixed with a clean stainless steel spoon, scoop, trowel, or spatula and then placed in appropriate sample containers. Secure the cap of each container tightly. Sample container requirements are specified in work plan addenda.
10. Appropriately, label and package the samples according to the requirements specified in SOPs 50.1 and 50.2, respectively, and with any additional sample handling requirements specified in work plan addenda.

3.8 HAND AUGER AND TUBE SAMPLER

In general, the use of a hand auger and tube sampler will allow for sampling deeper sediments than possible with the tube sampling method described in Section 3.7. A potential disadvantage of using this method is that it limited to use for water bodies of limited depth and hand augers may not be an effective method for penetrating soft sediments since the borehole may collapse prior to sampling.

1. Attach the auger bucket to a drill rod extension and attach the T-handle to the drill rod.
2. Begin drilling with the auger. Periodically remove accumulated sediment from the bucket.
3. After reaching the desired depth, slowly and carefully remove the auger from the boring.
4. Remove the auger bucket from the drill rod(s) and replace with a clean thin-wall tube sampler.
5. Remove the sediment core from the tube sampler and place core on a clean working surface.
6. Carefully lower the tube sampler down the borehole and gradually force it into the sediment, avoiding scraping the borehole sides.
7. Carefully retrieve the tube sampler and unscrew the drill rod(s).
8. Begin sampling with the acquisition of any discrete sample(s) for analysis of VOCs, with as little disturbance as possible. VOC samples will not be composited or homogenized.
9. The method of collection for VOC samples will follow the procedures specified in SOP 30.8 (Methanol Preservation Method) or 30.9 (En Core® Method) based on the requirements of the work plan addenda and sampling conditions.
10. Field screen the sample with properly calibrated photoionization detector (PID) or other appropriate instrument. Based on the screening results collect the VOC fraction, as applicable.
11. If homogenization or compositing of the sampling location is not appropriate for the remaining parameters, the sample should be directly placed into appropriate sample containers with a stainless steel spoon or equivalent.
12. Appropriately, label and package the samples according to the requirements specified in SOPs 50.1 and 50.2, respectively, and with any additional sample handling requirements specified in work plan addenda.

3.9 INVESTIGATION-DERIVED MATERIAL

Investigation-derived material will be managed in accordance with procedures defined in the work plan addenda for the site being investigated and SOP 70.1.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

Refer to the site-specific health and safety plan.

6.0 REFERENCES

ASTM Standard D 4700-91 (2006). 2006. *Standard Guide for Soil Sampling from the Vadose Zone.*

ASTM Standard D 5633-04. 2004. *Standard Practice for Sampling with a Scoop.*

USEPA. 1987. *A Compendium of Superfund Field Operations Methods.* EPA/540/P-87/001.

USACE. 2001. *Requirements for the Preparation of Sampling and Analysis Plans.* EM 200-1-3. 1 February.

STANDARD OPERATING PROCEDURE 30.7
SAMPLING STRATEGIES

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate sampling strategies for sampling various media.

2.0 MATERIALS

- Historical site data;
- Site topography;
- Soil types; and
- Sampled media.

3.0 PROCEDURE

The primary goal of any investigation is to collect samples representative of existing site conditions. Statistics are generally used to ensure samples are as representative as possible. Sampling plans may employ more than one approach to ensure project data quality objectives are adequately addressed. A comparison of sampling strategies is presented in Table 1.

3.1 CLASSICAL STATISTICAL SAMPLING

Classical statistical sampling strategies are appropriately applied to either sites where the source of contamination is known or small sites where the entire area is remediated as one unit. Primary limitations of this sampling approach include (1) inability to address media variability; (2) inadequate characterization of heterogenous sites; and (3) inadequate characterization of sites with unknown contamination characteristics.

3.1.1 Simple Random Sampling

Simple random sampling is generally more costly than other approaches because of the number of samples required for site characterization. This approach is generally used when minimal site information is available and visible signs of contamination are not evident and includes the following features:

- Sampling locations are chosen using random chance probabilities.
- This strategy is most effective when the number of sampling points is large.

3.1.2 Stratified Random Sampling

This sampling approach is a modification to simple random sampling. This approach is suited for large site investigations that encompass a variety of soil types, topographic features, and/or land uses. By dividing the site into homogenous sampling strata based on background and historical data, individual random sampling techniques are applied across the site. Data acquired from each stratum can be used to determine the mean or total contaminant levels and provide these advantages:

- Increased sampling precision results due to sample point grouping and application of random sampling approach.
- Control of variances associated with contamination, location, and topography.

3.1.3 Systematic Grid

The most common statistical sampling strategy is termed either systematic grid or systematic random sampling. This approach is used when a large site must be sampled to characterize the nature and extent of contamination.

Samples are collected at predetermined intervals within a grid pattern according to the following approach:

- Select the first sampling point randomly; remaining sampling points are positioned systematically from the first point.
- Determine the grid design: one or two-dimensional. One-dimensional sample grids may be used for sampling along simple man-made features. Two-dimensional grid systems are ideal for most soil applications.
- Determine the grid type: square or triangular. Sampling is usually performed at each grid-line intersection. Other strategies include sampling within a grid center or obtaining composite samples within a grid.
- Each stratum is sampled based on using the simple random sampling approach but determined using a systematic approach.

3.1.4 Hot-Spot Sampling

Hot spots are small, localized areas of media characterized by high contaminant concentrations. Hot-spot detection is generally performed using a statistical sampling grid. The following factors should be addressed:

- Grid spacing and geometry. The efficiency of hot-spot searches is improved by using a triangular grid. An inverse relationship exists between detection and grid point spacing, e.g., the probability of hot-spot detection is increased as the spacing between grid points is decreased.
- Hot-spot shape/size. The larger the hot spot, the higher the probability of detection. Narrow or semi-circular patterns located between grid sampling locations may not be detected.
- False-negative probability. Estimate the false negative (β-error) associated with hot-spot analysis.

3.1.5 Geostatistical Approach

Geostatistics describe regional variability in sampling and analysis by identifying ranges of correlation or zones of influence. The general two-stage approach includes the following:

- Conducting a sampling survey to collect data defining representative sampling areas.
- Defining the shape, size, and orientation of the systematic grid used in the final sampling event.

3.2 NON-STATISTICAL SAMPLING

3.2.1 Biased Sampling

Specific, known sources of site contamination may be evaluated using biased sampling. Locations are chosen based on existing information.

3.2.2 Judgmental Sampling

This sampling approach entails the subjective selection of sampling locations that appear to be representative of average conditions. Because this method is highly biased, it is suggested that a measure of precision be included through the collection of multiple samples.

4.0 MAINTENANCE

Not applicable.

5.0 REFERENCES

Gilbert, R.O. 1987. *Statistical Methods for Environmental Pollution Monitoring.* John Wiley & Sons, Inc. 320 p.

USACE. 2001. *Requirements for the Preparation of Sampling and Analysis Plans.* EM200-1-3. 1 February.

TABLE 1
SAMPLING STRATEGIES

SAMPLING STRATEGY	DESCRIPTION	APPLICATION	LIMITATIONS
Classical Statistical Sampling Strategies			
Simple Random Sampling	Representative sampling locations are chosen using the theory of random chance probabilities.	Sites where background information is not available and no visible signs of contamination are present.	May not be cost-effective because samples may be located too close together. Does not take into account spatial variability of media.
Stratified Random Sampling	Site is divided into several sampling areas (strata) based on background or site survey information.	Large sites characterized by a number of soil types, topographic features, past/present uses, or manufacturing storage areas.	Often more cost-effective than random sampling. More difficult to implement in the field and analyze results. Does not take into account spatial variability of media.
Systematic Grid Sampling	Most common statistical strategy; involves collecting samples at predetermined, regular intervals within a grid pattern.	Best strategy for minimizing bias and providing complete site coverage. Can be used effectively at sites where no background information exists. Ensures that samples will not be taken too close together.	Does not take into account spatial variability of media.
Hot-Spot Sampling	Systematic grid sampling strategy tailored to search for hot spots.	Sites where background information or site survey data indicate that hot spots may exist.	Does not take into account spatial variability of media. Tradeoffs between number of samples, chance of missing a hot spot, and hot spot size/shape must be weighed carefully.
Geostatistical Approach	Representative sampling locations are chosen based on spatial variability of media. Resulting data are analyzed using kriging, which creates contour maps of the contaminant concentrations and the precision of concentration estimates.	More appropriate than other statistical sampling strategies because it takes into account spatial variability of media. Especially applicable to sites where presence of contamination is unknown.	Previous investigation data must be available and such data must be shown to have a spatial relationship.
Non-Statistical Sampling Strategies			
Biased Sampling	Sampling locations are chosen based on available information.	Sites with known contamination sources.	Contaminated areas can be overlooked if background information or visual signs of contamination do not indicate them. Best used if combined with a statistical approach, depending on the project objectives.
Judgmental Sampling	An individual subjectively selects sampling locations that appear to be representative of average conditions.	Homogenous, well-defined sites.	Not usually recommended due to bias imposed by individual, especially for final investigations.

STANDARD OPERATING PROCEDURE 30.9
COLLECTION OF SOIL SAMPLES BY USEPA SW 846 METHOD 5035 USING DISPOSABLE SAMPLERS

1.0 SCOPE AND APPLICATION

This standard operating procedure (SOP) outlines the recommended protocol and equipment for collection of representative soil samples to monitor potential volatile organic contamination in soil samples.

This method of sampling is appropriate for surface or subsurface soils contaminated with low to high levels of volatile organic compounds (VOCs). This sampling procedure may be used in conjunction with any appropriate determinative gas chromatographic procedure, including, but not necessarily limited to, SW-846 Method 8015, 8021, and 8260.

2.0 MATERIALS

- Work Plans;
- Field Logbook;
- Photoionization Detector (PID) or other monitoring instrument(s) per site-specific health and safety plan;
- Personal protective equipment and clothing per site-specific health and safety plan;
- Soil sampling equipment, as applicable (SOP 30.1);
- Disposable sampler;
- T-handle and/or Extrusion Tool; and
- Decontamination equipment and supplies (SOP 80.1).

3.0 PROCEDURE

3.1 METHOD SUMMARY

Disposable samplers are sent to the field to be used to collect soil samples. Three samplers must be filled for each soil sampling location, two for the low-level method (sodium bisulfate preservation) and one for the high level method (methanol preservation). After sample collection, disposable samplers are immediately shipped back to the laboratory for preservation (adding soil sample into methanol and sodium bisulfate solution). The ratio of volume of methanol to weight of soil is 1:1 as specified in SW-846 Method 5035 (Section 2.2.2). The amount of preservative in the solution corresponds to approximately 0.2g of preservative for each 1 g of sample. Enough sodium bisulfate should be present to ensure a sample pH of $\leq$2.

If quality assurance/quality control (QA/QC) samples are needed, seven samplers will be needed for the original, matrix spike, and matrix spike duplicate analysis. Soil samples are collected in the field using the disposable samplers, sealed and returned to the laboratory. A separate aliquot of soil is collected in a 125-mL container for dry weight determination.

3.2 SAMPLE CONTAINERS, PRESERVATION, HANDLING AND STORAGE

After sample collection, the disposable samplers must be cooled to and maintained at 4°C. The contents of the samplers will be analyzed using EPA methods 8015, 8021, and/or 8260. The **disposable** sampler is a single use device. It cannot be cleaned and/or reused.

Disposable samplers have a 48 hour holding time from sample collection to sample preparation in the laboratory. Return the samplers to the laboratory immediately after sampling.

3.3 SAMPLE PROCEDURES

Before sampling, the disposable sampler should be prepared as follows:

1. Unpack the cooler/sampling kit received from the laboratory. Disposable samplers are packed in sealed aluminized bags. These should be over packed in plastic zip lock bags. A T-Handle will also be needed to collect samples with the disposable sampler.
2. Hold coring body and push plunger rod down until small 0-ring rests against tabs. This will assure that plunger moves freely.
3. Depress locking lever on the sampler T-Handle (or other extraction device). Place coring body, plungers end first, into the open end of the T-Handle, aligning the two slots on the coring body with the two locking pins in the T-Handle. Twist the coring body clockwise to lock the pins in the slots. Check to ensure the sampler is locked in place. Sampler is ready for use.

The following procedure should be followed when using a disposable sampler to sample for VOCs in soil:

1. After the soil-sampling device (split spoon, corer, etc.) is opened, the sampling process should be completed in a minimum amount of time with the least amount of disruption.
2. Visual inspection and soil screening should be conducted after the sampler is opened and a fresh surface is exposed to the atmosphere. Soil screening should be conducted with an appropriate instrument (PID or FID).
3. Rough trimming of the sampling location surface should be considered if the sampling surface is not fresh or other waste, different soil strata, or vegetation may contaminate it. Surface layers can be removed using a clean stainless steel, spatula, scoop, or knife.
4. Orient the T-Handle with the T-up and the coring body down. This positions the plunger bottom flush with bottom of coring body (ensure that plunger bottom is in position). Using T-Handle, push sampler into soil until the coring body is completely full taking care not to trap air behind the sampler. When full, the small o-ring will be centered in the T-Handle viewing hole. Remove sampler from soil. Wipe excess soil from coring body exterior with a clean disposable paper towel.
5. Cap coring body while it is still on the T-Handle. ***Push*** cap over flat area of ridge ***and twist*** to lock cap in place. ***Cap must be seated to seal sampler.***
6. Remove the capped sampler by depressing locking lever on T-Handle while twisting and pulling sampler from T-Handle.
7. Lock plunger by rotating extended plunger rod fully counterclockwise until wings rest firmly against tabs.
8. Fill the 125-mL wide mouth jar for the non-preserved portion of the sample to be used for a moisture determination. These may be in a cardboard box. Retain all packaging to return the samples.
9. The disposable sampler should collect approximately 5 grams of soil (not necessary to weigh in the field). After a sample has been collected and capped, tear off the identification tag found at the bottom of the label on the aluminized bag. This tag is added to the sampler on the cap used to seal the sampler.

10. Place the sampler back in the aluminized bag and seal the top (a zip-lock seal). Make sure all the appropriate information is on the label. Record the sampler ID number on the chain-of-custody. Make sure each sampler and 125-mL container is labeled with the same location identification. The sampler should be placed inside the plastic zip-lock bags.

11. Place the 125-mL wide mouth jars in the cooler with the sampler on top. These should be sandwiched between bags of ice to maintain the correct temperature. If sent with the jars and samplers, a temperature bottle (used to evaluate the temperature on receipt) should be placed in the middle of the jars. The sample temperature should be 4ºC during shipment.

12. Ship the samples so that they will be received within 24 hours of sampling. The laboratory must receive the sampler within 40 hours of the collection so that they can be correctly preserved.

3.4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

1. All data must be documented on chain-of-custody forms, field data sheets and in the field logbook.

2. An equipment blank is a QA/QC sample that will determine potential contamination from sampling equipment used to collect and transfer samples from the point of collection to the sample container. An equipment blank is performed by pouring demonstrated analyte free water from one sample container, over a sampler, and into a separate set of identical sample containers. The equipment blank is optional when sampling with the methanol preservation technique. It may be required on a site-specific basis if elevated analytical results are suspected to be due to cross contamination from sampling equipment.

3. A trip blank is a QA/QC sample, which will determine additional sources of contamination that may potentially influence the samples. The sources of the contamination may be from the laboratory, sample containers, or during shipment. The laboratory prepares a trip blank at the same time and in the same manner as the sample containers. The trip blank must accompany the sample containers to the field and back to the laboratory along with the collected samples for analysis. It must remain sealed at all times until it is analyzed at the laboratory. The frequency of collection for the trip blank must be at a rate of one per sample shipment.

3.5 LIMITATIONS IN SAMPLING

This sampling protocol will not be applicable to all solid environmental matrices, such as those that cannot be cored including non-cohesive granular material, gravel, or hard dry clay. In this case, the procedure for collecting VOC samples using Methanol Preservation should be used (see SOP 30.8).

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

None.

6.0 REFERENCES

En Novative Technologies, Inc. 2000. Users Manual for En Core® Sampler. February 2001.

USACE. 2001. *Requirements for the Preparation of Sampling and Analysis Plans.* EM 200-1-3, 1 February.

USEPA. 1997. *Test Methods for Evaluating Solid Waste, Volume IB: Laboratory Manual Physical/Chemical Methods,* Third Edition, (as updated through update IIIA). Office of Solid Waste and Emergency Response, Washington, DC.

STANDARD OPERATING PROCEDURE 40.1
MULTIPARAMETER WATER QUALITY MONITORING INSTRUMENT

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for field operation with the multiparameter water quality logging system (data transmitter and visual display). This system can monitor up to eleven basic parameters, including dissolved oxygen, percent saturation, temperature, pH, specific conductance, resistivity, salinity, total dissolved solids, redox, level, and depth.

2.0 MATERIALS

- Visual display;
- Data transmitter;
- Underwater cables; and
- Field logbooks.

3.0 PROCEDURE

3.1 CALIBRATION

Calibration will be performed in the field daily before use according to manufacturer's specifications. The following parameters are calibrated to the following standards:

- Temperature—none required;
- Specific conductance—KCl or seawater standards;
- pH—pH 7 buffer plus a slope buffer;
- Dissolved oxygen—saturated air or saturated water;
- Redox—quinhydrone or transfer;
- Depth—set zero in air;
- Level—set zero in air; and
- Salinity—uses calibration for specific conductance.

3.2 OPERATION

1. Attach the cable to the transmitter.
2. Connect the other end of the cable to the display.
3. Press the On/Off key on the display panel. Allow a few seconds for the transmitter to start sending data to the display screen.
4. Calibrate the transmitter.
5. Deploy the sensor into a minimum of 4 in. of water.
6. Write data values from the display screen in the appropriate field logbook.

7. Retrieve sensor and clean the transmitter to prevent cross-contamination.
8. Move to the next sampling location. If travel time is great, turn off display by pressing On/Off key. Check condition of probes after each deployment.
9. Disconnect the transmitter when finished sampling for the day.

4.0 MAINTENANCE

Maintain according to specific manufacturer's specifications.

5.0 PRECAUTIONS

- Check condition of probes frequently between sampling; and
- Do not force pins into the connectors; note the keying sequence.

6.0 REFERENCES

Manufacturer's Handbook.

STANDARD OPERATING PROCEDURE 40.2
WATER LEVEL AND WELL-DEPTH MEASUREMENTS

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for measuring water level and well depth. This procedure is applicable to the sampling of monitoring wells and must be performed before any activities that may disturb the water level, such as purging or aquifer testing.

2.0 MATERIALS

- Work Plans;
- Well construction diagrams;
- Field logbook;
- Photoionization detector (PID) or other monitoring instruments per site-specific health and safety plan;
- Decontamination equipment and supplies (SOP 80.1);
- Electric water level indicator (dipmeter) with cable measured at 0.01 ft increments;
- Oil-water interface probe (if non-aqueous phase liquid (NAPLs) are suspected to be present); and
- Plastic sheeting.

3.0 PROCEDURE

3.1 PRELIMINARY STEPS

1. Locate the well and verify its position on the site map. Record whether positive identification was obtained, including the well number and any identifying marks or codes contained on the well casing or protective casing. Gain access to the top of the well casing.
2. Locate the permanent reference mark at the top of the casing. This reference point will be scribed, notched, or otherwise noted on the top of the casing. If no such marks are present, measure to the top of the highest point of the well casing and so note this fact in field logbook. Determine from the records and record in the notebook the elevation of this point.
3. Record any observations and remarks regarding the completion characteristics and well condition, such as evidence of cracked casing or surface seals, security of the well (locked cap), and evidence of tampering.
4. Keep all equipment and supplies protected from gross contamination; use clean plastic sheeting. Keep the water level indicator probe in its protective case when not in use.

3.2 OPERATION

1. Sample the air in the well head for gross organic vapors by lifting the well cap only high enough for an organic vapor meter (PID or FID) probe to be entered into the well casing. This will indicate the presence of gross volatile contaminants as well as indicating potential sampler exposure.

2. Remove cap. Allow well to vent for 60–90 seconds. Resample headspace. Record both readings. If the second reading is lower than the first, use the second reading to determining whether respiratory protection will be required during subsequent water level and well depth determinations and sampling.
3. Note that all headspace sampling must be performed at arm's length and from the upwind side of the well if possible.
4. If NAPL contamination is suspected, use an interface probe to determine the existence and thickness of NAPLs.
    - Open the probe housing, turn the probe on, and test the alarm. Slowly lower the probe into the well until the alarm sounds. A continuous alarm indicates a NAPL, while an intermittent alarm indicates water. If a NAPL is detected, record the initial level (first alarm). Mark the spot by grasping the cable with the thumb and forefingers at the top of the casing. If a mark is present on the casing, use the mark as the reference point. If no mark is present, use the highest point on the casing as the reference point. Withdraw the cable sufficiently to record the depth.
    - Continue to slowly lower the probe until it passes into the water phase. Slowly retract the probe until the NAPL alarm sounds and record that level in the manner as described above.
    - Record the thickness of the LNAPL (see Section 3.3.1).
    - Continue to slowly lower the interface probe through the water column to check for the presence of DNAPL.
    - Measure and record the thickness of the DNAPL layer (if any) as described above.
    - Slowly raise the interface probe, recording the depth to each interface as the probe is withdrawn. If there is a discrepancy in depths, clean the probe sensors and re-check the depths.
    - NOTE: Air-liquid interface depth is more reliable if probe is lowered into liquid. NAPL-water depths are more accurate if probe is moved from water into NAPL.
    - Always lower and raise interface probe slowly to prevent undue mixing of media.
    - Always perform NAPL check in wells installed in areas with suspected NAPL contamination. Always perform NAPL check if headspace test reveals presence of volatiles. Always perform NAPL check the first time a well is sampled. If a well has been sampled previously and no NAPLs were present and none of the proceeding conditions are met, the NAPL check may be omitted.
5. If no NAPL is present, use an electronic water level detector as follows.
    - Remove the water level indicator probe from the case, turn on the sounder, and test check the battery and sensitivity scale by pushing the red button. Adjust the sensitivity scale until you can hear the buzzer.
    - Slowly lower the probe and cable into the well, allowing the cable reel to unwind. Continue lowering until the meter buzzes. Very slowly, raise and lower the probe until the point is reached where the meter just buzzes. Marking the spot by grasping the cable with the thumb and forefingers at the top of the casing. If a mark is present on the casing, use the mark as the reference point. If no mark is present, use the highest point on the casing as the reference point. Withdraw the cable and record the depth.
6. To measure the well depth, lower electric water level indicator probe or tape until slack is noted. Very slowly raise and lower the cable until the exact bottom of the well is "felt." Measure (cable) or read the length (tape) and record the depth.

7. Note that if the electric water level indicator is used to determine depth of well, the offset distance between the tip of the probe and the electrode must be added to the reading to determine actual depth.
8. Withdraw the probe or tape.
9. Decontaminate the probe(s) and cable(s), in accordance with SOP 80.1.

3.3 DATA RECORDING AND MANIPULATION

Record the following information in the field logbook and appropriate sampling forms:

- Date and time;
- Weather;
- Method of measurement;
- Casing elevation;
- NAPL surface elevation = casing elevation - depth to NAPL;
- Apparent measured LNAPL thickness = depth to bottom of NAPL - depth to top of NAPL;
- Water level elevation = casing elevation - depth to water; and
- Well bottom elevation = casing elevation - depth to bottom (or read directly from tape).

4.0 CALIBRATION

No calibration is required. Ensure operability of electric water level indicator by testing sounder before use.

5.0 PRECAUTIONS

- Depending upon the device used, correction factors may be required for some measurements;
- Check instrument batteries before each use; and
- Exercise care not to break the seals at the top of the electric water level indicator probe.

6.0 REFERENCES

ASTM Standard D 4750-87 (2001). 2001. *Standard Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well).*

M^{c}Alary, T. A., and Barker, J.F. 1987. "Volatilization Losses of Organics During Ground Water Sampling from Low Permeability Materials" in *Ground Water Monitoring Review.* Fall 1987.

Thornhill, Jerry T. 1989. Accuracy of Depth to Groundwater Measurements; in "EPA Superfund Ground Water Issue" EPA/540/4-89/002.

STANDARD OPERATING PROCEDURE 50.1
SAMPLE LABELS

1.0 SCOPE AND APPLICATION

Every sample will have a sample label uniquely identifying the sampling point and analysis parameters. The purpose of this standard operating procedure (SOP) is to delineate protocols for the use of sample labels. An example label is included as Figure 50.1-A. Other formats with similar levels of detail are acceptable.

2.0 MATERIALS

- Sample label; and
- Indelible marker.

3.0 PROCEDURE

The use of preprinted sample labels is encouraged and should be requested from the analytical support laboratory during planning activities.

As each sample is collected, fill out a sample label ensuring the following information has been collected:

- Project name;
- Sample ID: enter the SWMU number and other pertinent information concerning where the sample was taken. This information should be included in site-specific work plan addenda;
- Date of sample collection;
- Time of sample collection;
- Initials of sampler(s);
- Analyses to be performed (NOTE: Due to number of analytes, details of analysis should be arranged with lab *a priori*); and
- Preservatives (water samples only).

Double-check the label information to make sure it is correct. Detach the label, remove the backing and apply the label to the sample container. Cover the label with clear tape, ensuring that the tape completely encircles the container.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

None.

6.0 REFERENCES

USEPA. 2001 (Reissued May 2006). *EPA Requirements for Quality Assurance Project Plans.* EPA/240/B-01/003, QA/R5, Final, Office of Research and Development, Washington, D.C. March 2001

FIGURE 50.1-A
SAMPLE LABEL

PROJECT NAME _____

SAMPLE ID _____

DATE: ____/____/____ TIME: _____:_____

ANALYTES: VOC SVOC P/P METALS CN
PAH D/F HERBs ANIONS TPH
ALK TSS

PRESERVATIVE: [HCl] [HNO_3] [NaOH] [H_2SO_4]

SAMPLER: _____

STANDARD OPERATING PROCEDURE 50.2
SAMPLE PACKAGING

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for the packing and shipping of samples to the laboratory for analysis.

2.0 MATERIALS

- Waterproof coolers (hard plastic or metal);
- Metal cans with friction-seal lids (e.g., paint cans);
- Chain-of-custody forms;
- Chain-of-custody seals (optional);
- Packing material;
- Sample documentation;
- Ice;
- Plastic garbage bags;
- Clear Tape;
- Zip-top plastic bags; and
- Temperature blanks provided by laboratory for each shipment.

3.0 PROCEDURE

1. Check cap tightness and verify that clear tape covers label and encircles container.
2. Wrap sample container in bubble wrap or closed cell foam sheets. Samples may be enclosed in a secondary container consisting of a clear zip-top plastic bag. Sample containers must be positioned upright and in such a manner that they will not touch during shipment.
3. Place several layers of bubble wrap, or at least 1 in. of vermiculite on the bottom of the cooler. Line cooler with open garbage bag, place all the samples upright inside the garbage bag and tie.
4. Double bag and seal loose ice to prevent melting ice from soaking the packing material. Place the ice outside the garbage bags containing the samples.
5. Pack shipping containers with packing material (closed-cell foam, vermiculite, or bubble wrap). Place this packing material around the sample bottles or metal cans to avoid breakage during shipment.
6. A temperature blank (provided by laboratory) will be included in each shipping container to monitor the internal temperature. Samples should be cooled to 4 degrees C on ice immediately after sampling.
7. Enclose all sample documentation (i.e., Field Parameter Forms, Chain-of-Custody forms) in a waterproof plastic bag and tape the bag to the underside of the cooler lid. If more than one cooler is being used, each cooler will have its own documentation. Add the total number of shipping containers included in each shipment on the chain-of-custody form.

8. Seal the coolers with signed and dated custody seals so that if the cooler were opened, the custody seal would be broken. Place clear tape over the custody seal to prevent damage to the seal.
9. Tape the cooler shut with packing tape over the hinges and place tape over the cooler drain.
10. Ship all samples via overnight delivery on the same day they are collected if possible.

4.0 MAINTENANCE

Not applicable.

5.0 PRECAUTIONS

5.1 PERMISSIBLE PACKAGING MATERIALS

- Non-absorbent
  - — Bubble wrap; and
  - — Closed cell foam packing sheets.
- Absorbent
  - — Vermiculite.

5.2 NON-PERMISSIBLE PACKAGING MATERIALS

- Paper;
- Wood shavings (excelsior); and
- Cornstarch "peanuts."

6.0 REFERENCES

USEPA. 1990. *Sampler's Guide to the Contract Laboratory Program.* EPA/540/P-90/006, Directive 9240.0-06, Office of Emergency and Remedial Response, Washington, D.C., December 1990.

USEPA. 1991. *User's Guide to the Contract Laboratory Program.* EPA/540/O-91/002, Directive 9240.0-01D, Office of Emergency and Remedial Response. January 1991.

USEPA. 2001 (Reissued May 2006). *EPA Requirements for Quality Assurance Project Plans.* EPA/240/B-01/003, QA/R5, Final, Office of Research and Development, Washington, D.C. March 2001

STANDARD OPERATING PROCEDURE 70.1
INVESTIGATION-DERIVED MATERIAL

1.0 SCOPE AND APPLICATION

Management of investigation-derived material (IDM) minimizes the potential for the spread of waste material onsite or offsite through investigation activities. The purpose of this standard operating procedure (SOP) is to provide general guidelines for appropriate management of potentially contaminated materials derived from the field investigations. Specific procedures related to the transportation and disposal of hazardous waste are beyond the scope of this SOP.

2.0 INTRODUCTION

Investigation derived material (IDM) consists of waste materials that are known or suspected to be contaminated with waste substances through the actions of sample collection or personnel and equipment decontamination. These materials include decontamination solutions, disposable equipment, drill cuttings and fluids, and water from groundwater monitoring well development and purging. To the extent possible, the site manager will attempt to minimize the generation of these materials through careful design of decontamination schemes and groundwater sampling programs. Testing conducted on soil and water investigation-derived material will show if they are also hazardous wastes as defined by RCRA. This will determine the proper handling and ultimate disposal requirements.

The criteria for designating a substance as hazardous waste according to RCRA are provided in 40 CFR 261.3. If IDM meet these criteria, RCRA requirements will be followed for packaging, labeling, transporting, storing, and record keeping as described in 40 CFR 262.34. Those materials that are judged potentially to meet the criteria for a regulated solid or hazardous waste will be placed in DOT-approved 55-gallon steel drums or another type of DOT approved container; based on waste characteristics and volume.

Investigation-derived material will be appropriately placed in containers, labeled, and tested to determine disposal options in accordance with RCRA regulations and Virginia Hazardous Waste Management Regulations.

3.0 INVESTIGATION-DERIVED MATERIAL MANAGEMENT

Procedures that minimize potential for the spread of waste material include minimizing the volume of material generated, material segregation, appropriate storage, and disposal according to RCRA requirements.

3.1 WASTE MINIMIZATION

In the development of work plan addenda, each aspect of the investigation will be reviewed to identify areas where excess waste generation can be eliminated. General procedures that will eliminate waste include avoidance of unnecessary exposure of materials to hazardous material and coordination of sampling schedules to avoid repetitious purging of wells and use of sampling equipment.

3.2 WASTE SEGREGATION

Waste accumulation and management procedures to be used depend upon the type of material generated. For this reason, IDM described below are segregated into separate 55-gallon storage drums or other appropriate DOT containers. Waste materials that are known to be free of potential hazardous waste contamination (such as broken sample bottles or equipment containers and wrappings) must be collected separately for disposal to municipal systems. Large plastic garbage or "lawn and leaf" bags are useful for collecting this trash. Even "clean" sample bottles or Tyvek should be disposed of with care. Although they are not legally a problem, if

they are discovered by the public they may cause concern. Therefore, items that are known to be free from contamination but are also known to represent "hazardous or toxic waste" to the public must not be disposed of in any public trash receptacle, such as found at your hotel or park.

3.2.1 Decontamination Solutions

Solutions considered investigation-derived materials range from detergents, organic solvents, and acids used to decontaminate small hand samplers to steam-cleaning rinsate used to wash drill rigs and other large equipment. These solutions are to be placed in 55-gallon drums with bolt-sealed lids or other appropriate DOT approved containers. Residual liquid IDM from decontamination pads will be removed and appropriately placed in container(s) at the end of each field day.

3.2.2 Soil Cuttings and Drilling Muds

Soil cuttings are solid to semi-solid soils generated during trenching activities or drilling for the collection of subsurface soil samples or the installation of monitoring wells. Depending on the type of drilling, drilling fluids known as "muds" may be used to remove soil cuttings. Drilling fluids flushed from the borehole must be directed into a settling section of a mud pit. This allows reuse of the decanted fluids after removal of the settled sediments. Drill cuttings, whether generated with or without drilling fluids, are to be removed with a flat-bottomed shovel and placed in 55-gallon drums with bolt-sealed lids or other appropriate DOT containers, as conditions or volume of IDM dictate.

3.2.3 Well Development and Purge Water

Well development and purge water is removed from monitoring wells to repair damage to the aquifer following well installation, obtain characteristic aquifer groundwater samples, or measure aquifer hydraulic properties. The volume of groundwater to be generated will determine the appropriate container to be used for accumulation of IDM.

For well development and purging, 55-gallon drums are typically an efficient container for accumulation. When larger volumes of water are removed from wells, such as when pumping tests are conducted, the use of large-volume portable tanks such as "Baker Tanks" should be considered for IDM accumulation.

Analytical data for groundwater samples associated with the well development and purge water will be used to assist in characterizing IDM and evaluating disposal options.

3.2.4 Personal Protective Equipment and Disposable Sampling Equipment

Personal protective equipment and clothing (PPE) may include such items as Tyvek coveralls, gloves, booties, and APR cartridges. Disposable sampling equipment may include such items as plastic sheeting, bailers, disposable filters, disposable tubing and paper towels. PPE and disposable sampling equipment that have or may have contacted contaminated media (soil, water, etc.) will be segregated and placed in 55-gallon drums separate from soil and water IDM. Disposition of this type of IDM will be determined by the results of IDM testing of the media in which the PPE and sampling equipment contacted.

3.3 MATERIAL ACCUMULATION

The IDM in containers must be placed in an appropriate designated RCRA container accumulation area at RFAAP, where it is permissible to accumulate such waste. IDM placed into a designated 90-day accumulation area will be properly sealed, labeled and covered. All drums will be placed on pallets.

A secure and controlled waste staging area will be designated by the installation prior the commencement of field sampling activities. Per the facility's requirements as a RCRA large quantity generator, waste accumulation cannot exceed 90 days for materials presumed or shown to be RCRA-designated hazardous wastes; waste which is known not to be RCRA-designated waste should be promptly disposed to municipal waste systems or appropriate facility.

3.3.1 IDM Accumulation Containers

Containers will be DOT-approved (DOT 17H 18/16GA OH unlined) open-head steel drums or other DOT approved container, as appropriate.

Container lids should lift completely off and be secured by a bolt ring (for drum). Order enough containers to accumulate all streams of expected IDM including soil, PPE and disposable sampling equipment, decontamination water, purge water, etc.

Solid and liquid waste streams will not be mixed in a container. PPE and expendable sampling equipment will be segregated from other IDM and placed in different containers than soil. Containers inside containers are not permitted. PPE must be placed directly in a drum not in a plastic bag.

Pallets are often required to allow transport of filled drums to the staging area with a forklift. Normal pallets are 3×4 ft and will hold two to three 55-gallon drums depending on the filled weight. If pallets are required for drum transport or storage, field personnel are responsible for ensuring that the empty drums are placed on pallets before they are filled and that the lids are sealed on with the bolt-tighten ring after the drums are filled. Because the weight of one drum can exceed 500 lbs, under no circumstances should personnel attempt to move the drums by hand.

3.3.2 Container Labeling

Each container that is used to accumulate IDM will be appropriately labeled at the time of accumulation and assigned a unique identification number for tracking purposes. The following information will be written in permanent marker on a drum label affixed on the exterior side at a location at least two-thirds of the way up from the bottom of the drum.

- Facility name.
- Accumulation start date and completion date.
- Site identifier information (SWMU, boring, well, etc.).
- Description of IDM.
- Drum ID No.

4.0 MATERIAL CHARACTERIZATION AND DISPOSAL

IDM will be characterized and tested to determine whether it is a hazardous waste as defined by 40 CFR Part 261 and to determine what disposal options exist in accordance with RCRA regulations and the Virginia Hazardous Waste Management Regulations (VHWMR).

In general, IDM will be considered a hazardous waste if it contains a listed hazardous waste or if the IDM exhibits a characteristic of hazardous waste.

Work plan addenda will identify the appropriate characterization and testing program for IDM based on the following:

- Site-specific conditions related to chemicals of concern, etc.
- The nature and quantity of expected IDM to be generated during site-specific investigations.
- Applicable Federal, State, and local regulations, such as RCRA, VHWMR regulations and policies and procedures, and Army Regulation 200-1.
- RFAAP specific requirements and policies for IDM characterization and disposal at the time of the investigation.

In general, appropriate USEPA SW 846 Test Methods for Evaluating Solid Waste will be used for testing IDM and will be specified in work plan addenda. Other appropriate test methods may be specified by RFAAP in addition to SW 846 Methods that are specific to installation operations, the site of interest (percent explosive content, reactivity, etc.), or requirements for disposal at RFAAP water treatment facilities or publicly owned treatment works.

Responsibility for the final disposal of IDM will be determined before field activities are begun and will be described in work plan addenda. Off-site disposal of IDM will be coordinated with RFAAP (generator) to ensure appropriate disposition. The contractor will coordinate IDM transportation and disposal activities for RFAAP (generator).

At the direction of RFAAP, appropriate waste manifests will be prepared by the USACE contractor or Alliant Techsystems subcontractor for transportation and disposal. Alliant Techsystems or other appropriate RFAAP entity will be listed as the generator and an appointed representative from RFAAP will review and sign the manifest for offsite disposal.

RFAAP will make the final decision on the selection of the transporter, storage, and disposal facility (TSDFs) or recycling facility. RFAAP will provide the contractor a listing of previously used TSDFs for priority consideration. Proposed facilities that are not included on the listing are required to provide a copy of the TSDFs most recent state or federal inspection to the installation. Waste characterization and testing results will be submitted to RFAAP (generator) for review and approval before final disposition of the material.

Hazardous waste: Prior to final disposition, a hazardous waste manifest will be furnished by the TSDF to accompany transport to the disposal facility. Following final disposition, a certificate of disposal will be furnished by the disposal facility. Copies of the manifests and certificates of disposal are to be provided to RFAAP and retained on file by the contractor or subcontractor.

4.0 PRECAUTIONS

- Because the weight of one drum can exceed 500 lbs, under no circumstances should personnel attempt to move drums by hand.
- Refer to the site-specific health and safety plan when managing IDM.

5.0 REFERENCES

Safety Rules for Contractors and Subcontractors, (As Updated). Alliant Techsystems, Incorporated, Radford Army Ammunition Plant.

STANDARD OPERATING PROCEDURE 80.1
DECONTAMINATION

1.0 SCOPE AND APPLICATION

Before leaving the site, all personnel or equipment involved in intrusive sampling or having entered a hazardous waste site during intrusive sampling must be thoroughly decontaminated to prevent adverse health effects and minimize the spread of contamination. Equipment must be decontaminated between sites to preclude cross-contamination. Decontamination water will be free of contaminants as evidenced through either chemical analyses or certificates of analysis. This standard operating procedure (SOP) describes general decontamination requirements for site personnel and sampling equipment. Decontamination procedures for contaminants requiring a more stringent procedure, e.g., dioxins/furans, will be included in site-specific addenda.

2.0 MATERIALS

- Plastic sheeting, buckets or tubs, pressure sprayer, rinse bottles, and brushes;
- U.S. Army Corps of Engineers or installation approved decontamination water source;
- Deionized ultra-filtered, HPLC-grade organic free water (DIUF);
- Non-phosphate laboratory detergent;
- Nitric Acid, 0.1 Normal (N) solution;
- Pesticide-grade solvent, Methanol;
- Aluminum foil;
- Paper towels;
- Plastic garbage bags; and
- Appropriate containers for management of investigation-derived material (IDM).

3.0 PROCEDURE

3.1 SAMPLE BOTTLES

At the completion of each sampling activity the exterior surfaces of the sample bottles must be decontaminated as follows:

- Be sure that the bottle lids are on tight.
- Wipe the outside of the bottle with a paper towel to remove gross contamination.

3.2 PERSONNEL DECONTAMINATION

Review the site-specific health and safety plan for the appropriate decontamination procedures.

3.3 EQUIPMENT DECONTAMINATION

3.3.1 Drilling Rigs

Drilling rigs and associated equipment, such as augers, drill casing, rods, samplers, tools, recirculation tank, and water tank (inside and out), will be decontaminated before site entry, after over-the-road mobilization and

immediately upon departure from a site after drilling a hole. Supplementary cleaning will be performed before site entry. There is a likelihood that contamination has accumulated on tires and as spatter or dust en route from one site to the next.

1. Place contaminated equipment in an enclosure designed to contain all decontamination residues (water, sludge, etc.).
2. Steam-clean equipment until all dirt, mud, grease, asphaltic, bituminous, or other encrusting coating materials (with the exception of manufacturer-applied paint) has been removed.
3. Water used will be taken from an approved source.
4. When cross-contamination from metals is a concern, rinse sampling components such as split spoons, geo-punch stems, and augers with nitric acid, 0.1N.
5. Rinse with DIUF water.
6. When semi-volatile and non-volatile organics may be present, rinse the sampling components with pesticide-grade solvent methanol.
7. Double rinse the sampling components with DIUF water.
8. Decontamination residues and fluids will be appropriately managed as IDM per work plan addenda and SOP 80.1.

3.3.2 Well Casing and Screen

Prior to use, well casing and screen materials will be decontaminated. This activity will be performed in the leak proof, decontamination pad, which will be constructed prior to commencement of the field investigation. The decontamination process will include:

- Steam cleaning with approved source water.
- Rinse with DUIF water.
- Air-dry on plastic sheeting.
- Wrap in plastic sheeting to prevent contamination during storage/transit.

3.3.3 Non Dedicated Submersible Pumps Used for Purging and Sampling

1. Scrub the exterior of the pump to remove gross (visible) contamination using appropriate brushes, approved water, and non-phosphate detergent (steam cleaning may be substituted for detergent scrub).
2. Pump an appropriate amount of laboratory detergent solution (minimum 10 gallons) to purge and clean the interior of the pump.
3. Rinse by pumping no less than 10 gallons of approved water to rinse.
4. Rinse the pump exterior with approved decontamination water.
5. When cross-contamination from metals is a concern, rinse the pump exterior with approved nitric acid 0.1N solution.
6. Rinse the pump exterior with DIUF water.
7. When semi-volatile and non-volatile organics may be present, rinse the pump exterior with pesticide-grade solvent methanol.
8. Double rinse the pump exterior with DIUF water.

9. Air-dry on aluminum foil or clean plastic sheeting.
10. Wrap pump in aluminum foil or clean plastic sheeting, or store in a clean, dedicated PVC or PTFE storage container.
11. Solutions and residuals generated from decontamination activities will be managed appropriately as IDM per work plan addenda and SOP 80.1.

3.3.4 Sample Equipment and Measuring Water Level Devices

1. Scrub the equipment to remove gross (visible) contamination using appropriate brush (es), approved water, and non-phosphate detergent.
2. Rinse with approved source water.
3. When cross-contamination from metals is a concern, rinse the sampling equipment with approved nitric acid 0.1N solution.
4. Rinse equipment with DIUF water.
5. When semi-volatile and non-volatile organics may be present, rinse the sampling equipment with pesticide-grade solvent methanol.
6. Double rinse the sampling equipment with DIUF water.
7. Air-dry on aluminum foil or clean plastic sheeting.
8. Wrap in aluminum foil, clean plastic sheeting, or zip top bag or store in a clean, dedicated PVC or PTFE storage container.
9. Solutions and residuals generated from decontamination activities will be managed appropriately as IDM per work plan addenda and SOP 80.1.

3.3.5 Other Sampling and Measurement Probes

Temperature, pH, conductivity, Redox, and dissolved oxygen probes will be decontaminated according to manufacturer's specifications. If no such specifications exist, remove gross contamination and triple-rinse probe with DIUF water.

4.0 PRECAUTIONS

- Manage IDM appropriately according to the requirements specified in work plan addenda.
- Follow appropriate procedures as specified in the site-specific health and safety plan.

5.0 REFERENCES

USACE. 2001. Requirements for the Preparation of Sampling and Analysis Plans. EM 200-1-3. 1 February.

STANDARD OPERATING PROCEDURE 90.1
PHOTOIONIZATION DETECTOR (HNu Model PI–101 and HW–101)

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to delineate protocols for field operations with a photoionization detector (HNu Systems Model PI–101 or HW–101). The photoionization detector (PID) detects total ionizables; hence it is used to monitor both organic and inorganic vapors and gases to determine relative concentrations of air contaminants. This information is used to establish level of protection and other control measures such as action levels. The PID cannot effectively detect compounds having ionization potentials above the photon energy level of the lamp used; therefore, methane, which has an ionization potential of 12.98 eV, is undetectable by PIDs because the lamps produce 9.5, 10.2, or 11.7 eV.

Use of brand names in this SOP is in not intended as an endorsement or mandate that a given brand be used. Alternate equivalent brands of detectors, sensors, meters, etc., are acceptable. If alternate equipment is to be used, the contractor shall provide applicable and comparable SOPs for its maintenance and calibration.

2.0 MATERIALS

- HNu Systems Model PI–101 or HW–101 survey probe with 9.5, 10.2, or 11.7 eV lamp;
- Lead-acid gel-cell battery;
- Calibration gas (e.g., isobutylene, 101ppm) with regulator;
- Tygon tubing;
- Tedlar bag (optional);
- Instrument logbook; and
- Field logbook.

3.0 PROCEDURE

These procedures are to be followed when using the HNu in the field.

3.1 STARTUP

1. Before attaching the probe, check the function switch on the control panel to ensure that it is in the off position. Attach the probe by plugging it into the interface on the top of the readout module.
2. Turn the function switch to the battery check position. The needle on the meter should read within or above the green battery arc on the scale; if not, recharge the battery. If the red indicator light comes on, the battery needs recharging or service may be indicated.
3. Turn the function switch to any range setting. Listen for the hum of the fan motor. Check meter function by holding a solvent-based marker pen near the sample intake. If there is no needle deflection, look briefly into the end of the probe (no more than 1 or 2 sec) to see if the lamp is on; if it is on, it will give a purple glow. Do not stare into the probe any longer than 2 sec. Long-term exposure to UV light can damage the eyes. (See further information in Section 5.)
4. To zero the instrument, turn the function switch to the standby position and rotate the zero adjustment until the meter reads zero. A calibration gas is not needed since this is an electronic zero adjustment. If the span adjustment setting is changed after the zero is set, the zero should be rechecked and adjusted if

necessary. Allow the instrument to warm up for 3–5 min to ensure that the zero reading is stable. If necessary, readjust the zero.

3.2 OPERATIONAL CHECK

Follow the startup procedure in Section 3.1.

With the instrument set on the 0–20 range, hold a solvent-based marker near the probe tip. If the meter deflects upscale, the instrument is working.

3.3 FIELD CALIBRATION PROCEDURE

1. Follow the startup procedures in Section 3.1 and the operational check in Section 3.2.
2. Set the function switch to the range setting for the concentration of the calibration gas.
3. Attach a regulator HNu P/N 101-351 or equivalent (flow = 200 to 300 ml/min) to a disposable cylinder of isobutylene (HNu 101-351 or equivalent). Connect the regulator to the probe of the HNu with a piece of clean Tygon tubing. Turn on the valve of the regulator.
4. After 5 sec, adjust the span dial until the meter reading equals the benzene concentration of the calibration gas used, corrected to its equivalence, which should be marked on the canister (Isobutylene ~0.7X benzene).
5. Record in the field log the instrument ID No., serial No., initial and final span settings, date, time, location, concentration and type of calibration gas used, and the signature of the person who calibrated the instrument.
6. If the HNu does not function or calibrate properly, the project equipment manager is to be notified as soon as possible. Under no circumstances is work requiring monitoring with a PI–101 or HW–101 to be done with a malfunctioning instrument.

3.4 CALIBRATION TO A GAS OTHER THAN ISOBUTYLENE

The HNu may be calibrated to any certified calibration gas. However, after calibration, all subsequent instrument readings will be relative to the calibration gas used. General procedures include the following:

1. Calibrate according to procedure 3.3.
2. Partially fill and flush one-to-two times a gas bag (Tedlar recommended) with the certified National Institute of Standards and Technology (NIST) (formerly NBS) traceable calibration gas. Then fill the bag with 1 to 3L of the calibration gas. If the gas is toxic, this must be done in a fume hood.
3. Feed the calibration gas into the probe with the range set for the value of the gas. After 5 sec, adjust the span control until the meter reads the value of the calibration gas.
4. Record the results of the calibration on the calibration/maintenance log and attach a new calibration sticker (if available) or correct the existing sticker to reflect the new calibration data. All subsequent readings will be relative to the new calibration gas.

3.5 OPERATION

1. Follow the startup procedure, operational check, and calibration check (refer to Section 3.1).
2. Set the function switch to the appropriate range. If the concentration of gas vapors is unknown, set the function switch to 0-20 ppm range. Adjust if necessary.
3. Prevent exposing the HNu to excessive moisture, dirt, or contaminant while monitoring the work activity as specified in the Site Health and Safety Plan.

4. When the activity is completed, or at the end of the day, carefully clean the outside of the HNu with a damp disposable towel to remove all visible dirt. Return the HNu to a secure area and place on charge. Charge after each use; the lead acid batteries cannot be ruined by over charging.
5. With the exception of the probe's inlet and exhaust, the HNu can be wrapped in clear plastic to prevent it from becoming contaminated and to prevent water from getting inside in the event of precipitation. If the instrument becomes contaminated, make sure to take necessary steps to decontaminate it. Call the Equipment Administrator if necessary; under no circumstances should an instrument be returned from the field in a contaminated condition.

4.0 MAINTENANCE

Calibration/maintenance logs are to be filled in completely whenever a PI-101 or HW-101 receives servicing. This is true of both contractor-owned and rental instruments.

The equipment manager should be called to arrange for a fresh instrument when necessary. The contractor's equipment facility is responsible for arranging all repairs that cannot be performed by the project equipment manager.

4.1 ROUTINE SERVICE

The PID's performance is affected by a number of factors. These include but are not limited to the decay of the UV lamp output over time and the accumulation of dust and other particulate material and contaminates on the lamp and in the ion chamber. Because of these factors, the PID should not be left in the field for a period of more than 2 weeks before being replaced with a fresh instrument. If a site is going to be inactive for a period of more than a week, all monitoring instruments are to be returned to the project equipment manager or his trained designee for servicing and/or reassignment. The following procedures are to be performed at the designated intervals for routine service.

Procedure	Frequency
Operational check	Before use and at instrument return
Field calibration	Before use and at instrument return
Full calibration	Bi-weekly (return instrument to equipment manager for replacement with a fresh unit)
Clean UV lamp and	Bi-weekly or as needed ion chamber
Replace UV Lamp	As needed

4.1.1 UV Lamp and Ion Chamber Cleaning

During periods of analyzer operation, dust and other foreign materials are drawn into the probe forming deposits on the surface of the UV lamp and in the ion chamber. This condition is indicated by meter readings that are low, erratic, unstable, non-repeatable, or drifting and show apparent moisture sensitivity. These deposits interfere with the ionization process and cause erroneous readings. Check for this condition regularly to ensure that the HNu is functioning properly. If the instrument is malfunctioning, call your equipment manager to arrange to have a fresh replacement.

4.1.2 Lamp eV Change

If different applications for the analyzer would require different eV lamps, separate probes, each with its own eV lamp, must be used. A single readout assembly will serve for any of the probes (9.5, 10.2, and 11.7 eV). A change in probe will require resetting of the zero control and recalibrating the instrument. The 11.7 eV

lamp will detect more compounds than either of the two lower eV lamps. However, the 11.7 eV probe needs more frequent calibration; it burns out much faster than the lower eV lamps.

5.0 PRECAUTIONS

- The HNu PI–101 and HW–101 are designed to sample air or vapors only. *Do not allow any liquids or low boiling vapors to get into the probe or meter assembly.*
- High concentrations of any gas can cause erroneous readings. High humidity can also cause the instrument readings to vary significantly from the actual concentration of gases or vapors present. This is true even through the HNu cannot react to water vapor.
- High humidity, dust, and exposure to concentrations of low boiling vapors will contaminate the ion chamber, causing a steady decrease in sensitivity.
- Continued exposure to ultraviolet light generated by the light source can be harmful to eyesight. If a visual check of the UV lamp is performed *do not look at the light source from a distance closer than 6 inches with unprotected eyes.* Use eye protection (UV-blocking sunglasses or safety glasses). Only look briefly—never more than about 2 sec.
- Place the instrument on charge after each use; the lead batteries cannot be ruined by over charging.
- If at any time the instrument does not check out or calibrate properly in the field, the equipment manager is to be notified immediately and a replacement obtained for the malfunctioning instrument. Under no circumstances should fieldwork requiring continuous air monitoring for organic vapors and/or gases be done with a malfunctioning Hnu or without a HNu or an approved comparable instrument.

6.0 REFERENCES

Manufacturer's Equipment Manual.

APPENDIX D

SSP INVESTIGATION DOCUMENTATION

List of Sub-Appendices

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APPENDIX D.1

PHYSICAL SAMPLE RESULTS

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Project: RFAAPSSP 08-09
Project No.: 11657490.70000

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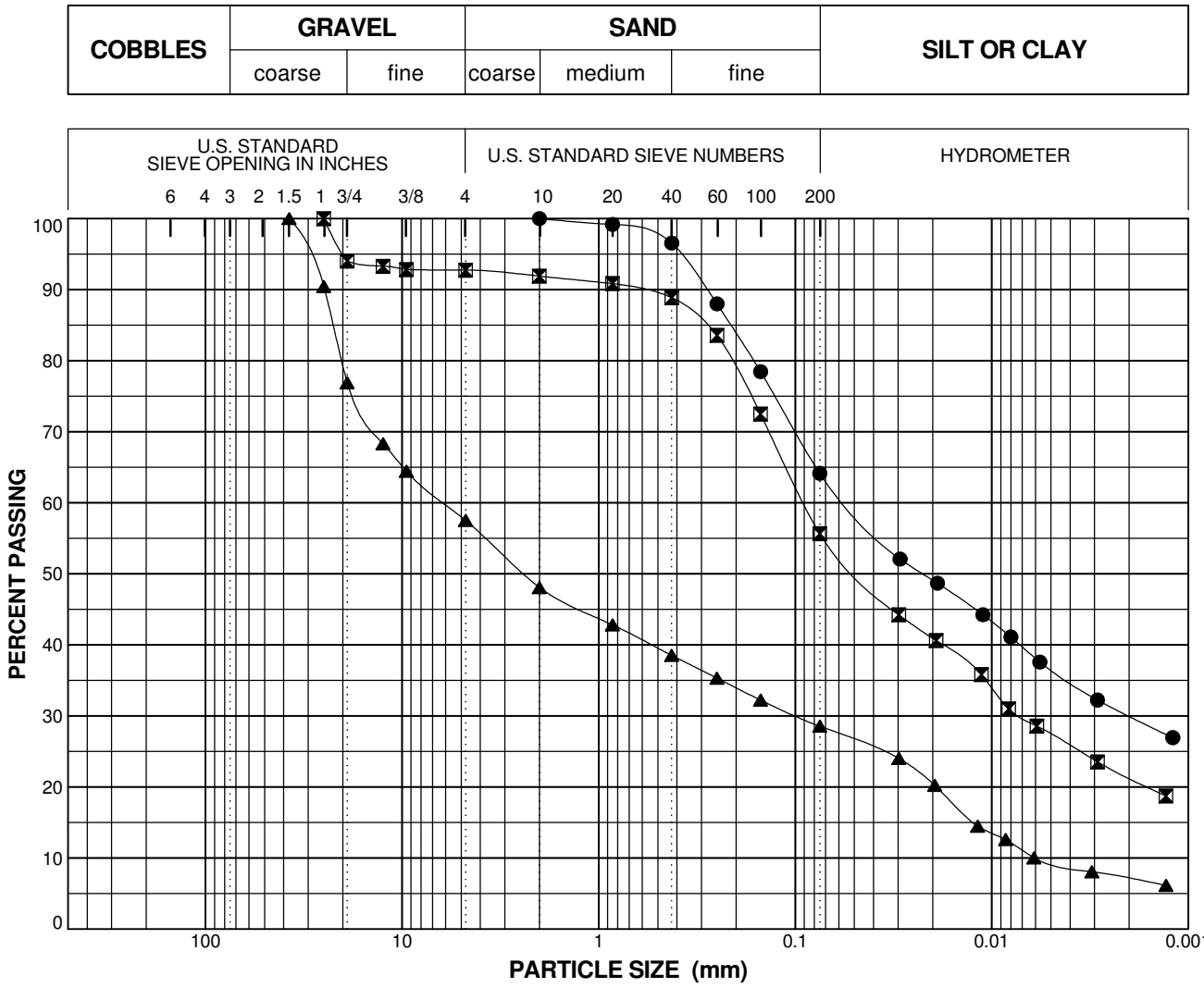
SUMMARY OF LABORATORY TEST RESULTS

Boring and Sample Number	Depth (feet)	Classification	USCS Symbol	Water Content (%)	Dry Unit Weight (pcf)	Atterberg Limits		Specific Gravity	Organic Content (%)	Grain Size		Compaction	Consolidation	Unconfined Compression		Triaxial Compression		Resistivity (Ohm-cm)	pH
						Liquid Limit	Plastic Limit			<#200 (%)	<2µ (%)			Stress (psi)	Strain (%)	UU	CIU		
18SB1B	7.0-10.0	Brown SANDY LEAN CLAY	CL	24.8		40	20			64	30								8.0
18SB2A	0.0-3.0	Brown SANDY LEAN CLAY	CL	20.9		37	21			56	21								8.2
60SS3	0.0-2.0	Brown CLAYEY GRAVEL with SAND	GC	9.8		35	21			29	7								8.1
60SS6	18.0	Brown CLAYEY SAND with GRAVEL	SC	18.4		36	19			36	12								8.0
77SB2A	0.0-2.0	Brown FAT CLAY with SAND	CH	32.0		70	30			76	37								7.9
77SB2B	2.5-5.5	Brown FAT CLAY with SAND	CH	40.4		56	27			82	42								8.2
79SB2A	0.0-3.0	Brown SANDY LEAN CLAY	CL	13.1		22	14			53	16								8.0
79SB2B	15.0-18.0	Brown SILTY SAND	SM	14.5		NP	NP			20	8								7.7

* Refer to Laboratory Test Curves



		PARTICLE SIZE (Sieve #)	PARTICLE SIZE (mm)	PERCENT FINER (%)
SYMBOL	●	3"	75	
		2"	50	
Boring	18SB1B	1 1/2"	37.5	
Sample		1"	25	
Spec		3/4"	19	
Depth (ft)	7.0-10.0	1/2"	12.5	
% +3"	0.0	3/8"	9.5	
% Gravel	0.0	4	4.75	
% Sand	35.9	8	2.36	
% Fines	64.1	10	2	100.0
% -2µ	30.0	16	1.18	
Cc		20	0.85	99.2
Cu		40	0.425	96.5
LL	40	60	0.25	88.0
PL	20	100	0.15	78.5
PI	20	200	0.075	64.1
USCS	CL		0.0293	52.1
w (%)	24.8		0.0293	52.1
pH	8.0		0.0189	48.7
Organic Content (%)			0.0111	44.2
			0.0080	41.1
			0.0057	37.6
			0.0029	32.2
			0.0012	26.9
SYMBOL	⊠	3"	75	
		2"	50	
Boring	18SB2A	1 1/2"	37.5	
Sample		1"	25	100.0
Spec		3/4"	19	94.0
Depth (ft)	0.0-3.0	1/2"	12.5	93.3
% +3"	0.0	3/8"	9.5	92.8
% Gravel	7.3	4	4.75	92.7
% Sand	37.1	8	2.36	
% Fines	55.7	10	2	91.9
% -2µ	21.3	16	1.18	
Cc		20	0.85	90.8
Cu		40	0.425	88.9
LL	37	60	0.25	83.6
PL	21	100	0.15	72.5
PI	16	200	0.075	55.7
USCS	CL		0.0297	44.2
w (%)	20.9		0.0297	44.2
pH	8.18		0.0192	40.6
Organic Content (%)			0.0113	35.8
			0.0082	31.0
			0.0059	28.6
			0.0029	23.5
			0.0013	18.7
SYMBOL	▲	3"	75	
		2"	50	
Boring	60SS3	1 1/2"	37.5	100.0
Sample		1"	25	90.5
Spec		3/4"	19	76.9
Depth (ft)	0.0-2.0	1/2"	12.5	68.3
% +3"	0.0	3/8"	9.5	64.4
% Gravel	42.5	4	4.75	57.5
% Sand	29.0	8	2.36	
% Fines	28.5	10	2	48.1
% -2µ	7.1	16	1.18	
Cc	0.26	20	0.85	42.8
Cu	1005.68	40	0.425	38.5
LL	35	60	0.25	35.3
PL	21	100	0.15	32.2
PI	14	200	0.075	28.5
USCS	GC		0.0297	24.0
w (%)	9.8		0.0297	24.0
pH	8.08		0.0195	20.2
Organic Content (%)			0.0118	14.5
			0.0085	12.6
			0.0061	10.0
			0.0031	8.1
			0.0013	6.1

SYMBOL	DESCRIPTION AND REMARKS
●	Brown SANDY LEAN CLAY (CL)
⊠	Brown SANDY LEAN CLAY (CL)
▲	Brown CLAYEY GRAVEL with SAND (GC)

PARTICLE SIZE DISTRIBUTION

RFAAPSSP 08-09

Project Number	Sept. 2009	Figure 1
11657490.70000		

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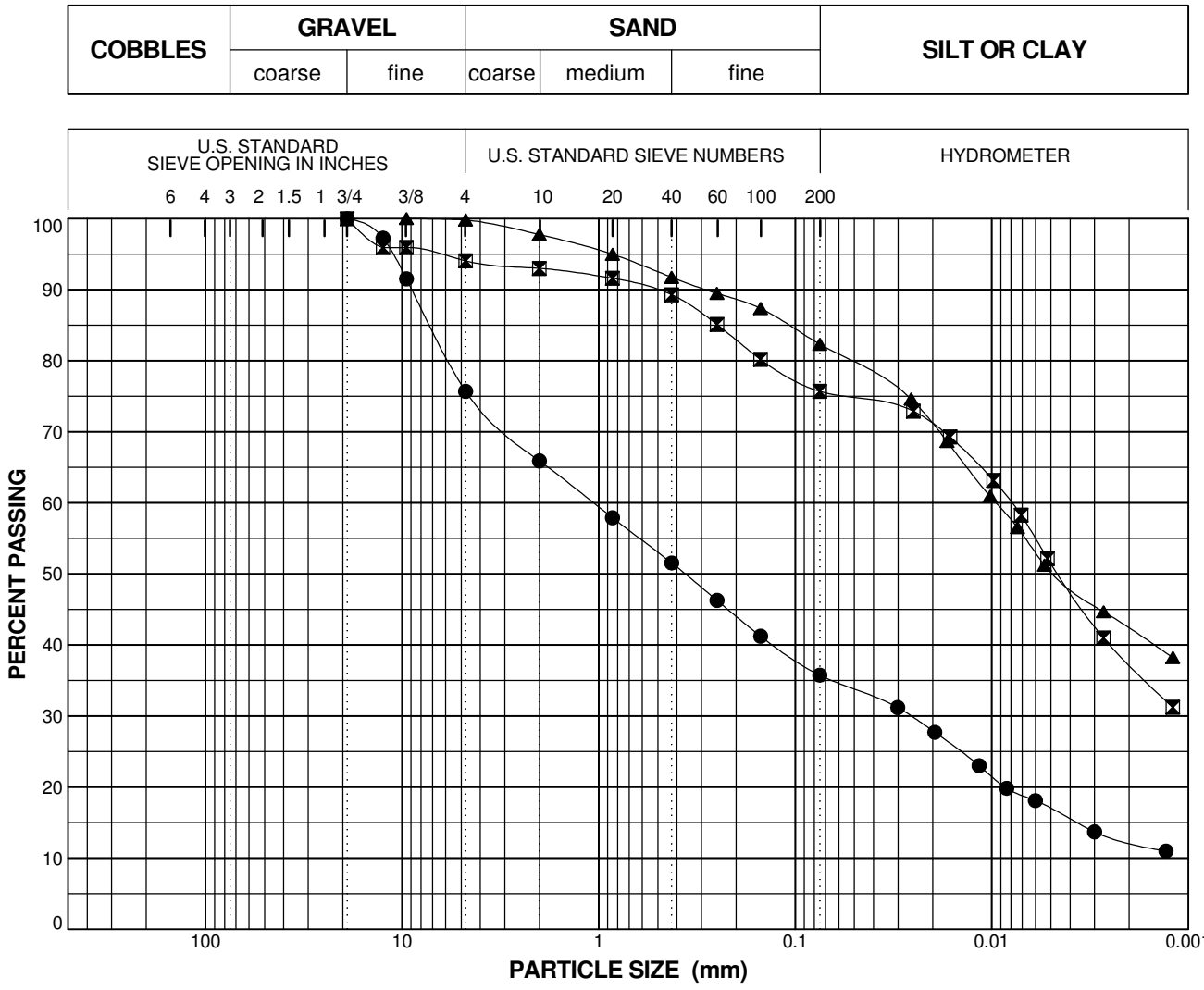
SIEVE_COMPLETE_TABLE 7/02/08 11657490 9-18-09.GPJ URS_BLUE.GDT 9/19/09



		PARTICLE SIZE (Sieve #)	PARTICLE SIZE (mm)	PERCENT FINER (%)
SYMBOL	●	3"	75	
		2"	50	
Boring	60SS6	1 1/2"	37.5	
Sample		1"	25	
Spec		3/4"	19	100.0
Depth (ft)	18.0	1/2"	12.5	97.3
% +3"	0.0	3/8"	9.5	91.5
% Gravel	24.3	4	4.75	75.7
% Sand	39.9	8	2.36	
% Fines	35.7	10	2	65.9
% -2µ	12.4	16	1.18	
Cc		20	0.85	57.9
Cu		40	0.425	51.5
LL	36	60	0.25	46.3
PL	19	100	0.15	41.2
PI	17	200	0.075	35.7
USCS	SC		0.0301	31.2
w (%)	18.4		0.0301	31.2
pH	8.03		0.0195	27.7
Organic Content (%)			0.0116	23.0
			0.0084	19.8
			0.0060	18.1
			0.0030	13.7
			0.0013	11.0
SYMBOL	⊠	3"	75	
		2"	50	
Boring	77SB2A	1 1/2"	37.5	
Sample		1"	25	
Spec		3/4"	19	100.0
Depth (ft)	0.0-2.0	1/2"	12.5	95.9
% +3"	0.0	3/8"	9.5	95.9
% Gravel	6.0	4	4.75	94.0
% Sand	18.4	8	2.36	
% Fines	75.7	10	2	93.0
% -2µ	37.4	16	1.18	
Cc		20	0.85	91.6
Cu		40	0.425	89.3
LL	70	60	0.25	85.1
PL	30	100	0.15	80.2
PI	40	200	0.075	75.7
USCS	CH		0.0251	72.9
w (%)	32.0		0.0251	72.9
pH	7.87		0.0163	69.3
Organic Content (%)			0.0098	63.2
			0.0071	58.3
			0.0052	52.1
			0.0027	41.0
			0.0012	31.2
SYMBOL	▲	3"	75	
		2"	50	
Boring	77SB2B	1 1/2"	37.5	
Sample		1"	25	
Spec		3/4"	19	
Depth (ft)	2.5-5.5	1/2"	12.5	
% +3"	0.0	3/8"	9.5	100.0
% Gravel	0.2	4	4.75	99.8
% Sand	17.5	8	2.36	
% Fines	82.3	10	2	97.8
% -2µ	42.3	16	1.18	
Cc		20	0.85	95.0
Cu		40	0.425	91.7
LL	56	60	0.25	89.5
PL	27	100	0.15	87.4
PI	29	200	0.075	82.3
USCS	CH		0.0257	74.6
w (%)	40.4		0.0257	74.6
pH	8.18		0.0169	68.7
Organic Content (%)			0.0102	60.9
			0.0074	56.5
			0.0054	51.2
			0.0027	44.7
			0.0012	38.2

SYMBOL	DESCRIPTION AND REMARKS
●	Brown CLAYEY SAND with GRAVEL (SC)
⊠	Brown FAT CLAY with SAND (CH)
▲	Brown FAT CLAY with SAND (CH)

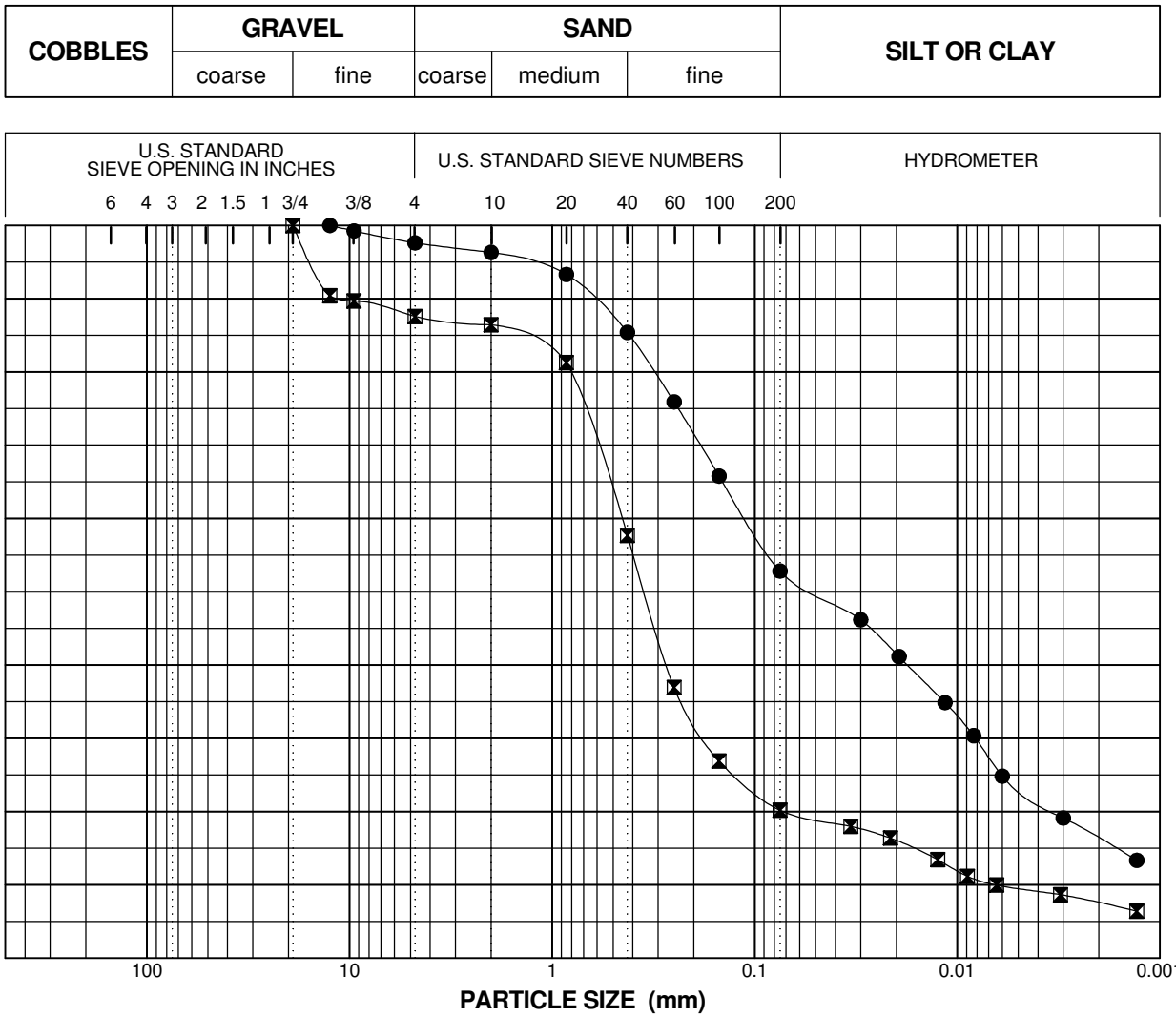
PARTICLE SIZE DISTRIBUTION

RFAAPSSP 08-09

Project Number	Sept. 2009	Figure 2
11657490.70000		

URS

SIEVE_COMPLETE_TABLE 7/02/08 11657490 9-18-09.GPJ URS_BLUE.GDT 9/19/09



		PARTICLE SIZE (Sieve #)	PARTICLE SIZE (mm)	PERCENT FINER (%)
SYMBOL	●	3"	75	
		2"	50	
Boring	79SB2A	1 1/2"	37.5	
Sample		1"	25	
Spec		3/4"	19	
Depth (ft)	0.0-3.0	1/2"	12.5	100.0
% +3"	0.0	3/8"	9.5	99.2
% Gravel	2.4	4	4.75	97.6
% Sand	44.8	8	2.36	
% Fines	52.8	10	2	96.3
% -2µ	16.3	16	1.18	
Cc		20	0.85	93.3
Cu		40	0.425	85.4
LL	22	60	0.25	75.9
PL	14	100	0.15	65.8
PI	8	200	0.075	52.8
USCS	CL		0.0300	46.2
w (%)	13.1		0.0300	46.2
pH	7.95		0.0194	41.2
Organic Content (%)			0.0115	34.9
			0.0083	30.4
			0.0060	24.8
			0.0030	19.1
			0.0013	13.3
SYMBOL	⊠	3"	75	
		2"	50	
Boring	79SB2B	1 1/2"	37.5	
Sample		1"	25	
Spec		3/4"	19	100.0
Depth (ft)	15.0-18.0	1/2"	12.5	90.4
% +3"	0.0	3/8"	9.5	89.7
% Gravel	12.4	4	4.75	87.6
% Sand	67.4	8	2.36	
% Fines	20.2	10	2	86.4
% -2µ	7.5	16	1.18	
Cc	10.49	20	0.85	81.3
Cu	70.37	40	0.425	57.7
LL	NP	60	0.25	36.9
PL	NP	100	0.15	26.9
PI	NP	200	0.075	20.2
USCS	SM		0.0336	18.0
w (%)	14.5		0.0336	18.0
pH	7.70		0.0214	16.4
Organic Content (%)			0.0125	13.4
			0.0089	11.2
			0.0064	10.0
			0.0031	8.7
			0.0013	6.4
SYMBOL				
Boring				
Sample				
Spec				
Depth (ft)				
% +3"				
% Gravel				
% Sand				
% Fines				
% -2µ				
Cc				
Cu				
LL				
PL				
PI				
USCS				
w (%)				
pH				
Organic Content (%)				

SYMBOL	DESCRIPTION AND REMARKS
●	Brown SANDY LEAN CLAY (CL)
⊠	Brown SILTY SAND (SM)

PARTICLE SIZE DISTRIBUTION

RFAAPSSP 08-09

Project Number	Sept. 2009	Figure 3
11657490.70000		

URS

SIEVE_COMPLETE_TABLE 7/02/08 11657490 9-18-09.GPJ URS_BLUE.GDT 9/19/09

APPENDIX D.2

BORING LOGS AND PREVIOUS INVESTIGATIONS

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APPENDIX D.2.1

SITE SCREENING PROCESS BORING LOGS

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Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 18SB1

Sheet 1 of 1

Date(s) Drilled	**August 12, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**10.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0				0		GW	Gravel surface.	Soil sample 18SB1A was collected from 0-1 ft bgs.
								5YR 3/4 dark reddih brown, clayey SILT trace sand, moist (medium stiff), no odor.	
	2		1	4.0	0		ML		
	4				0		GP	Dark brown, very silty GRAVEL, (loose), no odor.	
	6		2	4.0	0		ML	7.5YR 6/6 reddish yelow, SILT with sand, (medium stiff), non-plastic, no odor.	
	8				0			Increase in density with depth.	
			3	2.0					Soil sample 18SB1B was collected from 8-10 ft bgs.
	10							Boring terminated at 10 ft bgs. August 12, 2009.	
	12								
	14								
	16								
	18								
	20								

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 18SB2

Sheet 1 of 1

Date(s) Drilled	**August 12, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**7.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0						ML	Brown, SILT trace gravels. moist, (soft), gravels are angular, low to non-plasticity.	Soil sample 18SB2A was collected from 0-1 ft bgs.
							CL	At 1.0 ft bgs, becomes silty CLAY.	
	2		1	4.0	0			At 2.0 ft bgs, becomes SILT with trace sand, micaceous.	
	4						ML		
			2	3.0					
	6				0				Soil sample 18SB2B was collected from 5-7 ft bgs
								Boring terminated at 7.0 ft bgs. August 12, 2009.	
	8								
	10								
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 18SB2

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 18SB3

Sheet 1 of 1

Date(s) Drilled	**August 12, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**8.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							Grass surface over, 5YR 3/4 dark reddish brown, SILT, moist, (soft), non-plastic, no odor.	Soil sample 18SB3A was collected from 0-1 ft. bgs.
	2		1	4.0	0				
	4				0		ML	At 3.5 ft bgs becomes 7.5YR 6/6 reddish yellow SILT with trace sand and clay, (medium stiff).	
	6		2	4.0					Soil sample 18SB3B was collected from 5-7 ft. bgs.
	8							Boring terminated at 8.0 ft. bgs. August 12, 2009.	
	10								
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 1/27/2010 18SB3

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 18SB4

Sheet 1 of 1

Date(s) Drilled	**August 12, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**8.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							Dark brown, SILT with trace gravel and sand, (soft), sand is fine subangular, non-plastic, no odor.	Soil sample 18SB4A was collected from 0-1 ft. bgs.
	2		1	4.0	0			At 0.5 ft bgs, becomes 5YR 3/4 dark reddish brown, SILT with clay trace sand.	
	4						ML		
					0			At 5.0 ft bgs, becomes sandy SILT with clay.	
	6		2	4.0					Soil sample 18SB4B was collected from 5-7 ft. bgs.
	8							Boring terminated at 8.0 ft. bgs. August 12, 2009.	
	10								
	12								
	14								
	16								
	18								
	20								

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 18SB5

Sheet 1 of 1

Date(s) Drilled	**August 12, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**10.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0						GP	Dark gray, silty coarse SAND, moist, (loose), no odor.	Soil sample 18SB5A was collected from 0-1 ft. bgs.
								5YR 7/6 yellowish red, SILT trace sand, moist, (medium stiff), sand is fine.	
	2		1	4.0	0				
	4							At 4.0 ft bgs becomes, 7.5YR 3/3 dark brown, (soft), micaceous.	
							ML		
	6		2	4.0	0			At 6.0 ft bgs becomes, 7.5YR 5/8 strong brown.	Soil sample 18SB5B was collected from 6-8 ft. bgs. (Duplicated)
	8							At 8.0 ft bgs becomes, sandy SILT, sand is fine.	
			3	2.0					
	10							Boring terminated at 10.0 f.t bgs. August 12, 2009.	
	12								
	14								
	16								
	18								
	20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 18SB5

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 18SB6

Sheet 1 of 1

Date(s) Drilled	**August 11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**10.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							5YR 3/4 dark reddish brown, SILT with clay trace sand, (medium stiff), non-plastic, no odor.	Soil sample 18SB6A was collected from 0-1 ft. bgs.
	2		1	4.0	0				
	4							At 4.0 ft bgs becomes 7.5YR 6/6 reddish yellow.	
							ML		
	6		2	4.0	0				
	8				0				
			3	2.0					Soil sample 18SB6B was collected from 8-10 ft. bgs.
	10							Boring terminated at 10.0 ft. bgs. August 11, 2009.	
	12								
	14								
	16								
	18								
	20								

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 30SB1

Sheet 1 of 1

Date(s) Drilled	**August 13, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**20.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0				0			7.5YR 3/1 very dark gray, sandy SILT, moist (soft), sand is fine subangular, non-plastic, no odor.	Soil sample 30SB1A was collected from 0-1 ft. bgs.
2		1	4.0	0		ML	At 1.0 ft bgs becomes 5YR 5/8 yellowish red, SILT with sand trace clay, (medium stiff), sand is fine.	
4				0				
6								
8						NR	Not Sampled	
10								
12								
14							2.5YR 4/8 red, silty medium subrounded SAND trace gravels, moist-wet, (loose), no odor.	
16		2	4.0	0		SM	Gravels are rounded.	Soil sample 30SB1B was collected from 16-18 ft. bgs. (Duplicated)
18		3	2.0	0		SP	At 17.0 ft bgs, becomes 5YR 7/8 reddish yellow, medium SAND poorly graded.	
20							Boring terminated at 20.0 ft. bgs. August 13, 2009.	

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 30SB2

Sheet 1 of 1

Date(s) Drilled	**August 13, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**18.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Avaiable**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0				0			5YR 6/4 light reddish brown, sandy SILT, moist (medium stiff), non-plastic, no odor.	
2		1	4.0	0				
						ML		
4				0				
							At 5.0 ft bgs becomes 2.5YR 5/6 red, SILT with sand, sand is fine sub-rounded.	
6		2	4.0	0				
							2.5YR 5/6 red, silty fine sub-rounded SAND, moist, (medium dense), no odor.	
8				0		SM		
10		3	4.0	0			At 10.0 ft bgs becomes 7.5YR 5/8 strong brown, subangular fine-medium SAND, (loose)	
12				0		SP		
14		4	4.0	0				
16				2.9			At 16.0 ft bgs becomes 7.5YR 6/8 reddish yellow, silty SAND with gravel, gravel is rounded.	
						SM		Soil sample 30SB2B was collected from 16-18 ft. bgs.
18							Boring terminated at 18.0 ft. bgs. August 13, 2009.	
20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 30SB2

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 30SB3

Sheet 1 of 1

Date(s) Drilled	**August 13, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**18.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0				0			5YR 6/4 light reddish brown, sandy SILT, moist (medium dense), non-plastic, no odor.	
2		1	4.0					
						ML		
4				0				
							At 5.0 ft bgs becomes 2.5YR 5/6 red brown, SILT with sand, sand is subrounded and fine.	
6		2	4.0	0				
							2.5YR 5/6 red brown, silty fine-medium subangular SAND, moist, (medium dense), no odor.	
8						SM		
10		3	4.0	0			At 10.0 ft bgs becomes 7.5YR 5/8, strong brown, SAND. (loose).	
12						SP		
14		4	4.0	0				
16							At 16.0 ft bgs becomes 7.5YR 6/8 reddish yellow, silty SAND with gravels, micaceous, gravels are well rounded.	
		5	2.0	0		SM		Soil sample 30SB3B was collected from16-18 ft. bgs. (Duplicated)
18							Boring terminated at 18.0 ft. bgs. August 13, 2009.	
20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 30SB3

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Test Pit/Borehole
60TP1
Sheet 1 of 1

Date(s) Drilled	**August 10-11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Trench / Direct Push Technology**	Drilling Contractor	**Woodward**	Total Depth of Borehole	**16.5 feet**
Drill Rig Type	**Excavator/ Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**NA / 4' Macrocore sampler with disposable acetate liner**	Hammer Data	**NA / Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							7.5YR 3/4 dark brown, FILL, moist, material is sandy silt trace gravels, gravels are angular.	
	2				0.4				
	4						FILL		
	6				0.4			At 7.0 ft bgs gravels increase with depth.	
	8								
	10				0.8		GP-GM	7.5YR 3/4 dark brown, GRAVEL with silt, moist.	
							NR	August 10, 2009 refusal at 11.0 ft bgs on larger rocks. August 11, 2009 switch to push probe.	
	12							No Samples	
								7.5YR 5/8 strong brown, SILT trace gravels, moist, (soft), low plasticity, gravels are coarse and angular.	
	14		1				ML	Becomes with gravels, non-plastic, no odor.	Soil sample 60TP1 was collected from14-16 ft. bgs.
	16		2						
								Refusal at 16.5 ft bgs. August 11, 2009.	
	18								
	20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 1/27/2010 60TP1

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 60TP2

Sheet 1 of 1

Date(s) Drilled	**August 10, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Trench**	Drilling Contractor	**Woodward**	Total Depth of Borehole	**4.0 feet**
Drill Rig Type	**Excavator**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**NA**	Hammer Data	**NA**
Borehole Backfill		Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							7.5YR 3/4 dark brown, FILL, moist, material is sandy silt trace gravels, gravels are angular.	
					0.5		FILL		
	2							7.5YR 3/4 dark brown, GRAVEL with silt, moist.	
					0.3		GP-GM		
	4							August 10, 2009 refusal at 4.0 ft bgs on large concrete debris and rocks. No soil samples collected.	
	6								
	8								
	10								
	12								
	14								
	16								
	18								
	20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 60TP2

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 72SB1

Sheet 1 of 1

Date(s) Drilled	**August 12, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**10.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0						GP	Black, angular GRAVEL trace silt, (loose).	Soil sample 72SB1A was collected from 0-1 ft. bgs.
								10YR 5/6 Red, SILT trace sand, (soft), non-plastic, sand is fine, no odor.	
	2		1	3.5	0				
	4							At 4.0 ft bgs becomes 5YR 6/6 reddish brown SILT with sand, moist.	
							ML		
	6		2	3.3					
	8				0			At 7.5 ft bgs becomes 5YR 7/8 yellow red, sandy SILT.	
			3	2.0					Soil sample 72SB1B was collected from 8-10 ft. bgs.
	10							Boring terminated at 10.0 ft. bgs. August 12, 2009.	
	12								
	14								
	16								
	18								
	20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 1/27/2010 72SB1

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Boring 72SB2

Sheet 1 of 1

Date(s) Drilled and Installed	**November 11, 2009**	Logged By	**Doann Hamilton**	Reviewed By	**James Spencer**
Drilling Method	**Direct Push Technology**	Drilling Contractor	**Woodward, Inc.**	Total Depth of Borehole	**10.0 feet**
Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Drill Bit Size/Type	**NA**	Top of Casing Elevation	**NA**
Size and Type of Well Casing	**NA**	Screen Perforation	**NA**	Surface Elevation	**Not Available**
Seal or Backfill	**Soil cuttings**	Groundwater Level(s)	**Groundwater was not encountered**		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES AND WELL DETAILS
	0				0		OL	Grass surface over, 10YR 3/3 dark brown, SILT, damp, (medium stiff), with organics.	
					0		MLS	At 0.5 ft bgs, becomes 10YR 4/6 dark yellow brown, sandy SILT, sand is fine.	
	2		1	4	0			Becomes clayey SILT	
					0		MLC		
	4				0				
					0			Grades to 7.5YR 5/6 strong brown, silty CLAY.	
	6		2	4	0				
					0		CL		
	8				0				
			3	2	0				Soil sample 72SB2B was collected from 8-10 ft bgs.
	10							Boring terminated at 10 ft bgs. November 11, 2009.	
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AW_CLEVELAND+/-USCS; File: RFAAP SSP 2009.GPJ; 1/27/2010 72SB2

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Boring 72SB3

Sheet 1 of 1

Date(s) Drilled and Installed	**November 11, 2009**	Logged By	**Doann Hamilton**	Reviewed By	**James Spencer**
Drilling Method	**Direct Push Technology**	Drilling Contractor	**Woodward, Inc.**	Total Depth of Borehole	**8.0 feet**
Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Drill Bit Size/Type	**NA**	Top of Casing Elevation	**NA**
Size and Type of Well Casing	**NA**	Screen Perforation	**NA**	Surface Elevation	**Not Available**
Seal or Backfill	**Soil cuttings**	Groundwater Level(s)	**Groundwater was not encountered**		

Elevation feet	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES AND WELL DETAILS
	0				0		OL	Grass surface over, 10YR 3/3 dark brown, SILT, damp, (medium stiff), with organics.	
					0			At 0.5 ft bgs, becomes 7.5YR 4/6 strong brown, sandy SILT.	
	2		1	4	0				
					0				
	4				0		MLS		
					0				
	6		2	4	0				Soil sample 72SB3B was collected at 6-8 ft bgs.
					0				
	8							Boring terminated at 8.0 ft bgs. November 11, 2009.	
	10								
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AW_CLEVELAND+/-USCS; File: RFAAP SSP 2009.GPJ; 1/27/2010 72SB3

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 77SB1

Sheet 1 of 1

Date(s) Drilled	**August 11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor	**Woodward**	Total Depth of Borehole	**8.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							Top 0.3 organics over 5YR 7/8 yellowish red, SILT with trace sand, moist, (medium stiff), sand is fine, low plasticity, no odor.	Soil sample 77SB1A was collected from 0-1 ft. bgs.
	2		1	4.0	0				
	4						ML		Soil sample 77SB1B was collected from 4-6 ft. bgs.
	6		2	2.5					
					0				
	8							Boring termianted at 8.0 ft. bgs. August 11, 2009.	
	10								
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 1/27/2010 77SB1

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 77SB2

Sheet 1 of 1

Date(s) Drilled	**August 11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor	**Woodward**	Total Depth of Borehole	**7.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							5YR 7/8 yellowish red, SILT, moist, (medium stiff), low plasticity, no odor.	Soil sample 77SB2A was collected from 0-1 ft. bgs.
	2		1	4.0	0				
								At 3.0 ft bgs becomes SILT with sand, non-plastic.	
	4				0		ML		Soil sample 77SB2B was collected from 4-5.5 ft. bgs.
	6		2	2.3	0				
								Boring terminated at 7.0 ft. bgs. August 11, 2009.	
	8								
	10								
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 77SB2

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 77SB3

Sheet 1 of 1

Date(s) Drilled	**August 11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor	**Woodward**	Total Depth of Borehole	**5.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES: Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0				0		ML	SILT with clay and trace sand, moist (medium stiff), non-plastic, no odor.	Soil sample 77SB3A was collected from 0-1 ft. bgs. (Duplicated)
2		1	4.0					
4		2	1.0	0				Soil sample 77SB3B was collected from 4-5 ft. bgs.
							Boring terminated at 5.0 ft. bgs. August 11, 2009.	
6								
8								
10								
12								
14								
16								
18								
20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 77SB3

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 77SB4

Sheet 1 of 1

Date(s) Drilled	**August 11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**9.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0							SILT with clay trace sand, moist, (medium stiff), non plastic, no odor.	
				0				
2		1	4.0			ML		
4						SM	Dark gray, silty SAND, (loose), no odor.	
				0			SILT with sand trace clay, moist, (medium stiff), non plastic, no odor.	
6		2	3.3			ML		Soil sample 77SB4B was collected from 6-8 ft. bgs.
8		3	1.2	0				
							Boring terminated at 9 ft. bgs. August 11, 2009.	
10								
12								
14								
16								
18								
20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 1/27/2010 77SB4

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 77SB5

Sheet 1 of 1

Date(s) Drilled	**August 11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**8.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES: Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0				0		ML	5YR 7/8 SILT with clay trace sand, moist, (soft) low plasticity, no odor.	
2		1	4.0	0				
4				0		CL	At 3.0 ft bgs becomes gray, silty CLAY, plastic, no odor.	
6		2	3.5	0		ML	At 5.0 ft bgs becomes, SILT with trace sand and clay, (medium dense), no odor.	
8							Boring terminated at 8.0 ft. bgs. August 11, 2009.	
10								
12								
14								
16								
18								
20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 12/1/2010 77SB5

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 77SB6

Sheet 1 of 1

Date(s) Drilled	**August 11, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**6.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0							5YR 7/8, SILT with clay and sand, moist, (medium stiff), non-plastic, no odor.	
					0				
	2		1	4.0			ML		
	4							At 4.0 ft bgs relict weathering in place, igneous.	
			2	1.7	0				
	6							Refusal at 6.0 ft. bgs. August 11, 2009.	
	8								
	10								
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 1/27/2010 77SB6

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 79SB1

Sheet 1 of 1

Date(s) Drilled	**November 11, 2009**	Logged By	**Doann Hamilton**	Reviewed By	**James Spencer**
Drilling Method	**Direct Push Technology**	Drilling Contractor	**Woodward, Inc.**	Total Depth of Borehole	**18.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continous hydraulic pressure**
Borehole Backfill	**Soil cuttings**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0				0		OL	Grass surface over, 10YR 4/3 brown, silty CLAY, damp, (medium stiff), with organics.	
					0		CL-CHM	At 0.5 ft bgs, becomes 2.5Y 5/4 light olive brown with orange streaks.	
	2		1	4.0	0			At 2.0 ft bgs, becomes 5Y 6/1 with orange streaks, CLAY, (very stiff) medium-high plasticity.	
					0				
	4				0		CH		
					0				
	6		2	4.0	0				
					0		CHMS	At 6.5 ft bgs, becomes 10YR 6/4 light yellow brown with orange streaks, trace sand, (stiff), medium plasticity, sand is fine.	
	8				0			7.5YR 3/4 dark brown mixed with black and orange, silty SAND, damp, (dense)	
			3	2.0	0		SM		
					0				
	10				0			AT 10 ft bgs, becomes 5Y 6/1 with tan and pale red, clayey fine to medium SAND with gravels, (very dense), gravels are crystalline and fine.	
					0				
	12		4	4.0	0				
					0				
					0		SMG		
	14				0				
					0				
	16		5	4.0	0				Soil sample 79SB1B was collected at 16-18 ft bgs.
					0		CL	5Y 6/6 olive yellow with tan and orange seams, CLAY, damp (stiff), blocky	
	18							Boring terminated at 18.0 ft bgs, November 11, 2009.	
	20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 2009.GPJ; 1/27/2010 79SB1

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 79SB2

Sheet 1 of 1

Date(s) Drilled	**August 13, 2009**	Logged By	**Rhoda Willis**	Reviewed By	**Tina Devine**
Drilling Method	**Direct Push Technology**	Drilling Contractor		Total Depth of Borehole	**18.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered.**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continuous hydraulic pressure**
Borehole Backfill	**Unknown**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES: Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0							2.5YR 6/6, SILT with sand, moist, (medium stiff), sand is fine sub-angular, non-plastic, no odor.	Soil sample 79SB2A was collected from 0-1 ft. bgs.
2		1	4.0			ML		
4				0				
6		2	4.0	0				
8				0			7.5YR 5/8 strong brown with some black inclusions, silty fine subangular SAND, moist, (loose), no odor.	
10		3		0		SM		
						ML	2.5YR 6/6, SILT with sand, moist, (medium stiff), sand is fine sub-angular, non-plastic, no odor.	
12				0			2.5YR 4/8 red, fine-medium subangular SAND with silt. moist, (loose), no odor.	
14		4		0		SP		
16								
		5				SM	At 17.0 ft bgs becomes silty SAND with gravels, gravels are rounded, no odor.	Soil sample 79SB2B was collected from 16-18 ft. bgs.
18							Boring terminated at 18.0 ft. bgs. August 13, 2009.	
20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 18,30,60,72,77,79.GPJ; 1/27/2010 79SB2

URS

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 79SB3

Sheet 1 of 1

Date(s) Drilled	**November 11, 2009**	Logged By	**Doann Hamilton**	Reviewed By	**James Spencer**
Drilling Method	**Direct Push Technology**	Drilling Contractor	**Woodward, Inc.**	Total Depth of Borehole	**18.0 feet**
Drill Rig Type	**Track-mounted Drill Rig**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered**	Sampling Method	**4' Macrocore sampler with disposable acetate liner**	Hammer Data	**Continous hydraulic pressure**
Borehole Backfill	**Soil cuttings**	Comments			

Elevation, feet / Downhole Depth, feet	SAMPLES Type	Number	Recovery (feet)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
0				0		OL	Grass surface over, 10YR 3/3 dark brown, SILT, damp, (medium stiff), with organics.	
						CL	At 0.5 ft bgs, becomes 10YR 3/3 dark brown, silty CLAY.	
		1	3.0	0			At 1.3 ft bgs, becomes 10YR 5/6 yellow brown with black inclusions, SILT with sand, damp, (stiff), sand is fine.	
2				0				
4				0		MLCS		
		2	4.0	0				
6				0				
				0			Thin 1/2" lense dark brown medium SAND over, 10YR 5/6 yellow brown, very silty fine SAND, damp, (medium dense), with lenses of very sandy SILT.	
8				0				
				0				
10		3	4.0	0		SM/ML		
				0			At 11.5 - 1/2" lense dark brown medium SAND	
12				0				
		4	3.0	0			10 YR 7/8 yellow with intermix tan and dark brown, CLAY trace gravels. damp, (stiff), clay is laminated over blocky, gravel is fine.	
14				0				
						CLFGG		
16				0				
		5	2.0	0				Soil sample 79SB3B was collected at 16-18 ft bgs
18							Boring terminated at 18.0 ft bgs, November 11, 2009.	
20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 2009.GPJ; 1/27/2010 79SB3

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 79SS4

Sheet 1 of 1

Date(s) Drilled	**November 11, 2009**	Logged By	**Doann Hamilton**	Reviewed By	**James Spencer**
Drilling Method	**Surface Scrape**	Drilling Contractor	**NA**	Total Depth of Borehole	**0.7 feet**
Drill Rig Type	**None**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered**	Sampling Method	**NA**	Hammer Data	**NA**
Borehole Backfill	**Soil cuttings**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Recovery (feet)	SAMPLES PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0		1	0.7	0		OL	Grass surface over 10YR 5/6 yellow brown, SILT, damp, (medium stiff), with organics.	Soil sample 79SS4 was collected at 0.7 ft bgs.
								Bottom terminated at 0.7 ft bgs. November 11, 2009.	
	2								
	4								
	6								
	8								
	10								
	12								
	14								
	16								
	18								
	20								

URS

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 2009.GPJ; 1/27/2010 79SS4

Project: RFAAP SSP
Project Location: Radford Army Ammunition Plant
Project Number: 11657490

Log of Borehole 79SS5

Sheet 1 of 1

Date(s) Drilled	**November 11, 2009**	Logged By	**Doann Hamilton**	Reviewed By	**James Spencer**
Drilling Method	**Surface Scrape**	Drilling Contractor	**NA**	Total Depth of Borehole	**0.7 feet**
Drill Rig Type	**None**	Drill Bit Size/Type	**NA**	Ground Surface Elevation	**Not Available**
Groundwater Level(s)	**Groundwater was not encountered**	Sampling Method	**NA**	Hammer Data	**NA**
Borehole Backfill	**Soil cuttings**	Comments			

Elevation, feet	Downhole Depth, feet	SAMPLES Type	SAMPLES Number	Recovery (inches)	PID (ppm)	Graphic Log	Lithologic Log (USCS Code)	MATERIAL DESCRIPTION	FIELD NOTES
	0		1	0.7	0		OL	Grass surface over, 10YR 3/3 dark brown, SILT, damp, (medium stiff), with organics.	Soil sample 79SS5 and Duplicate was collected at 0.7 ft bgs.
								Bottom terminated at 0.7 ft bgs. November 11, 2009.	
	2								
	4								
	6								
	8								
	10								
	12								
	14								
	16								
	18								
	20								

Report: ENV_12AS_CLEVELAND+/-USCS; File: RFAAP SSP 2009.GPJ; 1/27/2010 79SS5

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APPENDIX D.2.2

PREVIOUS INVESTIGATIONS – SSAs 18 AND 72

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DRILLING LOG FOR SB-01

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 04/18/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe

Drilling Method (s) Direct push

Bit Size (s) 2-INCH Auger Size (s) _____

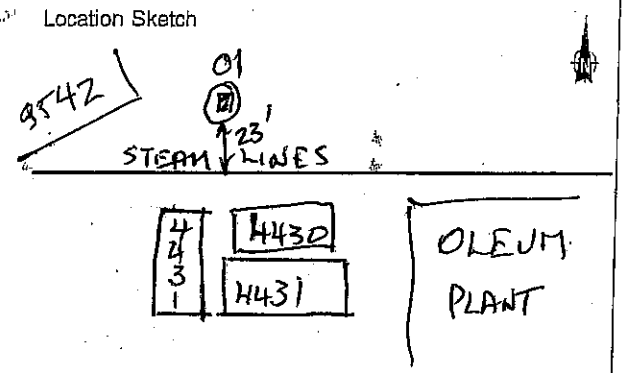
Auger/Split Spoon Refusal _____

Total Depth of Borehole is _____

Total Depth of Corehole is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB01		CL, SL			100%				SILTY, MICACEOUS, clay 10YR 4/3
2										
3										CLAY as above at base 10YR 6/6 SANDY
4			CL, SL, SD							
5			CL, SL			100%				Clay, silty, 10 YR 6/6 uniform
6										
7										
8			CL, SL, S			100%				Clay, silty, sandy
9										
10			CL, SL							Clay, silty, trace fn sand, micaceous uniform
11										
12										
13			CL, SL							Clay as above
14										
15			S, SL							Sand, v. fine, silty micaceous

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
											SB-01
			SD, SL								sand as above
16											
17			CL, SL								silty clay, w fn. sand. micaceous
18											
19			GR, S								GR, S
20											TD. 20 ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
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44											
45											

DRILLING LOG FOR SB-02

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD VA.

Date Started/Finished 04/17/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe

Drilling Method (s) Direct push

Bit Size (s) 2INCH Auger Size (s) _____

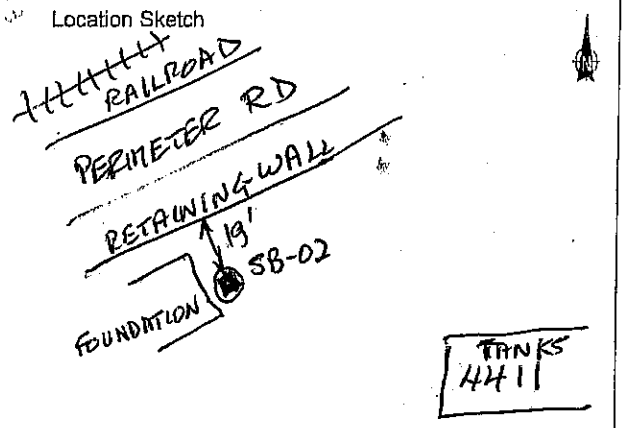
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	~~Core~~ Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB02 0-4'		FILL GR	N/A		63%		N/A	N/A	CLAY 10YR 6/6 Yellow-brown silty
2			CL, SL							
3										
4			CL, SL			88%				Clay, as above
5										
6										
7										
8			CL, SL			88%				Clay, as above trace v. fn. sd.
9										
10										
11										increasing v. fn. sd
12						100%				CL as above
13										
14			S, SL							S, very fine, silty 10YR 6/6
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-02
16											
17	ATK-SUB=SB-02		S, SL.				90%				Sand, very fine, silty, micaceous 10YR 6/6
18											
19											
20											TD 20ft. bgs.
21											
22											
23											
24											
25											
26											
27											
28											
29											
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DRILLING LOG FOR SB-03

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD VA.

Date Started/Finished 04/18/07

Drilling Company BHT - ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) GEOPROBE®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

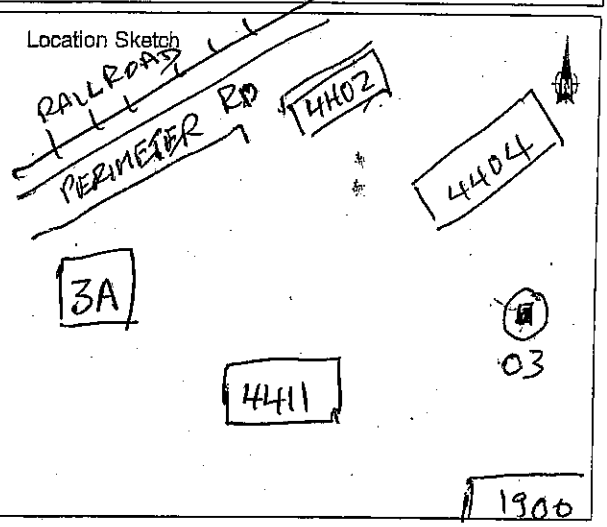
Auger/Split Spoon Refusal ~~N/A~~ HA 19.5ft.

Total Depth of Borehole Is ~~20ft~~ 19.5ft HA

Total Depth of Corehole Is ~~20ft~~ 19.5ft HA.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB03	N/A	CL, SL	N/A		100%		N/A	N/A	Clay, silty light brown 10YR 6/6
2										
3										
4										
5			CL, SL			100%				Clay, as above
6										
7										
8										
9			CL, SL			100%				Clay as above dark mottles and concretions at 9ft bgs
10										
11										
12										
13			CL, SL			100%				Clay, as above, fr. v. fn. sand
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-03
16											
17	ATK-SUB-SB03		S, SL, CL				88%				Sand, silty, clayey, 10YR 6/6
18											
19											Quartz Pebble at 19.5 FT
20											Refusal at 19.5 ft bgs
21											
22											
23											
24											
25											
26											
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28											
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45											

DRILLING LOG FOR SB-04'

Project Name RADFORD ARM

Site Location RADFORD, VA.

Date Started/Finished 04/17/07

Drilling Company BMT ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

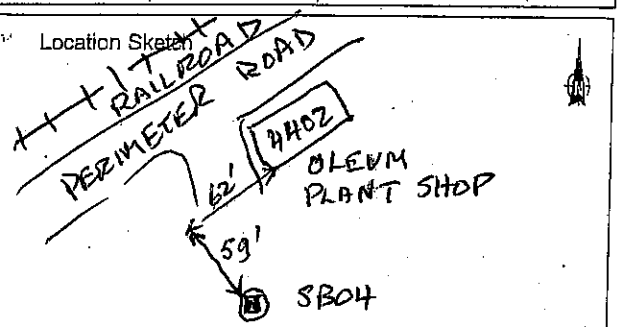
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20ft.

Total Depth of Corehole Is 20ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB04		FILL GR CL, SL	N/A		100%		N/A	N/A	Clay 10YR 6/6 Light brown silty.
2										
3										
4										
5			CL, SL			100%				Clay, silty as above grading to silt, clayey
6										
7			SL, CL							
8										
9			CL, SL			100%				Clay, silty. 10YR/6/6 Light brown
10										
11										
12										
13			CL, SL			100%				Clay silty, as above
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-04
					N/A				N/A	N/A	
16											
17	ATK-SUB-SB04		CL, SL				100%				CL, SL As above
18											
19											
20			S, SL 10YR 6/6								S, v fn, silty T.D. 20 FT bgs.
21											
22											
23											
24											
25											
26											
27											
28											
29											
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DRILLING LOG FOR SB-05

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 02/20/07

Drilling Company BAT ENTECH

Driller's Name Tim Lee

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) GeoProbe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

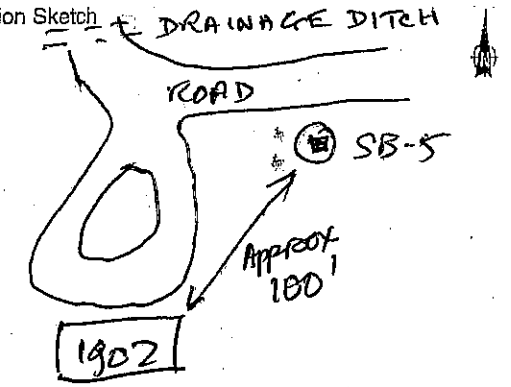
Auger/Split Spoon Refusal 15 ft bgs

Total Depth of Borehole is 15 ft

Total Depth of Corehole is 15 ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	ATK-SS-SB05		CL,SL			100%				8" Brown silty clay topsoil
1										CLAY, silty, lt brn 10YR 6/6 fragment of coal? at 2' bgs.
2										
3										
4			CL,SL			100%				Clay silty as above
5			CL,GR,S,S							Clay, gravel sand & silt
6			CL,SL							Clay, silty, lt. brn
7			CL,GR,S,SL							Clay, gravel, sand & silt
8			CL,SL			100%				Clay, silty, occasional pebble. Cobble at 8'4"
9										
10										
11										
12	ATK-SUB-SB05		CL,SL			100%				CLAY, as above
13			CL,GR							Clay&gravel 8 inches
14			CL	Dolostone?		100%				CLAY to 14'10" T.D. Refusal at 15 ft bgs
15										

DRILLING LOG FOR SB-06

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 04/18/07

Drilling Company BMT - ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ADDIS

Geologist's Signature Hussein Addis.

Rig Type (s) Geoprobe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

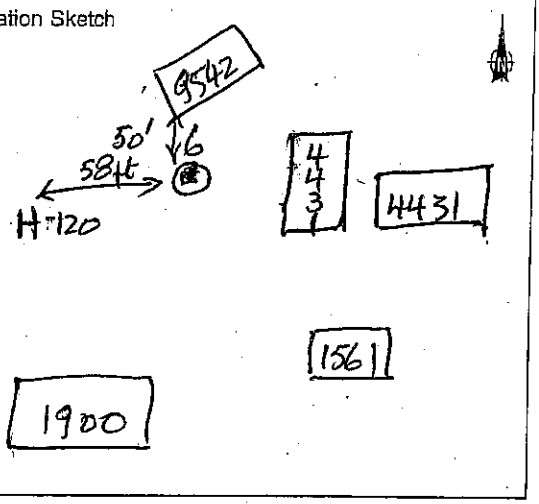
Auger/Split Spoon Refusal ~~N/A~~ 19.5 ft HA

Total Depth of Borehole Is ~~20 ft~~ 19.5 ft HA

Total Depth of Corehole Is ~~20 ft~~ 19.5 ft HA.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	~~Penetration Times~~ N/A	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB06		CL, SL	FILL GR CL FILL?		100%				GR fill to 4" Poss clay fill to 12"
2										Clay, silty, 10YR 6/6 soft, carbonaceous? streaks
3										
4										
5			CL SL			100%				Clay, silty, light brown 10YR 6/6
6										
7										
8										
9			CL, SL			100%				Clay silty as above trace fine sand, mica. 1" layer of sand and qtz pebbles 9' - 9'1"
10										
11										
12										
13			SD, SL, CL			75%				Sand, silty, clayey micaceous 10YR 6/6
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
											SB-06
16			S, SL				75%				Very fine silty sand micaceous. 10YR 6/6 Quartz pebble 19.5ft T.D. 19.5ft
17											
18											
19											
20											
21											
22											
23											
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DRILLING LOG FOR SB-07

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA

Date Started/Finished 04/19/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) GEOPROBE®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

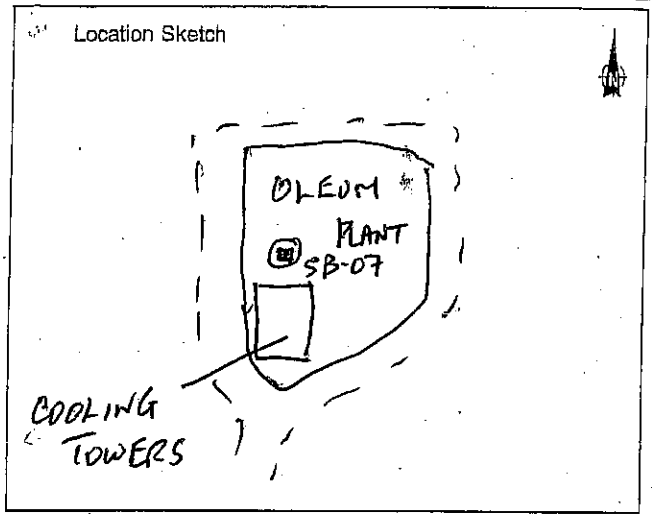
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	FTK-		GR, CL			100%				FILL, gravel & clay
1	SS-		CL, SL							1-2.5' CL, SL DOM. 10YR 6/6
2	SB07									
3			CL							CL, SOFT, PLASTIC DOM. 10YR 4/3
4			CL, SL			100%				Clay, silty, becoming siltier with depth. 10YR 6/6
5										
6										
7										
8			CL, SL			100%				CLAY as above
9										
10			S. SL							Sand, silty, v. fine 10YR 6/6
11										
12			S. SL							Sand, as above
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-07
16			S, SL, CL				80%				Sand, silty clayey. moderate 10YR 6/6
17											
18											
19											
20											T.D. 20 ft.
21											
22											
23											
24											
25											
26											
27											
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45											

DRILLING LOG FOR SB-08

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 04/20/07

Drilling Company BMT-ENTECH

Driller's Name Tim Lee

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) GEOPROBE (E)

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

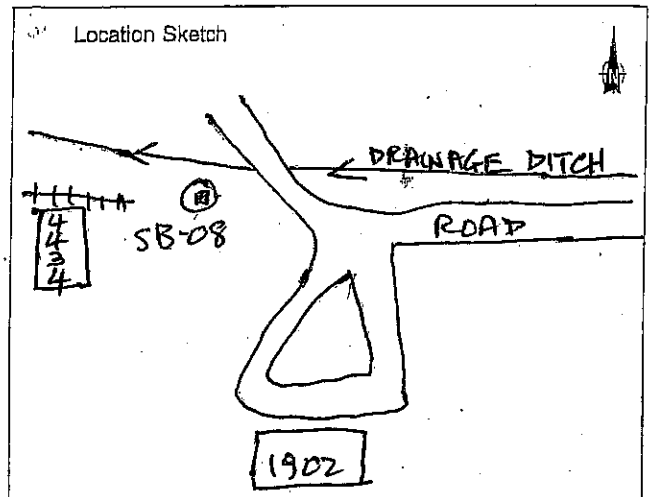
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20 ft

Total Depth of Corehole Is 20 ft

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB08		CL, SL			100%				2 inches "topsoil" Remainder, silty clay, lt. brn, firm 10YR 6/6
2										
3										
4			CL, SL			100%				8" silty clay as above
5			CL. SL							Silty clay, 10YR 4/3 mid to gray brn.
6										
7										
8			CL, SL			100%				Silty clay lt. brn 10YR 6/6 black carbonaceous flecks 9.5'-12'
9										
10										
11										
12			CL, SL			100%				Silty clay as above w mica, tr. fine sand
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
											SB-08
16	ATK-SUB-SB08		CL, SL, S				100%				Clay, silty, sandy 10YR 6/6
17			SL, S, CL								Silt, sandy, clayey 10YR 6/6
18											
19			S, SL								Sand, silty 10YR 6/6
20											T.D. 20ft.
21											
22											
23											
24											
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28											
29											
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DRILLING LOG FOR SB-09

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 04/19/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) GEOPROBE (R)

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

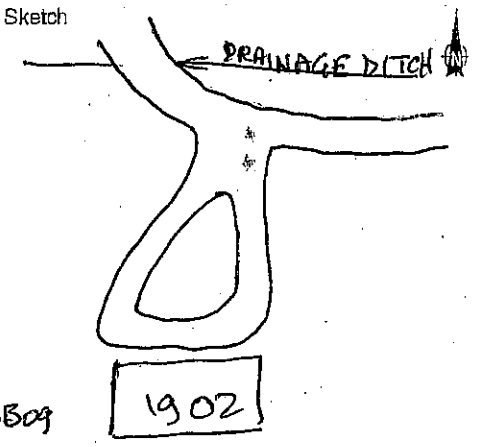
Auger/Split Spoon Refusal N/A.

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB09		CL,SL			100%				Clay, silty, light brown 10YR 6/6, firm, very uniform.
2										
3										
4			CL,SL			100%				Clay, as above
5										
6										
7										
8			CL,SL			100%				Clay, as above
9										
10										
11										
12						100%				Clay, as above
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
											SB-09
16			CL,SL								clay, asphalt
17											
18											
19			S,SL								Sand, very fine silty 10YR6/6
20											TD. 20ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
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DRILLING LOG FOR SB-10

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD VA.

Date Started/Finished 04/18/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

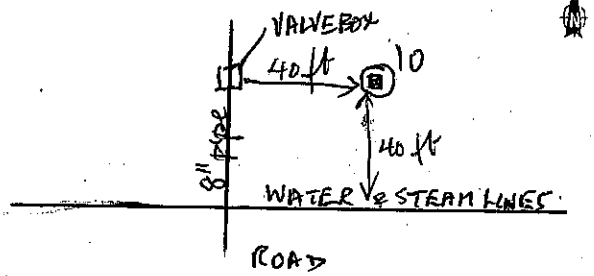
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20ft bgs

Total Depth of Corehole Is 20ft

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



OLEUM PLANT

4429

Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB10		CL, SL			100%				6inches "topsoil" 2" sand Clay, silty, trace fn sd micaceous, uniform 10YR 6/6
2										
3										
4			CL, SL			100%				Clay, as above
5										
6										
7										
8			SL, CL			100%				Silty, clayey, trace fn sand, micaceous 10YR 6/6
9										
10										
11										
12			SL, CL			100%				Silt as above
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-10
16	ATK-SUB-SB10		S, SL				100%				Sand, v. fine silty, micaceous occasional qtz. pebble damp/moist 10YR 6/6
17											
18											
19											
20											TD. 20 ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
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42											
43											
44											
45											

DRILLING LOG FOR SB-11

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 04/18/07

Drilling Company BMT - ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

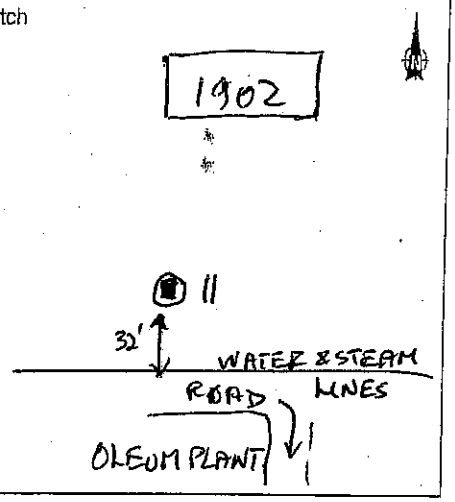
Auger/Split Spoon Refusal N/A

Total Depth of Borehole is 20ft

Total Depth of Corehole is 20ft

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB11		GR FILL			90%				Blackgravel, "topsoil" 6"
2			CL							Clay soft, wet, plastic to firm at 3'-4' 10YR 4/3 to 10YR 6/6
3										
4			CL, SL			80%				Clay, silty, trace v.fn Sd. uniform 10YR 6/6
5										
6										
7										
8			SL, CL, S,			100%				Silt, clayey, sandy micaceous uniform 10YR 6/6
9										
10										
11										
12			SL, CL, S							Silt, as above
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-11
16											
17	ATK-SUB-SB11		SL, S				100%				Silt, sandy
18			S, SL								Sand, fn, silty trouble 10YR 6/6
19											
20											TD. 20ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
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39											
40											
41											
42											
43											
44											
45											

DRILLING LOG FOR SB-12

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD VA.

Date Started/Finished 04/18/07

Drilling Company BMT-ENTECH

Driller's Name Tim Lee

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe ®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

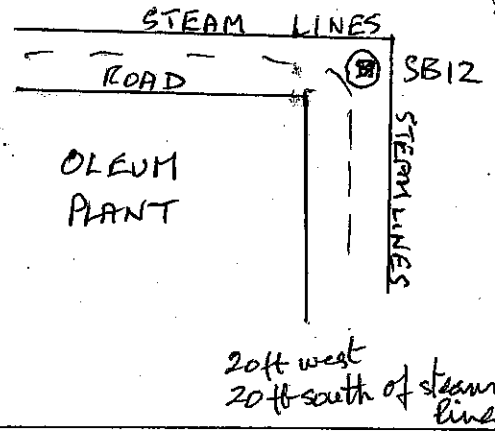
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB12		GR			100%				GRAVEL FILL
2			CL,SL							Clay, silty, w trace gravel. 10YR 6/6
3										
4			CL,SL			100%				Clay, silty lt brn uniform 10YR 6/6
5										
6										
7										
8			CL,SL			100%				Clay as above
9										
10										
11										
12			S,SL,CL			100%				Sand, silty, clayey (loam) uniform 10YR 6/6
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
											SB-12
16											
17	RTK-SOB-SB12		S, SL, CL				100%				Sand, v. fine silty, clayey loam, very uniform 10YR 6/6
18											
19											
20											20ft T.D.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
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36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

DRILLING LOG FOR SB-13

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 04/19/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

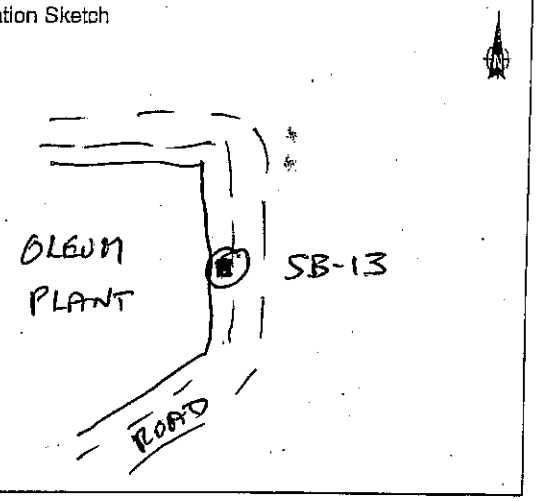
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
			GR							GRAVEL FILL
1	ATK		CL, SL			50%				CL, silty, firm
2	SS-									10YR 6/6
3	SB13									
4			CL, SL							
5						100%				CL as above
6										
7			S, SL							Sand, silty, v. fn, micaceous
8										
9			CL, SL			100%				Clay, silty w trace fine sand
10										10YR 6/6
11			S, SL, CL							Sand, silty, v. fn clayey, micaceous
12										
13			S, SL, CL			100%				Sand, as above pebble at 15'8"
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-13
16											
17	ATK-SUB-SB13		S				100%				Sand, silty, v. fine, dajey micaceous
18			CL, S, SL								Sandy, silty, clay loam, micaceous 10YR 6/6
19											
20											T.D. 20FT
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
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39											
40											
41											
42											
43											
44											
45											

DRILLING LOG FOR SB-14

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 04/18/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

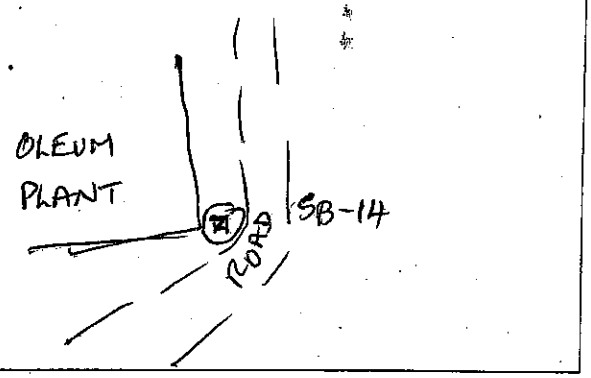
Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1			GR			NONE 0%				FILL, GRAVEL
2			GR, CL							FILL GRAVEL & CLAY
3	ATK-SS-SB14		CL			100%				CLAY, SOFT, WET, MID BROWN 10YR 4/3
4										
5			CL, SL			100%				Clay, silty, soft wet, as above but 10YR 6/6 color change
6										
7										
8										
9			CL, SL			100%				Clay, silty w. isolated gravel, black streaks.
10										
11										
12										
13			CL, SL			100%				Clay, silty 10YR 6/6 uniform.
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-14
16											
17	ATK-SUB-SB-14		CL, SL				75%				Clay, silty as above soft, wet
18											
19											
20											T.D. 20ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
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39											
40											
41											
42											
43											
44											
45											

DRILLING LOG FOR SB-15

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA

Date Started/Finished 04/19/2007

Drilling Company BTT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis.

Rig Type (s) GEOPROBE®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

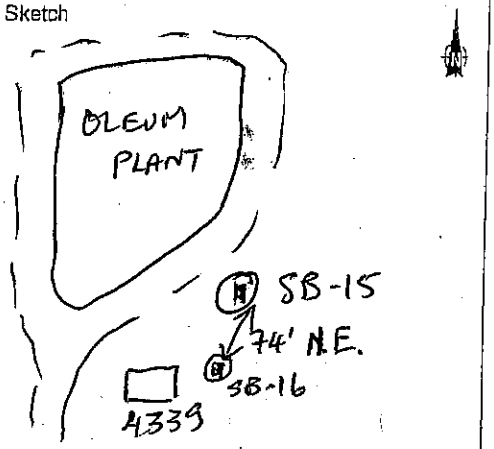
Auger/Split Spoon Refusal 7ft bgs - MOVED OVER

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB15		CL, SL			80%				Clay, silty with occasional small pebbles. 10YR 6/6
2										
3										
4										
5	NO SAMPLE		CLAY as above			NOT Measured				No sample taken for description. Quartz pebble
6										
7				Refusal						Refusal
8										DROVE PREPROBE to 8' Ft south.
9			CL, SL			100%				8-12' CL, SL
10										Uniform, Lt BRN
11										10YR 6/6
12										
13			CL, SL, S			100%				Clay, silty sandy, (loam) Lt. BRN
14										10YR 6/6
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
			S, SL, CL								SB-15 Sand, silty clayey
16	ATK-SUB-SB15		S, SL				80%				Sand, silty fine/dle Pebbles at 19'-2"-19'4" ?JASPER. 2" layer gravel
17											
18											
19				2" gravel							
20			S, SL								T.D. 20 ft
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
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39											
40											
41											
42											
43											
44											
45											

DRILLING LOG FOR SB-16

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA

Date Started/Finished 04/19/2007

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ADIS

Geologist's Signature Hussein Adil

Rig Type (s) GEOPROBE®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

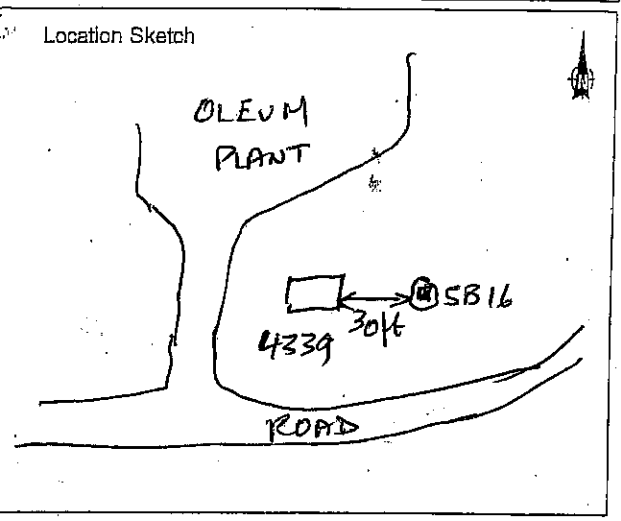
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20 ft

Total Depth of Corehole Is 20 ft

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB16		CL,SL			100%				6"Topsoil w. grass Clay, silty 10YR 4/3 to 10YR 6/6 brown and light brown
2										
3										
4										
5			CL,SL			100%				Clay, silty, poss coal frags. at 5'6" and 7'6" bgs
6										
7										
8										
9			CL,SL and SL,CL			100%				clayey silt to silty clay, mica flakes
10										
11										
12										
13			SL,CL			100%				Silt, clayey, fr. fine sand. micaceous 10YR 6/6
14										
15			CL,SL							clay, silty 10YR 6/6

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
			CL, SL								SB-16
16											CLAY, silty as above
17			S, SL				90%				Sand, silty
				pebble						Quartz pebble →	
18			S, SL								Sand, silty fine 10YR 6/6
19											
20											T.D. 20ft
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
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38											
39											
40											
41											
42											
43											
44											
45											

DRILLING LOG FOR SB-17

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD VA

Date Started/Finished 04/19/2007

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) GEOPROBE®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

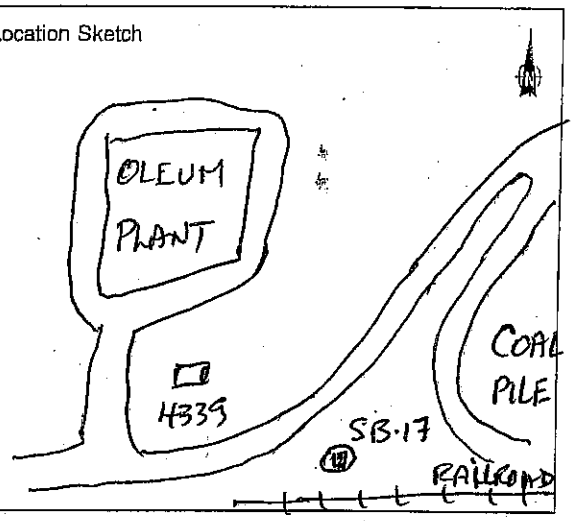
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20 FT

Total Depth of Corehole Is 20 FT

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB17		CL, SL			100%				Topsoil sq grass roots Clay, silty 10YR 4/3 and 10YR 6/6
2										
3										
4			CL, SL			100%				Clay, silty, tr. Sand
5										
6			S, SL, CL							Sand, tr, silty, clayey loam 10YR 6/6
7										
8			S, SL, CL			100%				As above
9										
10										
11										
12			S, SL, CL			100%				As above
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-17
16											
17	ATK-SUB-SB-17		S, SL				100%				Sand, silty. 10YR 6/6 Uniform.
18											
19											
20											T.D. 20ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
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35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

DRILLING LOG FOR SB-18

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD VA.

Date Started/Finished 04/19/2007

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ADIS

Geologist's Signature Hussein Adis

Rig Type (s) GEOPROBE ®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) N/A

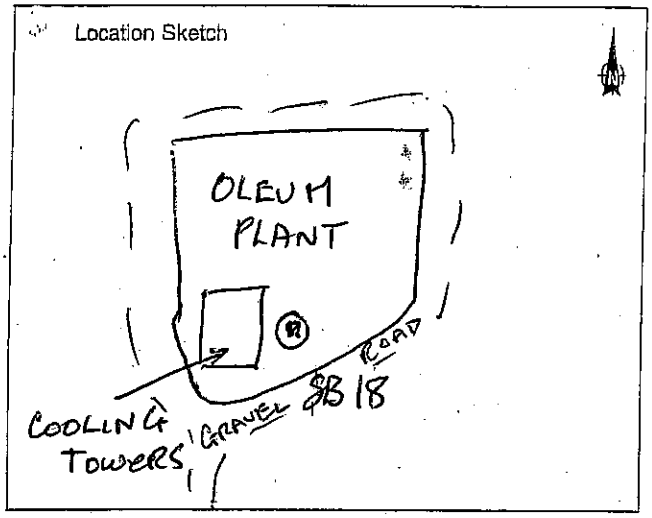
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20 ft

Total Depth of Corehole Is 20 ft

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
			GR			100%				GRAVEL FILL
1	ATK-		CL,SL							Clay, silty, 10YR 6/6
2	SS-									
3	SB18									
4										CLAY as above 10YR 4/3
			CL,SL							CLAY as above
5						100%				CLAY, SILTY, 10YR 6/6
6										
7										
8										
9			CL,SL,S			100%				Clay, silty, sandy micaceous 10YR 6/6
10										
11										
12			CL,SL,S	GR		100%			GRAVEL	CLAY, as above
13									one inch	
			S,SL,CL							Sand, silty, clayey, micaceous, 10YR 6/6
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments SB-18
16	ATK SUB-SB18		S, SL, CL				80%				Sand, silty clayey, micaceous 10YR 6/6
17											
18											
19											
20											T.D. 20ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
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39											
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41											
42											
43											
44											
45											

DRILLING LOG FOR SB-19

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA

Date Started/Finished 04/18/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) Geoprobe®

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

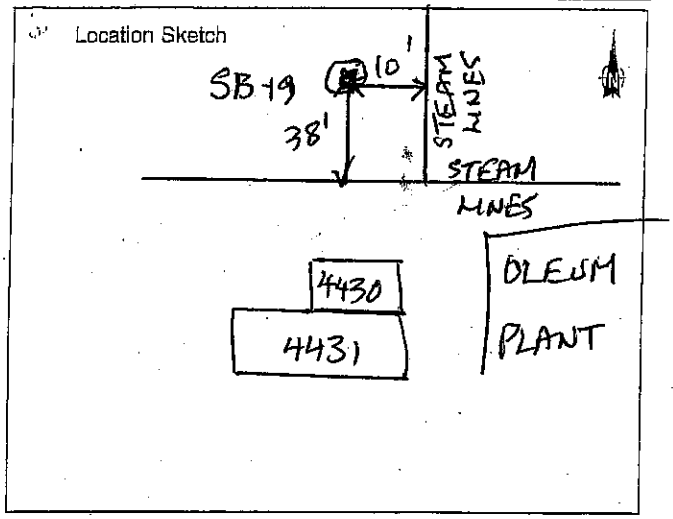
Auger/Split Spoon Refusal ✓

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft.

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB19		CL, SL			100%				Clay, silty, micaceous 10YR 4/3 grading to 10YR 6/6
2										
3										
4			CL, SL			100%				Clay, silty, micaceous 10YR 6/6 uniform
5										
6										
7										
8			CL, SL			100%				Clay as above
9										
10										
11			S, SL							Sand, silty, micaceous w. few quartz pebbles
12			SL, CL			100%				Silt, micaceous, clayey.
13										
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
			GR,								SB-19
16			SL, CL								GRAVEL, quartz
17			S, SL				100%				SL, CL as above
18											S, v. coarse, silty w few quartz pebbles
19			SL, CL								SL, CL, micaceous
20											T.D. 20 ft bgs.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
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39											
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41											
42											
43											
44											
45											

DRILLING LOG FOR SB-20

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD VA.

Date Started/Finished 04/20/07

Drilling Company BMT-ENTECH

Driller's Name TIM LEE

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) GEOPROBE

Drilling Method (s) DIRECT PUSH

Bit Size (s) 2-INCH Auger Size (s) _____

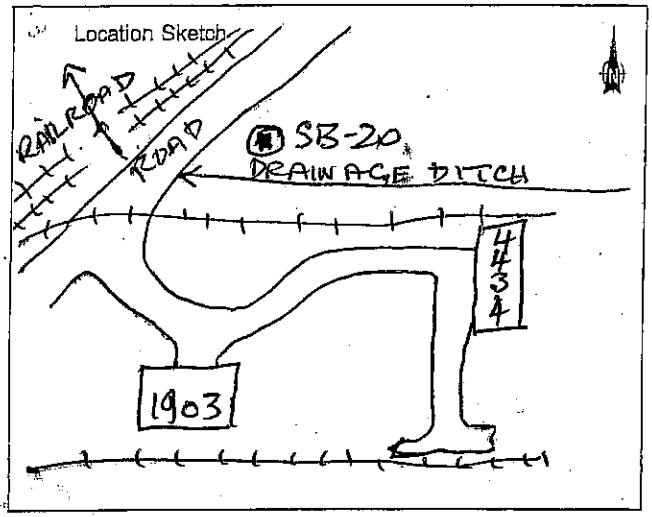
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 20ft

Total Depth of Corehole Is 20ft

Water Level (TOIC)		
Date	Time	Level(Feet)

Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB20		CL, SL			100%				4 INCHES BRN topsoil Silty clay w/ thfrags of ? dolostone
2			GR							GRAVEL/cobbles? dolostone
3			CL, SL							Clay, silty, BRN, 10YR 4/3
4			CL, SL			100%				Clay, silty as above grading to
5										Clay, silty, 10YR 6/6
6										
7										
8			CL, SL			100%				Clay silty as above
9										Some isolated gravel frags.
10										
11			SL, CL, S							Silty, clayey w/ fn Sand
12			S, SL, CL			100%				Sand, silty, clayey micaceous, becoming
13										less clayey
14										
15										

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
											SB-20
16	ATK-SUB-SB20		S, SL, CL				90%				Sand, silty, trace clay friable 10YR 6/6
17											
18											
19											
20											T.D. 20ft.
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Borehole Record for MW-01 (RFAAP)

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-01

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 05/03/07 - 05/03/07

Drilling Company BEDFORD WELL DRILLING Co

Driller's Name STEPHEN RIPLEY

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) INGERSOLL RAND T3W TRUCK MOUNTED

Drilling Method (s) MR ROTARY

Bit Size (s) 6INCH Auger Size (s) N/A

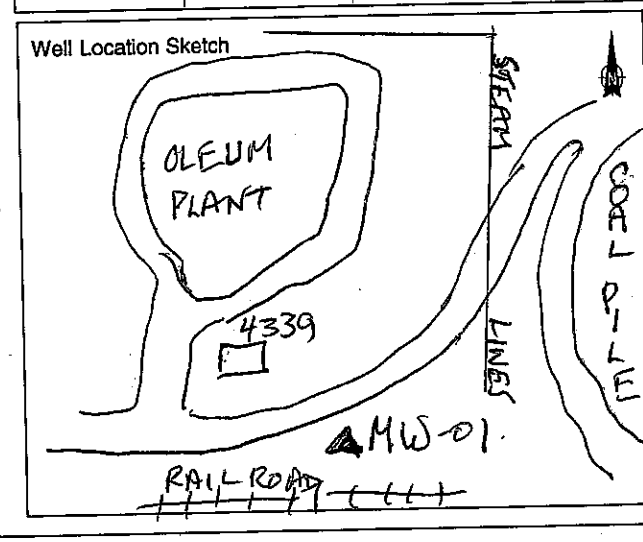
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 50ft

Total Depth of Corehole Is 20ft (SB-17)

Water Level (TOIC)		
Date	Time	Level(Feet)
05/08/07	1550	47.35

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB17		CL, SL			100%				
2										
3										
4						100%				
5										
6			S, SL, CL							
7										
8						100%				
9										
10										
11										
12						100%				
13										
14										
15										

RFAAP MW-01

SCREENED WELL

Lock Number _____

Inner Casing Material PVC

Inner Casing Inside Diameter 4 inches

Stick-up 3.0 ft

GROUND SURFACE

Top of Grout _____ ft

Top of Seal at 3 ft

Top of Sand Pack 36 ft

Top of Screen at 40 ft

Bottom of Screen at 50 ft

Bottom of Hole at 50 ft

Bottom of Sandpack at 50 ft

Quantity of Material Used:

Bentonite Pellets 8 x 50 lbs

Cement ~150 lbs at surface

Borehole 8 inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size 0.01"

Screen Type _____

☑ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☑ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	Lithology to 20 ft based on SB17			
1	Topsoil w grass roots 4 inches	○	○	○
2	0.4" to 4.0 ft. clay, silty, 10YR 4/3 and 10YR 6/6	○	○	○
3	light brown to mid brown.	○	○	○
4		○	○	○
5	4.0 - 6.0 Clay, silty, trace sand	○	○	○
6		○	○	○
7	6.0 - 16.0 Sand, silty, clayey, fine grained (loam)	○	○	○
8	light brown 10YR 6/6	○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16											MW-01
17	ATK-		S, SL				100%				RFAAP
18	SUB-										
19	SB17										
20											
21			S								
22											
23											
24											
25											
26			GR								
27											
28			S								
29											
30											
31											
32											
33											
34											
35			ROCK								
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	RFAAFMW-01			
16				
17	16.0 - 20.0 Sand, silty, uniform 10YR 6/6			
18	light brown			
19				
20	Corehole (SB-17) total depth 20.0 ft.			
21	Cuttings from air rotary from 20.0 - 50.0 ft.			
22	20.0 to 26.0 Becoming sandier.			
23				
24				
25				
26				
27	Driller notes cobbles 26.0" to 28.0" approx.			
28				
29	Sand below cobbles			
30				
31				
32				
33				
34	Driller notes water in overburden			
35	Bedrock 34 - 35.0" below ground approx.			
36	Since no water in hole: drilled to 50 ft.			
37	Hard, dark grey ? dolostone Cambrian			
38	Elbrook Formation shown on geologic map.			
39				
40				
41				
42				
43				
44				
45	Driller notes fracture at approx 45 ft bgs, water in hole			

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46			ROCK								RFAAP MW-01
47											
48											
49											
50											T.D. 50ft bgs
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-01	Moisture Content: Dry	Moist	Wet
46		○	○	○
47	Hard, dark grey ? dolostone to 50.0".	○	○	○
48		○	○	○
49		○	○	○
50	Total depth of borehole 50'0"	○	○	○
51		○	○	○
52		○	○	○
53		○	○	○
54		○	○	○
55		○	○	○
56		○	○	○
57		○	○	○
58		○	○	○
59		○	○	○
60		○	○	○
61		○	○	○
62		○	○	○
63		○	○	○
64		○	○	○
65		○	○	○
66		○	○	○
67		○	○	○
68		○	○	○
69		○	○	○
70		○	○	○
71		○	○	○
72		○	○	○
73		○	○	○
74		○	○	○
75		○	○	○

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
77												
78												
79												
80												
81												
82												
83												
84												
85												
86												
87												
88												
89												
90												
91												
92												
93												
94												
95												
96												
97												
98												
99												
100												
101												
102												
103												
104												
105												

Borehole Record for MW-02. (RFAAP)

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-02

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 05/01/07 - 05/01/07

Drilling Company BEDFORD WELL DRILLING Co.

Driller's Name MICHAEL R MONAGHAN

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis.

Rig Type (s) INGERSOLL RAND T3W TRUCK MOUNTED

Drilling Method (s) AIR ROTARY

Bit Size (s) 10 INCH / 6 INCH Auger Size (s) _____

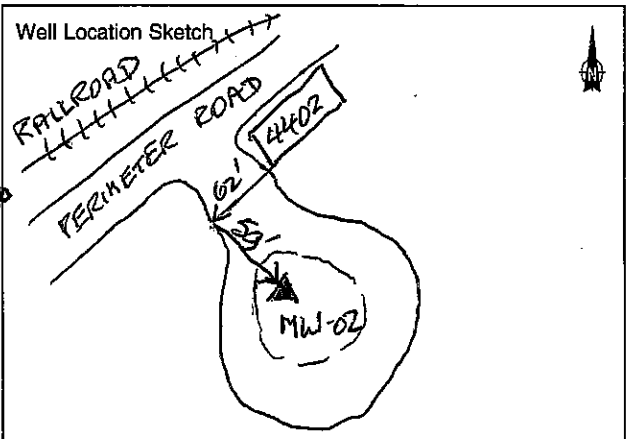
Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 50 feet

Total Depth of Corehole Is N/A. SB-04 = 20ft

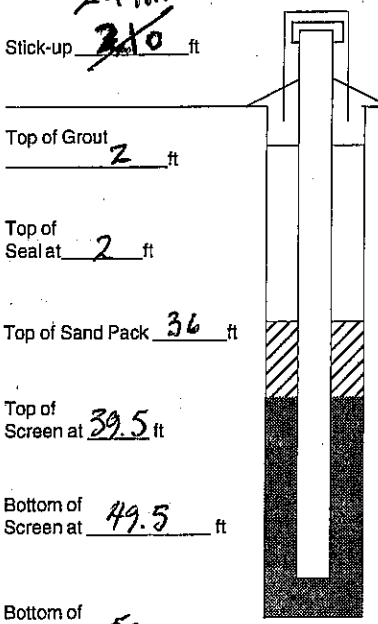
Water Level (TOIC)		
Date	Time	Level(Feet)
05/02/07	1125	34ft bTOIC approx
05/07/07	1140	36.6ft bTOIC

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
			GR			100%				GRAVEL FILL 6 inches
1	RTK-SS-SB-04		CL, SL							
2										
3										
4										
5						100%				
6										
7			SL, CL							
8			CL, SL							
9						100%				
10										
11										
12										
13						100%				
14										
15										

RFAAP MW-02



SCREENED WELL

Stick-up 2.1 HA 2.0 ft

Top of Grout 2 ft

Top of Seal at 2 ft

Top of Sand Pack 36 ft

Top of Screen at 39.5 ft

Bottom of Screen at 49.5 ft

Bottom of Hole at 50 ft

Bottom of Sandpack at 50ft

Lock Number _____

Inner Casing Material PVC

Inner Casing Inside Diameter 4 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets 400lbs

Cement ~150lbs at surface

Borehole Diameter 12" inches to 31ft 8 inch to 50ft

Cement/ Bentonite _____

Grout _____

Screen Slot Size 0.01"

Screen Type _____

☑ PVC _____

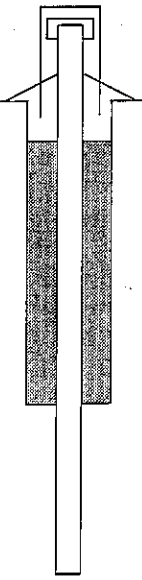
☐ Stainless Steel _____

Pack Type/Size:

☑ Sand _____

☐ Gravel _____

☐ Natural _____



OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0'-20' from SB-04 log			
1	0.6"-4' Clay 10YR 6/6 Light brown, silty	○	○	○
2		○	○	○
3		○	○	○
4	4-7' clay, silty, as above	○	○	○
5		○	○	○
6		○	○	○
7	7'-8' silt, 10YR 6/6 light brown clayey	○	○	○
8	8'-12 clay, silty, as above	○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13	12'-16' clay, silty, as above	○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16			CL, SL								RFAAP HW-02
17	ATK-SUB-SB04						100%				
18											
19											
20			S, SL								
21			S, SL								BEGINNING AIR ROTARY 10" Bit
22											
23											
24											
25											
26											
27			CL								
28			ROCK								Top of bedrock
29											
30											
31											
32											Drilled w. 6" bit
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-02	Moisture Content: Dry / Moist / Wet
16		○ ○ ○
17	16' - 19'4" Clay, silty, 10YR, 6/6 Light brown, as above	○ ○ ○
18		○ ○ ○
19		○ ○ ○
20	19'4" to 20' sand, very fine, silty 10 YR/6/6	○ ✓ ○
21	Note: bottom of Geoprobe borehole SB-04 at 20 ft bgs.	○ ○ ○
22	cutting becoming increasingly sandy with depth	○ ○ ○
23		○ ○ ○
24		○ ○ ○
25		○ ○ ○
26		○ ○ ○
27		○ ○ ○
28	Light gray clay immediately above bedrock.	○ ○ ○
29	Rock, hard, dark gray, ?dolostone? Cambrian Elbrook	○ ○ ○
30	Formation on geologic map.	○ ○ ○
31		○ ○ ○
32		○ ○ ○
33		○ ○ ○
34		○ ○ ○
35		○ ○ ○
36		○ ○ ○
37		○ ○ ○
38		○ ○ ○
39		○ ○ ○
40		○ ○ ○
41		○ ○ ○
42	Driller notes "soft spot", possibly a fracture at 42' bgs.	○ ○ ○
43		○ ○ ○
44		○ ○ ○
45		○ ○ ○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46			ROCK								RFAAF MW-02
47											
48											
49											
50											BOTTOM OF BOREHOLE 50ft
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-02	Moisture Content: Dry	Moist	Wet
46		○	○	○
47		○	○	○
48		○	○	○
49	Hard, dark grey ?dolostone to bottom of hole at 50ft bgs	○	○	○
50		○	○	○
51		○	○	○
52		○	○	○
53		○	○	○
54		○	○	○
55		○	○	○
56		○	○	○
57		○	○	○
58		○	○	○
59		○	○	○
60		○	○	○
61		○	○	○
62		○	○	○
63		○	○	○
64		○	○	○
65		○	○	○
66		○	○	○
67		○	○	○
68		○	○	○
69		○	○	○
70		○	○	○
71		○	○	○
72		○	○	○
73		○	○	○
74		○	○	○
75				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
77											
78											
79											
80											
81											
82											
83											
84											
85											
86											
87											
88											
89											
90											
91											
92											
93											
94											
95											
96											
97											
98											
99											
100											
101											
102											
103											
104											
105											

Borehole Record for MW-03(RFAAP)

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-03

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 05/02/07 - 05/02/07

Drilling Company BEDFORD WELL DRILLING Co.

Driller's Name MICHAEL F. MONAGHAN

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) INGERSOLL RAND T3W TRUCK MOUNTED

Drilling Method (s) AIR ROTARY

Bit Size (s) 6 inch Auger Size (s) ✓

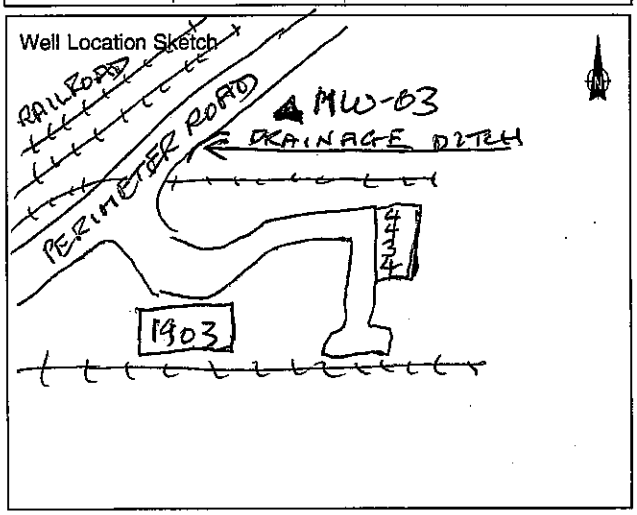
Auger/Split Spoon Refusal N/A.

Total Depth of Borehole Is 34 ft.

Total Depth of Corehole Is 20 ft (SB-20)

Water Level (TOIC)		
Date	Time	Level(Feet)
05/07/07	1400	26.46 btoc

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB-20		CL, SL			100%				
2			GR							
3			CL, SL							
4										
5						100%				
6										
7										
8										
9						100%				
10										
11										
12			SL, CL, S							
13			S, SL, CL			100%				
14										
15										

REAAP MW-03

SCREENED WELL

Stick-up 2.1 ft

Top of Grout _____ ft

Top of Seal at 3 ft

Top of Sand Pack 21 ft

Top of Screen at 24 ft

Bottom of Screen at 34 ft

Bottom of Hole at 33.4 HA ft

Bottom of Sandpack at 34 ft

Lock Number _____

Inner Casing Material PVC

Inner Casing Inside Diameter 4 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets 600 lbs

Cement N/A

Borehole 8 inches Diameter

Cement/ Bentonite 200 lbs

Grout _____

Screen Slot Size 0.01 "

Screen Type _____

☑ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☑ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	0-20 ft from SB-20 log			
1	4 inches brown topsoil. 0-2' silty clay with fragments of ?dolostone	○	○	○
2		○	○	○
3	2.0-2.8' gravel with cobble of ?dolostone.	○	○	○
4	2.8 - 4.0' clay, silty, brown 10YR 4/3	○	○	○
5	4.0 -8.0' clay, silty, as above	○	○	○
6	grading to clay, silty 10YR 6/6.	○	○	○
7		○	○	○
8	Clay, ~~of HA~~ as above, some isolated gravel fragments	○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12	11'-4"-12.0 Silt, clayey with fine sand.	○	✓	○
13	12-0 to 16.0 Sand, silty, clayey, micaceous	○	✓	○
14	becoming less clayey 10YR 6/6	○	✓	○
15		○	✓	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16											RFAAP MW-03
17	ATK-SUB-SB-20		S,SL,CL				90%				
18											
19											
20											Depth of core
21			S								
22											
23											
24											
25											
26			GR								
27											
28			ROCK								
29											
30											
31											
32											
33											
34											Total depth 34ft
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-03	Moisture Content Dry / Moist / Wet
16	sand, very fine, silty, micaceous	○ ✓ ○
17	sandy, silty, trace clay, friable 10YR 6/6	○ ✓ ○
18		○ ✓ ○
19		○ ✓ ○
20	Geoprobe borehole total depth 20 ft.	○ ✓ ○
21	Cuttings from air rotary 20 - 25.5 ft	○ ○ ○
22	increasingly sandy	○ ○ ○
23		○ ○ ○
24		○ ○ ○
25		○ ○ ○
26	25.5 - 28' driller reports cobbles/gravel	○ ○ ○
27		○ ○ ○
28		○ ○ ○
29	28.0' top of bedrock. Dark grey ? dolostone.	○ ○ ○
30	Cambrian, Elbrook Formation from geologic	○ ○ ○
31	map.	○ ○ ○
32		○ ○ ○
33		○ ○ ○
34	Bottom of hole 34'	○ ○ ○
35		○ ○ ○
36		○ ○ ○
37		○ ○ ○
38		○ ○ ○
39		○ ○ ○
40		○ ○ ○
41		○ ○ ○
42		○ ○ ○
43		○ ○ ○
44		○ ○ ○
45		○ ○ ○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46											
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
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69											
70											
71											
72											
73											
74											
75											

Borehole Record for MW-04 (RFAAP)

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-04

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 05/02/07 - 05/02/07

Drilling Company BEDFORDWELL DRILLING CO

Driller's Name MICHAEL F. MONAGHAN

Geologist's Name HUSSEIN ALDIS

Geologist's Signature Hussein Aldis

Rig Type (s) INGERSOLL RAND T3W TRUCKMOUNTED

Drilling Method (s) AIR ROTARY

Bit Size (s) 6 INCH Auger Size (s) —

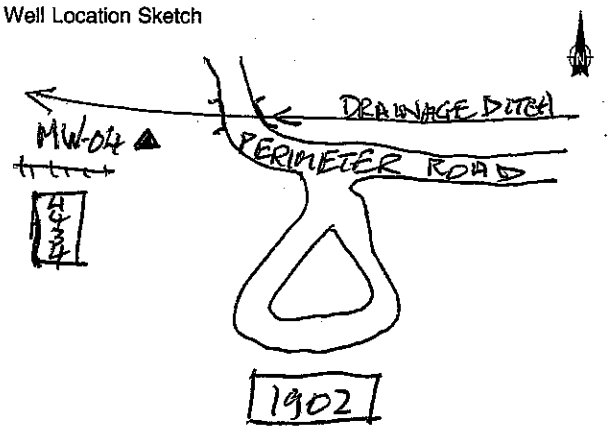
Auger/Split Spoon Refusal N/A.

Total Depth of Borehole is 33 feet

Total Depth of Corehole Is 20ft (SB-08)

Water Level (TOIC)		
Date	Time	Level(Feet)
05/08/07	0945	28.95 btoc

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB08		CL,SL			100%				
2										
3										
4										
5						100%				
6										
7										
8										
9						100%				
10										
11										
12										
13						100%				
14										
15										

RFAAP MW-04

SCREENED WELL

Stick-up 2.4 ft

Top of Grout _____ ft

Top of Seal at 3 ft

Top of Sand Pack 18.5 ft

Top of Screen at 20.5 ft

Bottom of Screen at 30.5 ft

Bottom of Hole at 33 ft

Bottom of Sandpack at 30.5

Lock Number _____

Inner Casing Material PVC

Inner Casing Inside Diameter 4 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets 12x50 lbs

Cement at surface ≈ 200 lbs

Borehole 6 inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size 0.01"

Screen Type _____

☑ PVC

☐ Stainless Steel

Pack Type/Size:

☑ Sand

☐ Gravel

☐ Natural

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	Lithology to 20 ft from SB-08			
1	2-inches of "topsoil" 0-4' silty clay, light brown, for in	○	○	○
2	10YR 6/6	○	○	○
3		○	○	○
4	4.0 - 4'8" Silty clay as above.	○	○	○
5	4'-8" - 8.0' Silty clay, mid to grey brn 10YR 4/3	○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9	8 - 9.5 Silty clay, light brown 10YR 6/6	○	○	○
10	9.5 - 12.0 silty clay, as above w/ carbonaceous flecks	○	○	○
11		○	○	○
12		○	○	○
13	12.0 - 16.0 Silty clay, light brown with mica and trace of fine sand.	○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16											RFAAP
17	ATK-SUB-SB08		CL, SL, S				100%				MW-04
18			~~CL, SL, S~~ HA S2, S, CL								
19		HA	SL, SL, CL								
20			S								Bottom of corehole
21											
22											
23											
24											
25											
26											
27											
28											
29											
30			ROCK								TOP OF BEDROCK
31											
32											
33											TD. 33ft
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION RFFAP MW-04	Moisture Content Dry	Moist	Wet
	Lithology from SB-08 to 20'			
15	15.0-16.0 Silty clay, as above	○	○	○
16	clay, silty, sandy, light brown 10YR 6/6 16.0-17.0	○	○	○
17	17.0-19.0 Silt, sandy, clayey, 10YR 6/6	○	○	○
18		○	○	○
19	Sand, silty light brown 10YR 6/2 19-20.0 ft.	○	✓	○
20	Bottom of core at 20.0.	○	✓	○
21	Cuttings from air rotary to T.D. at 33 ft bgs.	○	✓	○
22		○	✓	○
23	Increasingly sandy to bedrock at 30 ft. bgs.	○	✓	○
24		○	✓	○
25		○	✓	○
26		○	✓	○
27	Fine to medium sand 27-28' approx.	○	✓	○
28	Driller indicates water at around 28'-27'	○	○	✓
29	Bedrock at 30 ft bgs. Dark grey ? dolostone.	○	○	○
30	Cambrian Elbrook Formation according to	○	○	○
31	geologic map.	○	○	○
32	Drillhole advanced to 33 feet bgs. Hole collapsing.	○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46											
47											
48											
49											
50											
51											
52											
53											
54											
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72											
73											
74											
75											

Borehole Record for MW-05 (RFAAP)

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-05

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA.

Date Started/Finished 05/02/07 - 05/02/07

Drilling Company BEDFORD WELL DRILLING CO.

Driller's Name MICHAEL F. MONAGHAN

Geologist's Name Hussein Aldis

Geologist's Signature Hussein Aldis

Rig Type (s) INGERSOLL RAND T3W TRUCK MOUNTED

Drilling Method (s) AIR ROTARY

Bit Size (s) 6 inch Auger Size (s) N/A

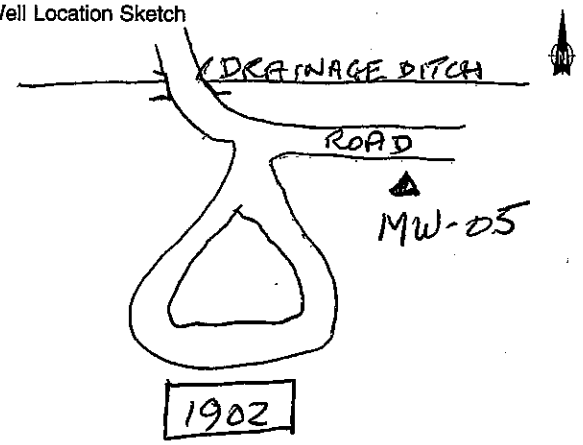
Auger/Split Spoon Refusal —

Total Depth of Borehole Is 25 feet

Total Depth of Corehole Is HA 15 ~~20ft~~ (SB-05)

Water Level (TOIC)		
Date	Time	Level(Feet)
05/08/07	0825	20.39 bTOC

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB05		CL, SL			100%				
2										
3										
4										
5			CL, GR, S, SL			100%				
6			CL, SL							
7			CL, GR, S, SL							
8										
9			CL, SL			100%				
10										
11										
12										
13	ATK-SS-SB05		CL, SL			100%				
14			CL, GR							
15			CL	ROCK						Bottom of CORE

RFAAP MW-05

SCREENED WELL

Stick-up 2.4 ft

Top of Grout _____ ft

Top of Seal at 3 ft

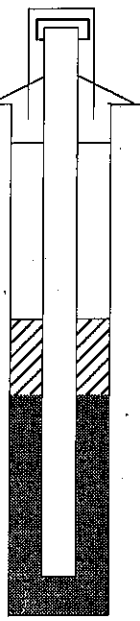
Top of Sand Pack 13 ft

Top of Screen at 13.6 ft

Bottom of Screen at 23.6 ft

Bottom of Hole at 25 ft

Bottom of Sandpack at 25



Lock Number _____

Inner Casing Material PVC

Inner Casing Inside Diameter 4 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets 9 x 50 lbs

Cement ~150 lbs at surface

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size 0.01"

Screen Type _____

☑ PVC _____

☐ Stainless Steel _____

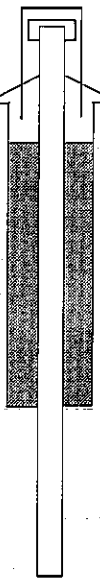
Pack Type/Size:

☑ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL



Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	0-8" silty clay "topsoil"	○	○	○
2	0.8" – 4.0 ft Clay, silty light brown 10YR 6/6	○	○	○
3	fragment of ? coal at 2.0 ft.	○	○	○
4		○	○	○
5	Clay, gravel, sand and silt 5.0 – 5'6"	○	○	○
6	5'-6" to 6'6" clay, silty, light-brown 10YR 6/6	○	○	○
7	6'-6" to 8.0" clay, gravel, sand and silt.	○	○	○
8	8'0" to 12-0" clay, silty, light brown, occasional	○	○	○
9	pebble. Cobble at 8'-4".	○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13	Clay, silty, as above 12.0" to 13'0"	○	○	○
14	13'0" to 13'8" clay and gravel	○	○	○
15	Clay silty to 14'10" 14'10"-15'0" Dark gray ? dolostone	○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16			ROCK								RFAAP MW-05 FRACTURE ZONE 16.0-20.0 ft.
17			CL, SL								
18											
19											
20			ROCK								
21											
22											
23											
24											
25											T.D. 25.0
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-05	Moisture Content Dry / Moist / Wet
16	15'0" to 16.0 Dark gray ?dolostone bedrock	
17	16.0" to 20.0 Fracture zone ? mud and water	
18		
19		
20		
21	20.0" to 25'0" Dark grey ?dolostone bedrock.	
22	Cambrian Elbrook Formation according to	
23	the geologic map.	
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46											
47											
48											
49											
50											
51											
52											
53											
54											
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56											
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68											
69											
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71											
72											
73											
74											
75											

Borehole Record for MW-06 (RFAAP)

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-06

Project Name RADFORD ARMY AMMUNITION PLANT

Site Location RADFORD, VA

Date Started/Finished 05/03/07 - 05/03/07

Drilling Company Bedford Well Drilling Co.

Driller's Name Stephen Ripley

Geologist's Name Hussein Aldis

Geologist's Signature Hussein Aldis.

Rig Type (s) Ingersoll Rand T3W Truck Mounted

Drilling Method (s) AIR ROTARY

Bit Size (s) 6 inch Auger Size (s) N/A.

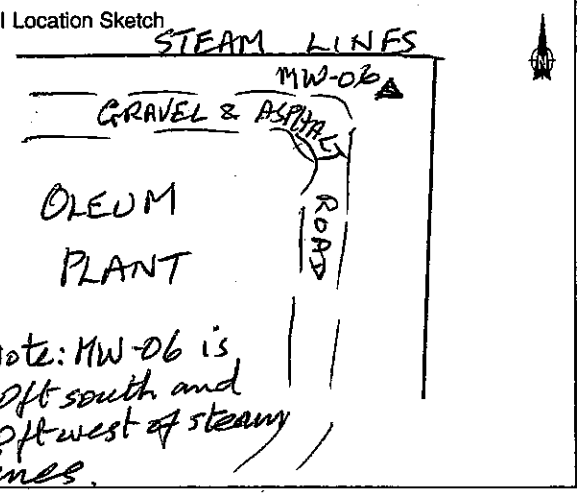
Auger/Split Spoon Refusal N/A.

Total Depth of Borehole Is 80ft bgs. HA

Total Depth of Corehole Is 20ft (SB-12)

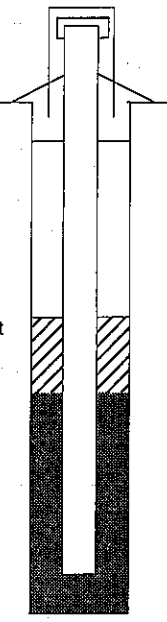
Water Level (TOIC)		
Date	Time	Level(Feet)
05/08/07	1400	410.14ft

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1	ATK-SS-SB-12		GR CL, SL			100%				Approx 4 inches gravel fill at surface
2										
3										
4										
5						100%				
6										
7										
8										
9						100%				
10										
11										
12			S, SL, CL							
13						100%				
14										
15										

RFAAP MW-06



SCREENED WELL

Stick-up 3.0 ft

Top of Grout _____ ft

Top of Seal at 3 ft

Top of Sand Pack 66 ft

Top of Screen at 72 ft

Bottom of Screen at 82 ft

Bottom of Hole at 82 ft

Bottom of Sandpack at 82 ft

Lock Number _____

Inner Casing Material PVC

Inner Casing Inside Diameter 4 inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets 17x50 lbs

Cement 2/50 lbs at surface

Borehole 6 inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size 0.01"

Screen Type _____

☑ PVC _____

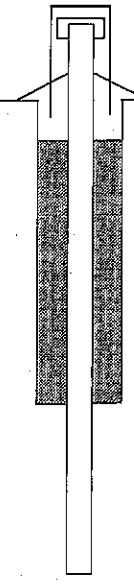
☐ Stainless Steel _____

Pack Type/Size:

☑ Sand _____

☐ Gravel _____

☐ Natural _____



OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	Lithology for 20ft is based on SB-12			
1	4 inches of gravel fill at surface	○	○	○
2	0.4" - 12 ft, Clay, silty, light brown 10YR 6/6	○	○	○
3		○	○	○
4		○	○	○
5		○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13	12.0 - 16.0 Sand, silty, clayey, uniform, light brown 10YR 6/6.	○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16							100%				RFAAP MW-06
17	RTK-SUB-SB12		SSL, CL				100%				
18											
19											
20											TD. for SB-12
21			S								
22											
23											
24											
25											
26											
27											
28			GR								
29											
30			ROCK								
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-06	Moisture Content Dry Moist Wet
16		○ ○ ○
17	Sand, silty, very fine, clayey, very uniform	○ ○ ○
18	10YR 6/6	○ ○ ○
19		○ ○ ○
20	Bottom of SB-12 at 20 ft. 2 HA	○ ○ ○
21	Drilling with air rotary to 80 feet. Cuttings only	○ ○ ○
22	Becoming sandier to approx. 28 ft bgs	○ ○ ○
23		○ ○ ○
24		○ ○ ○
25		○ ○ ○
26		○ ○ ○
27		○ ○ ○
28		○ ○ ○
29	Driller estimates gravel from 28.0 ft to 30.0 ft bgs	○ ○ ○
30		○ ○ ○
31	Bedrock at 30' Hard dark grey, ?dolostone	○ ○ ○
32	Cambrian Elbrook Formation from geologic map.	○ ○ ○
33	Drilled dry to 75'	○ ○ ○
34		○ ○ ○
35		○ ○ ○
36		○ ○ ○
37		○ ○ ○
38		○ ○ ○
39		○ ○ ○
40		○ ○ ○
41		○ ○ ○
42		○ ○ ○
43		○ ○ ○
44	.75 ft, HA	○ ○ ○
45	Note: Driller says soft spot at ~~75~~ ft bgs is fracture	○ ○ ○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46			ROCK								RFAAP MW-06
47											
48											
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-06	Moisture Content: Dry	Moist	Wet
46	Bedrock, hard dark grey ? dolostone	○	○	○
47	to 82 feet bgs. Very few fractures	○	○	○
48		○	○	○
49		○	○	○
50		○	○	○
51		○	○	○
52		○	○	○
53		○	○	○
54		○	○	○
55		○	○	○
56		○	○	○
57		○	○	○
58		○	○	○
59		○	○	○
60		○	○	○
61		○	○	○
62		○	○	○
63		○	○	○
64		○	○	○
65		○	○	○
66		○	○	○
67		○	○	○
68		○	○	○
69		○	○	○
70		○	○	○
71		○	○	○
72		○	○	○
73		○	○	○
74	Suspected fracture at 75ft bgs cuts dust.	○	○	○
75				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
77			ROCK								RFAAP MW-06
78											
79											
80											
81											
82											T.D. 82ft
83											
84											
85											
86											
87											
88											
89											
90											
91											
92											
93											
94											
95											
96											
97											
98											
99											
100											
101											
102											
103											
104											
105											

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION RFAAP MW-06	Moisture Content Dry	Moist	Wet
77		○	○	○
78	Hard, dark grey ? dolostone, very few	○	○	○
79	fractures.	○	○	○
80		○	○	○
81		○	○	○
82	Bottom of hole at 82 feet bgs	○	○	○
83		○	○	○
84		○	○	○
85		○	○	○
86		○	○	○
87		○	○	○
88		○	○	○
89		○	○	○
90		○	○	○
91		○	○	○
92		○	○	○
93		○	○	○
94		○	○	○
95		○	○	○
96		○	○	○
97		○	○	○
98		○	○	○
99		○	○	○
100		○	○	○
101		○	○	○
102		○	○	○
103		○	○	○
104		○	○	○
105		○	○	○

APPENDIX D.2.3

PREVIOUS INVESTIGATIONS – SSAs 30 AND 79

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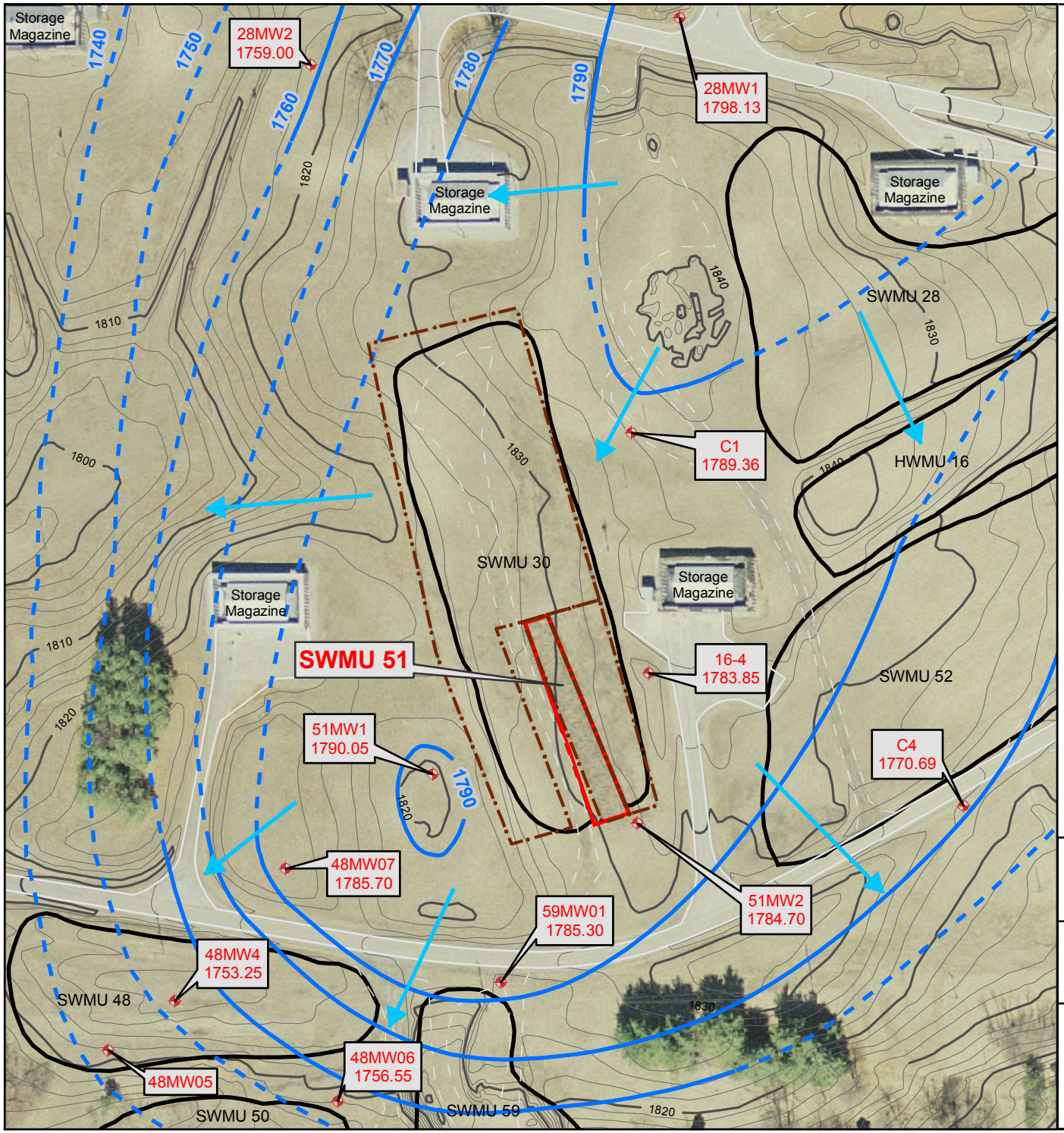

LEGEND

- Monitoring Well Location
- Dirt Road
- Paved Road
- 10 ft Contour Line
- Groundwater Contour
- Inferred Groundwater Contour
- Groundwater Flow Direction
- Fence Line
- SWMU 51 Boundary
- Other SWMU/HWMU Boundary

Notes:
1) Aerial photo, dated 2005, was obtained from Montgomery County, VA Planning & GIS Services.
2) Water levels for wells 48MW4, 48MW06, 48MW07, and 59MW01 were measured in Aug 2007. Water levels for the remainder of the wells were measured in April 2006.

N

Scale:

0 75 150 300 Feet

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 2-12
SWMU 51 Groundwater Contour Map

Radford Army Ammunition Plant,
Radford, VA

GIS File: RFAAP_008_Fig2-12_SWMU51_GW_Contours.mxd (5/16/2008 11:11:22 AM)

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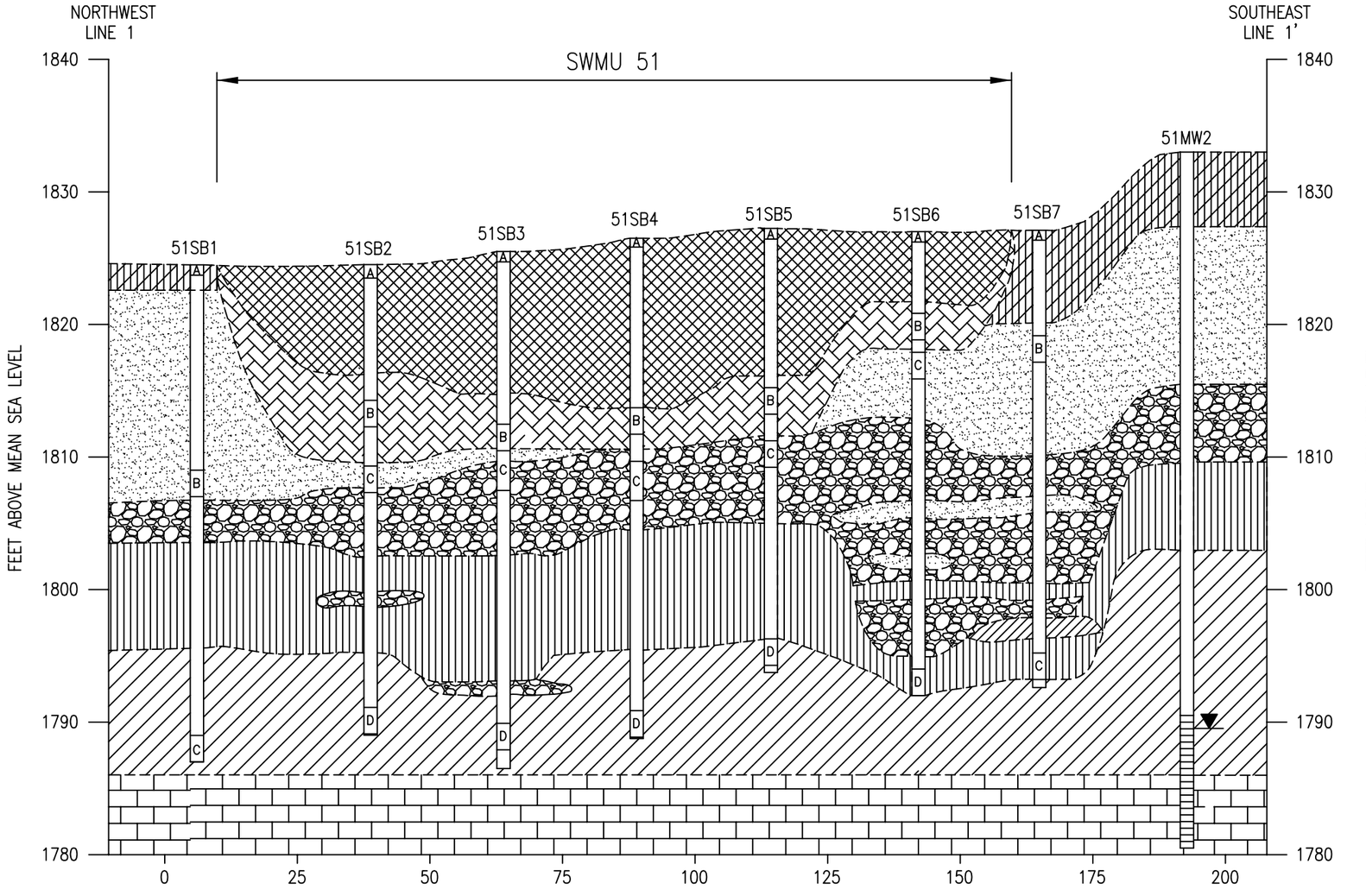


LEGEND

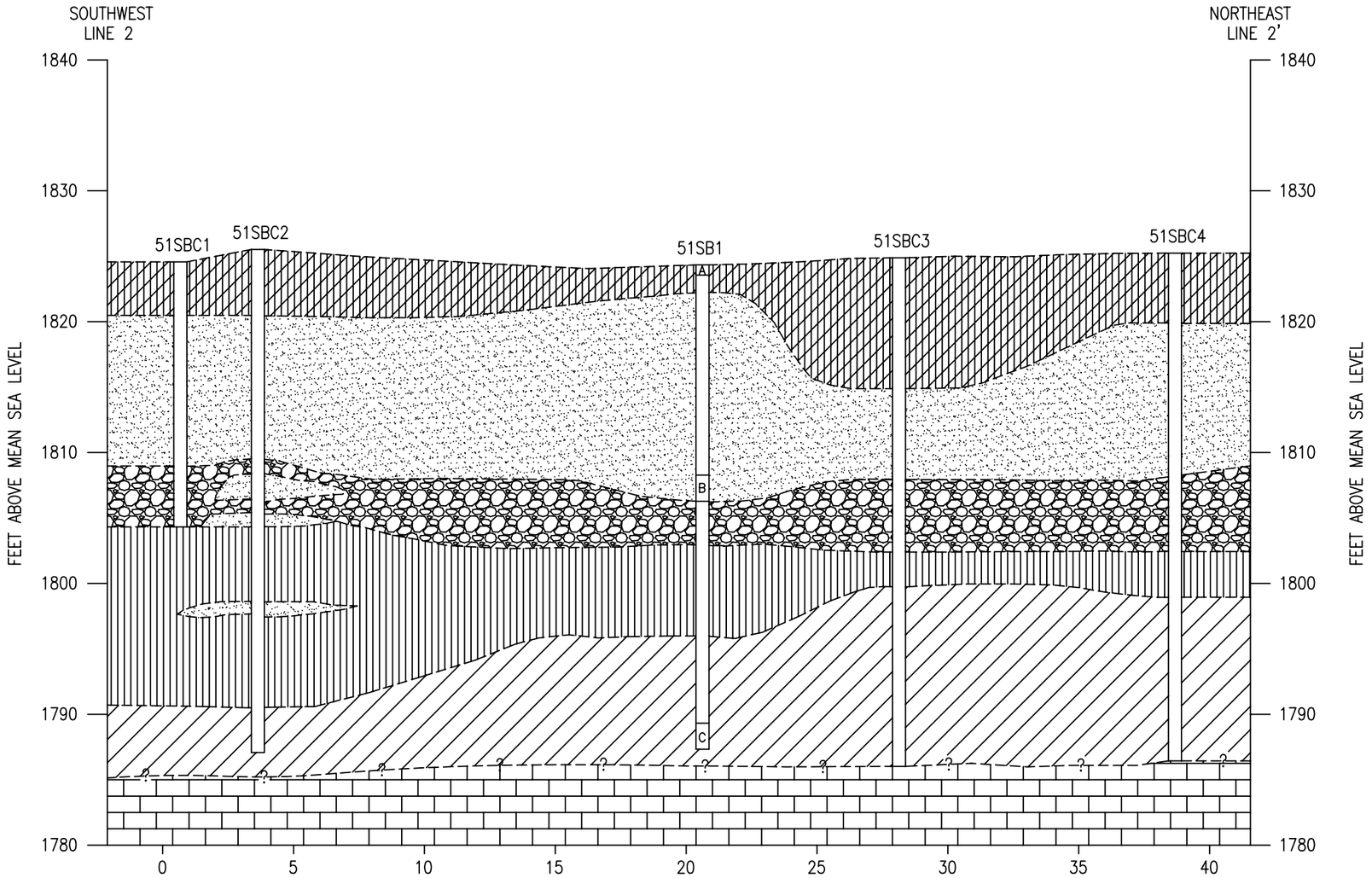
- FILL
- SILT/CLAY (ML/CL)
- CLAY (CL)
- SILT (ML)
- SAND – SANDY CLAY, POORLY GRADED AND WELL GRADED SAND
- GRAVEL – GRAVEL AND GRAVELLY SAND (RIVER JACK)
- SAPROLITE – IN–SITU WEATHERED BEDROCK (CL/ML)
- TRENCH SLUDGE MATERIAL
- BEDROCK – SHALE, LIMESTONE, AND DOLOMITE
- B — SAMPLE INTERVAL
- WATER LEVEL (MEASURED APRIL 2006)
- GEOLOGIC CONTACT
- GEOLOGIC CONTACT (INFERRED)
- SCREEN INTERVAL

NOTE: 51MW2 LITHOLOGY FROM DAMES AND MOORE (1992).

0 25 50 FEET
HORIZONTAL SCALE

0 10 20 FEET
VERTICAL SCALE

RADFORD AAP		FIGURE 2–4
PREPARED BY: SHAW	TASK NO: 83919705000000	SWMU 51 GEOLOGIC CROSS SECTION (LINE 1– LINE 1')
CHECKED BY: MT	SHAW DWG NO: Figure 2–4	
DATE: APRIL 2008		



LEGEND

- SILT/CLAY (ML/CL)
- SILT (ML)
- SAND – SANDY CLAY, POORLY GRADED AND WELL GRADED SAND
- GRAVEL – GRAVEL AND GRAVELLY SAND (RIVER JACK)
- SAPROLITE – IN–SITU WEATHERED BEDROCK (CL/ML)
- BEDROCK – SHALE, LIMESTONE, AND DOLOMITE
- GEOLOGIC CONTACT
- GEOLOGIC CONTACT (INFERRED)
- B — SAMPLE INTERVAL

0 5 10 FEET
HORIZONTAL SCALE

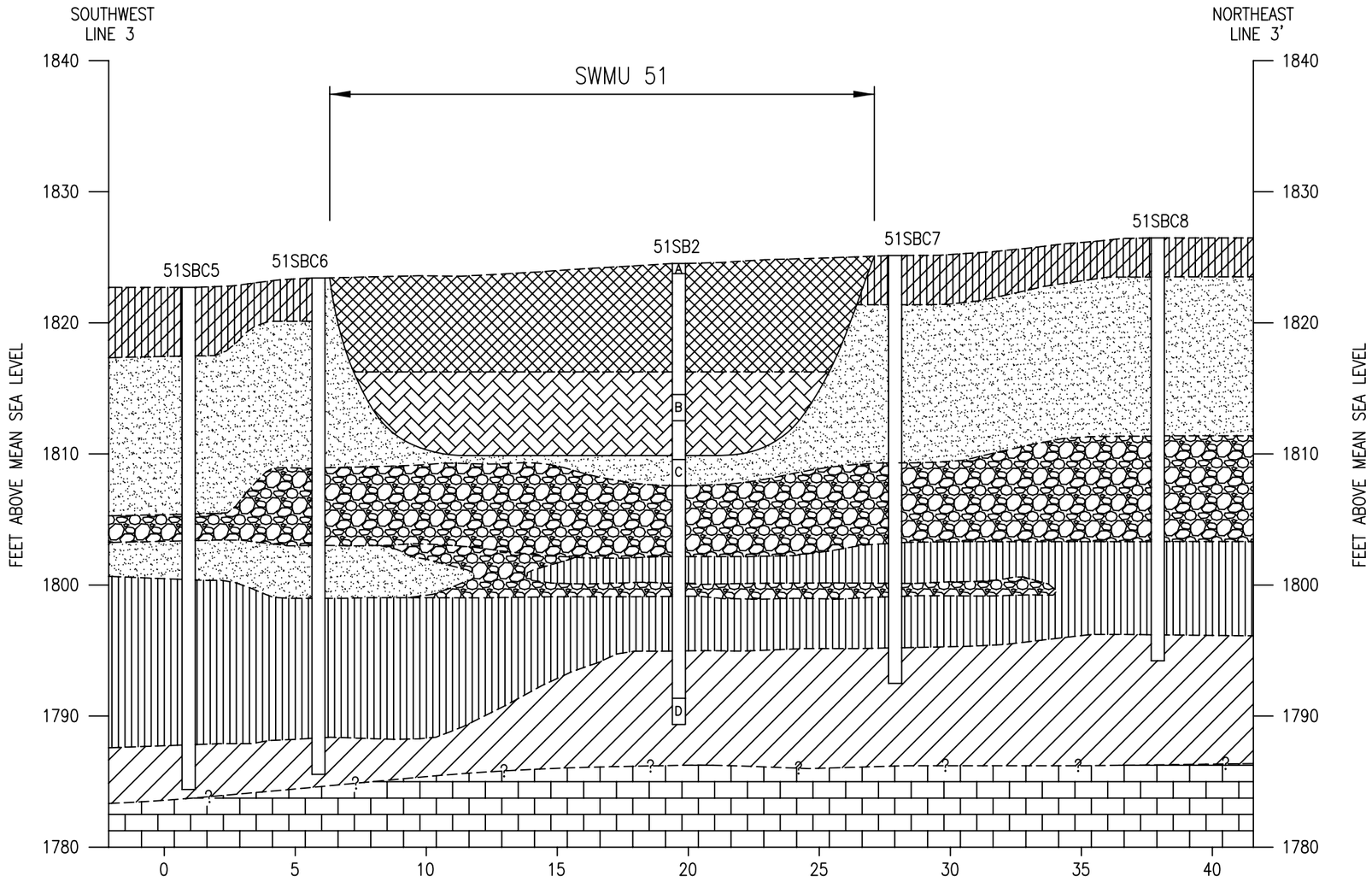
0 10 20 FEET
VERTICAL SCALE

RADFORD AAP

FIGURE 2–5

PREPARED BY: SHAW	TASK NO: 83919705000000
CHECKED BY: MT	SHAW DWG NO: Figure 2–5
DATE: APRIL 2008	

SWMU 51 GEOLOGIC CROSS SECTION (LINE 2 – LINE 2')



LEGEND

- FILL
- SILT/CLAY (ML/CL)
- SILT (ML)
- SAND – SANDY CLAY, POORLY GRADED AND WELL GRADED SAND
- GRAVEL – GRAVEL AND GRAVELLY SAND (RIVER JACK)
- SAPROLITE – IN-SITU WEATHERED BEDROCK (CL/ML)
- TRENCH SLUDGE MATERIAL
- BEDROCK – SHALE, LIMESTONE, AND DOLOMITE
- GEOLOGIC CONTACT
- GEOLOGIC CONTACT (INFERRED)
- [B] SAMPLE INTERVAL

0 5 10 FEET
HORIZONTAL SCALE

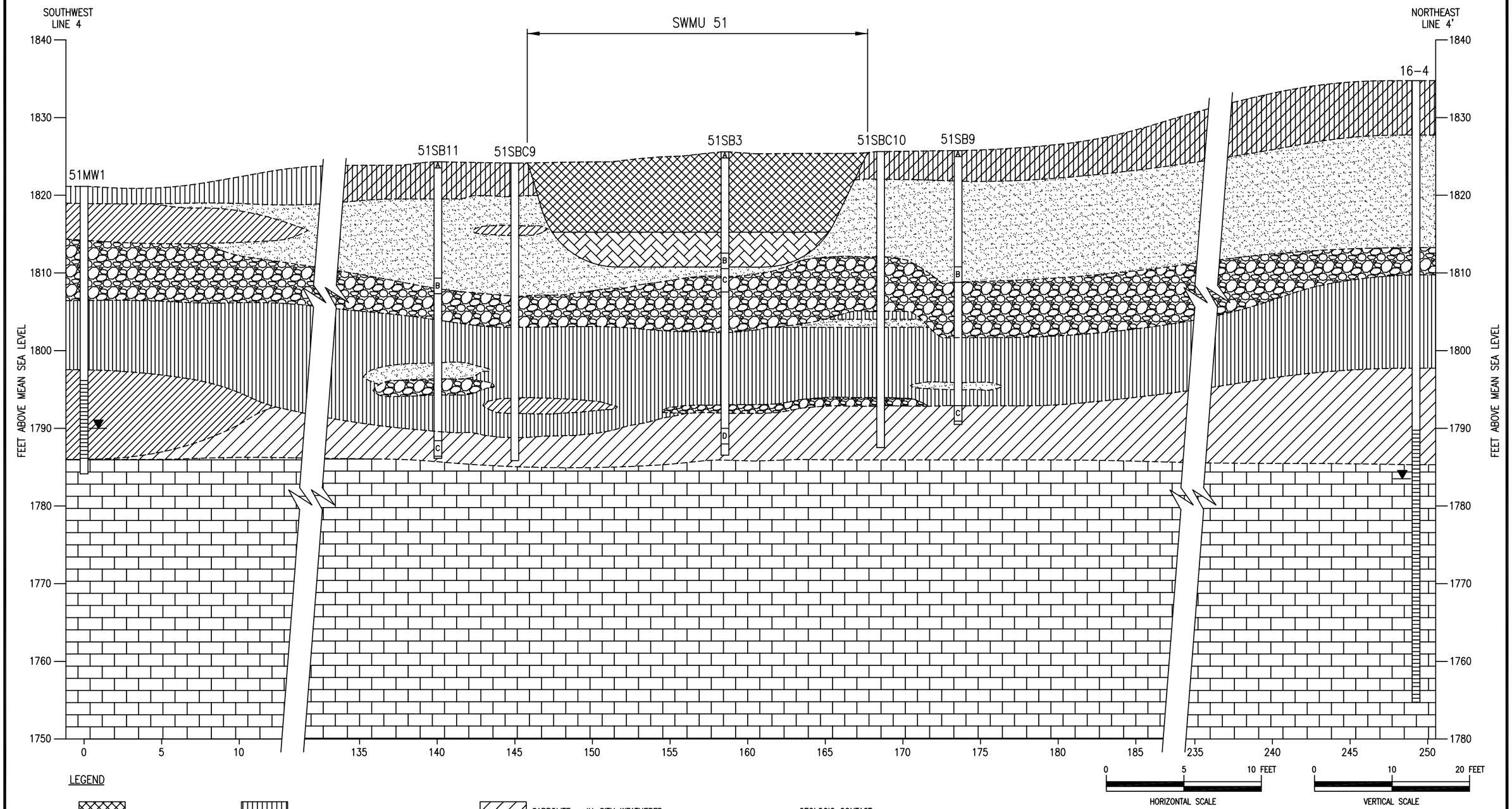
0 10 20 FEET
VERTICAL SCALE

RADFORD AAP

FIGURE 2-6

PREPARED BY: SHAW	TASK NO: 83919705000000
CHECKED BY: MT	SHAW DWG NO: Figure 2-6
DATE: APRIL 2008	

SWMU 51 GEOLOGIC CROSS SECTION (LINE 3 – LINE 3')

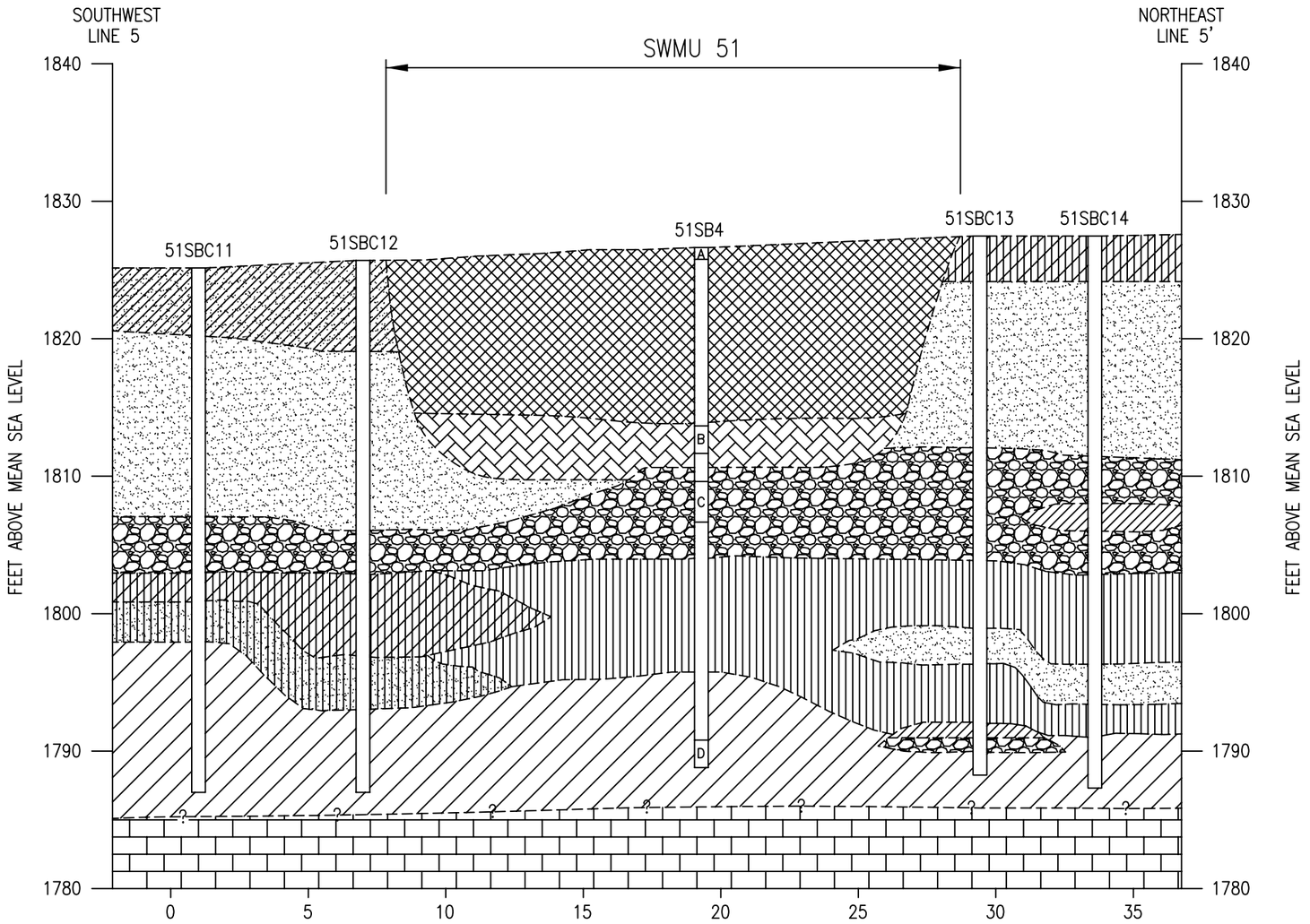


RADFORD AAP

FIGURE 2-7

PREPARED BY: SHAW	TASK NO: 83919705000000
CHECKED BY: MT	SHAW DWG NO: Figure 2-7
DATE: APRIL 2008	

SWMU 51 GEOLOGIC CROSS SECTION (LINE 4 - LINE 4')



LEGEND

- FILL
- SILT/CLAY (ML/CL)
- CLAY (CL)
- SILT (ML)
- SAND – SANDY CLAY, POORLY GRADED AND WELL GRADED SAND
- GRAVEL – GRAVEL AND GRAVELLY SAND (RIVER JACK)
- SAPROLITE – IN-SITU WEATHERED BEDROCK (CL/ML)
- TRENCH SLUDGE MATERIAL
- SILT AND SANDY CLAY (ML/SC)
- BEDROCK – SHALE, LIMESTONE, AND DOLOMITE
- CLAY AND SANDY CLAY (CL/SC)
- GEOLOGIC CONTACT
- GEOLOGIC CONTACT (INFERRED)
- B — SAMPLE INTERVAL

0 5 10 FEET
HORIZONTAL SCALE

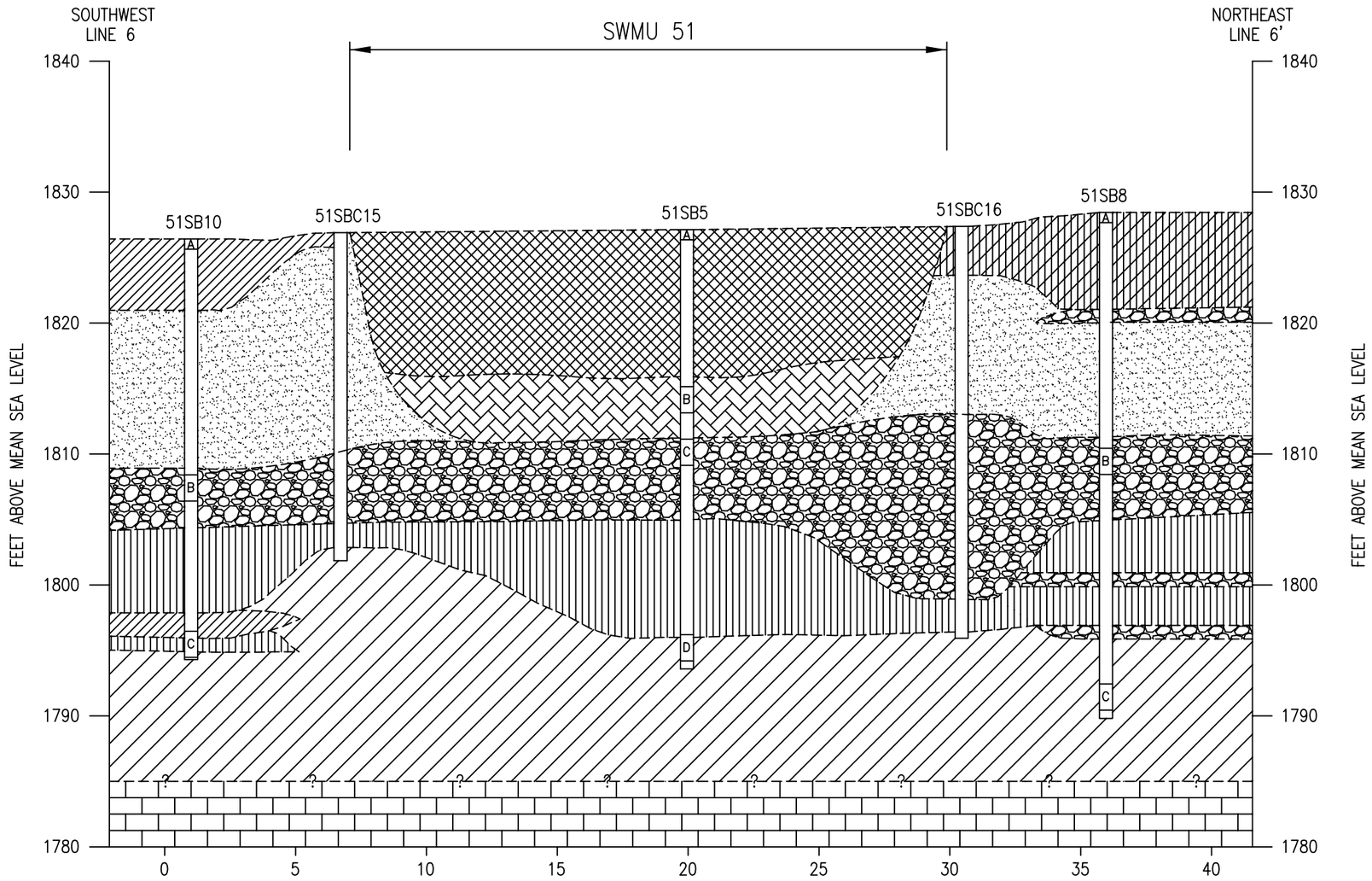
0 10 20 FEET
VERTICAL SCALE

RADFORD AAP

FIGURE 2-8

PREPARED BY: SHAW	TASK NO: 83919705000000
CHECKED BY: MT	SHAW DWG NO: Figure 2-8
DATE: APRIL 2008	

SWMU 51 GEOLOGIC CROSS SECTION (LINE 5 – LINE 5')



LEGEND

- FILL
- SILT/CLAY (ML/CL)
- CLAY (CL)
- SILT (ML)
- SAND – SANDY CLAY, POORLY GRADED AND WELL GRADED SAND
- GRAVEL – GRAVEL AND GRAVELLY SAND (RIVER JACK)
- SAPROLITE – IN–SITU WEATHERED BEDROCK (CL/ML)
- TRENCH SLUDGE MATERIAL
- BEDROCK – SHALE, LIMESTONE, AND DOLOMITE
- GEOLOGIC CONTACT
- GEOLOGIC CONTACT (INFERRED)
- B — SAMPLE INTERVAL

0 5 10 FEET
HORIZONTAL SCALE

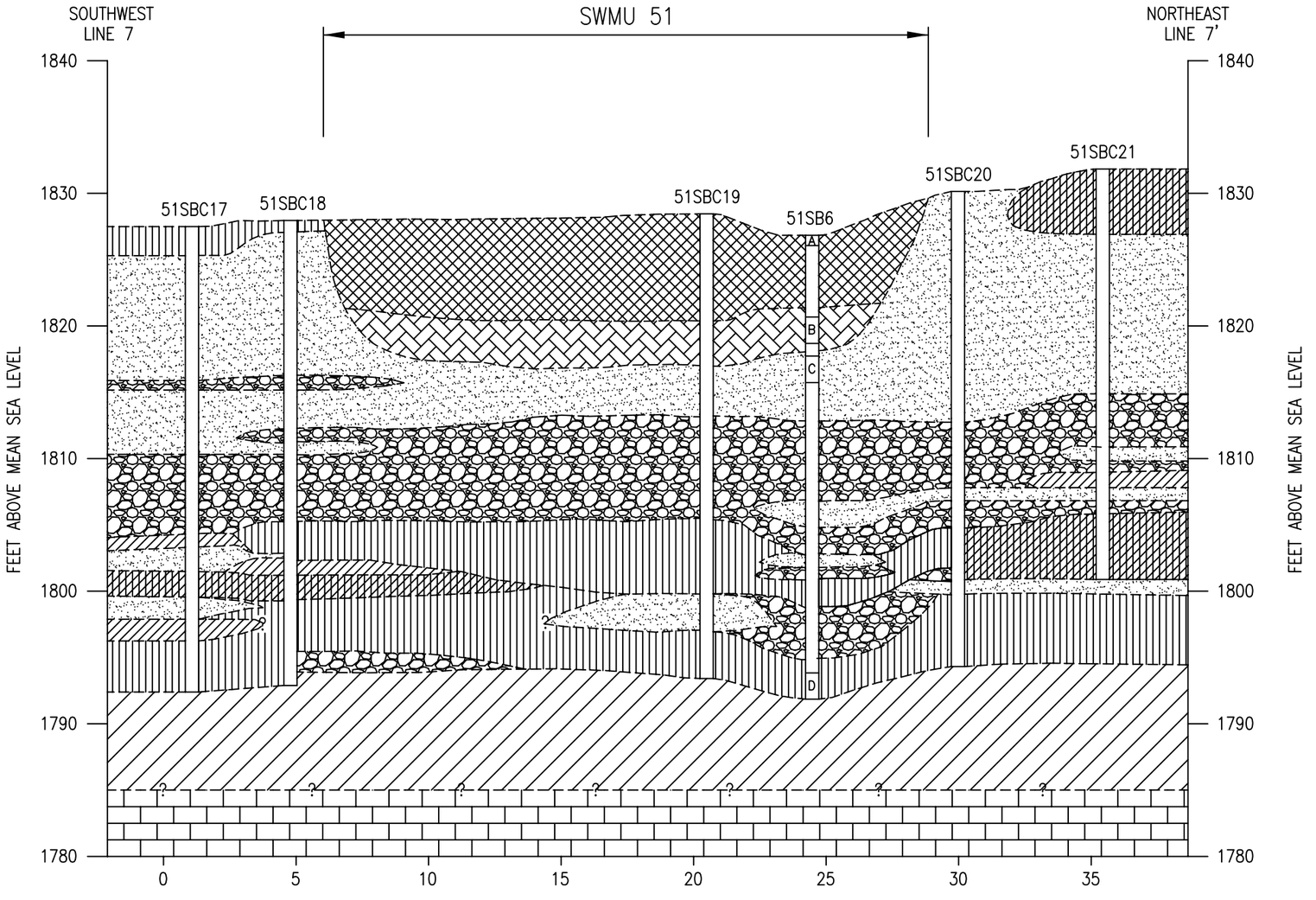
0 10 20 FEET
VERTICAL SCALE

RADFORD AAP

FIGURE 2–9

PREPARED BY: SHAW	TASK NO: 83919705000000
CHECKED BY: MT	SHAW DWG NO: Figure 2–9
DATE: APRIL 2008	

SWMU 51 GEOLOGIC CROSS SECTION (LINE 6 – LINE 6')



LEGEND

- FILL
- SILT/CLAY (ML/CL)
- CLAY (CL)
- SILT (ML)
- SAND – SANDY CLAY, POORLY GRADED AND WELL GRADED SAND
- GRAVEL – GRAVEL AND GRAVELLY SAND (RIVER JACK)
- SAPROLITE – IN–SITU WEATHERED BEDROCK (CL/ML)
- TRENCH SLUDGE MATERIAL
- BEDROCK – SHALE, LIMESTONE, AND DOLOMITE
- GEOLOGIC CONTACT
- GEOLOGIC CONTACT (INFERRED)
- [B] SAMPLE INTERVAL

0 5 10 FEET
HORIZONTAL SCALE

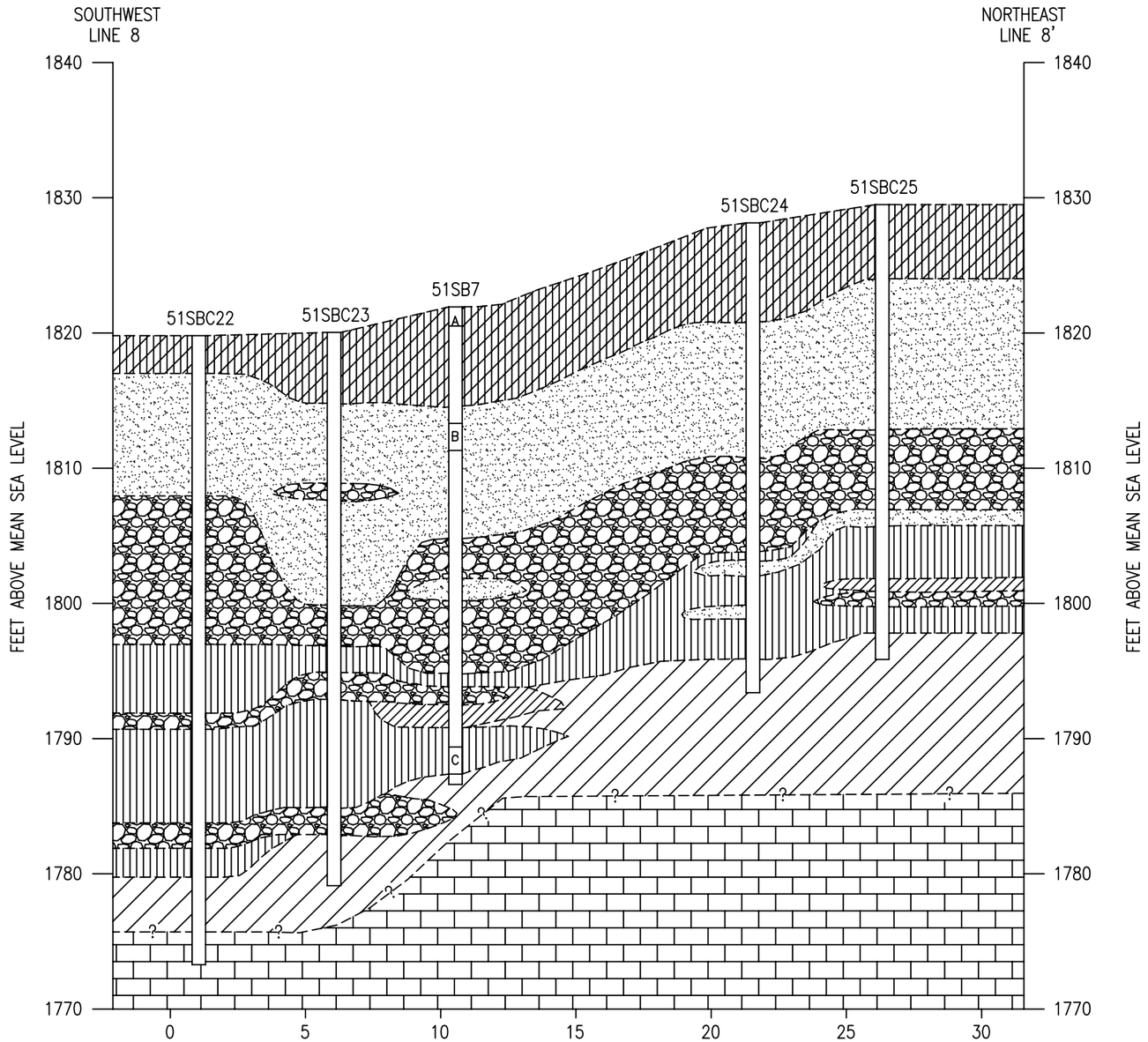
0 10 20 FEET
VERTICAL SCALE

RADFORD AAP

FIGURE 2–10

PREPARED BY: SHAW	TASK NO: 83919705000000
CHECKED BY: MT	SHAW DWG NO: Figure 2–10
DATE: APRIL 2008	

SWMU 51 GEOLOGIC CROSS SECTION (LINE 7 – LINE 7')



LEGEND

- FILL
- SILT/CLAY (ML/CL)
- CLAY (CL)
- SILT (ML)
- SAND – SANDY CLAY, POORLY GRADED AND WELL GRADED SAND
- GRAVEL – GRAVEL AND GRAVELLY SAND (RIVER JACK)
- SAPROLITE – IN–SITU WEATHERED BEDROCK (CL/ML)
- BEDROCK – SHALE, LIMESTONE, AND DOLOMITE
- GEOLOGIC CONTACT
- GEOLOGIC CONTACT (INFERRED)
- B — SAMPLE INTERVAL

0 5 10 FEET
HORIZONTAL SCALE

0 10 20 FEET
VERTICAL SCALE

RADFORD AAP

FIGURE 2–11

PREPARED BY: SHAW	TASK NO: 83919705000000
CHECKED BY: MT	SHAW DWG NO: Figure 2–11
DATE: APRIL 2008	

SWMU 51 GEOLOGIC CROSS SECTION (LINE 8 – LINE 8')

B.1 INTRODUCTION

SWMU 51 is located in the southeast section of the Horseshoe Area and adjacent to SWMU 30. Background information indicates that the site consists of a 20x200-ft trench that has been filled to grade, and is weed and grass covered. An unknown quantity of TNT neutralization sludge from the treatment of red water was disposed in this unlined trench in the 1970s, and an estimated 10 tons of red water ash was reportedly disposed in the trench from 1968 to 1972 (Dames & Moore, 1992). The trench is reported to be centrally located between two-adjacent trenches that are part of SWMU 30.

Surface geophysical surveys using two-dimensional resistivity profiling, seismic refraction tomography, and EM-31/34 terrain-conductivity mapping were performed at SWMU 51 during the time period of August through September 2002. Additional downhole seismic velocity measurements were collected in four monitoring wells adjacent SWMU 51 to help guide the seismic interpretations, and downhole electrical logging was collected by USACE New England District personnel to help constrain the resistivity models.

B.2 OBJECTIVE

The primary objective of the SWMU 51 surveys was to provide both the lateral and vertical extent of the former trench used for the TNT neutralization sludge disposal. Information obtained by the geophysical surveys will be used to develop the CSM and focus the proposed sampling activities to assess the nature and extent of TNT neutralized sludge disposed at SWMU 51.

B.3 TECHNICAL APPROACH

Site conditions are critical in assessing what geophysical techniques are appropriate for an investigation. SWMU 51 is underlain by carbonate rock (limestone and dolomite) that in places is structurally complex (folded and faulted) and contains clastic interbeds and tectonic breccias. Overburden sediments range from 0 to 60+ feet in thickness, and in landfill areas, the overburden may contain a considerable thickness (>10-ft) of red water ash, as well as other debris associated with dump activities.

Two-dimensional electrical resistivity imaging (2D-ERI), seismic refraction profiling/tomography, electromagnetic (EM) terrain-conductivity mapping are applicable techniques that can map changes in the electrical (2D-ERI and EM) and acoustic (seismic) characteristics of the underlying soil and rock. **Appendix B-2** describes in more detail the theory and operation of these methods.

In general, the underlying rock should have a higher seismic-velocity than the overburden sediment, and should be readily distinguishable on the resulting tomographic sections. A decrease in seismic velocity will occur where the rock is fractured (weak zones), less competent, or dominated by void and cavity development.

The electrical response of the rock is more complex and depends on the type of strata present and the electrical properties of the pore fluid. Higher electrical-resistivity should occur if carbonate rock is present, though the presence of an electrically conductive pore-fluid, or a significant clay fraction, could alternately yield lower-resistivities than expected. Air-filled fractures and voids would likely increase the electrical resistivity.

The trench work within the overburden sediment is expected to produce a zone of slightly lower seismic-velocity and lower electrical resistivity. In addition, the presence of waste material and degradation products may also lower the electrical response in the vicinity of the trench. Metallic debris deposited within the trench will also have a significant electromagnetic response during the EM surveys.

B.4 GEOPHYSICAL SURVEYS

Geophysical surveys for SWMU 51 consisted of 3 seismic-refraction profiles, 4 two-dimensional resistivity (2D-ERI) profiles, and one EM grid **(Figure B-1)**. Also shown on Figure 1 are the locations of the main boundary fence for SWMU 30, the interior fence outlining the TNT sludge disposal trench, and the areal coverage provided by the EM grid (~33 ft major survey lines are shown). Two of the profiles (L-2 and L-3) were collected parallel to the long axis of the trench, and the other two profiles (L-1 and L-4) were collected perpendicular to the long axis.

B.4.1 Geophysical Profiling (Seismic and Resistivity)

Both seismic and two-dimensional resistivity data (2D-ERI) were collected along profiles L-1, L-2, and L-4, and only a resistivity survey was conducted along Profile L-3. Each profile was extended beyond the fence boundaries in order to verify whether or not the fenced area truly marks the limits of the TNT sludge disposal trench. Profile L-4 was also extended further to the west and outside the limits SWMU 30 fence to allow contrasting presumed natural conditions with the geophysical response within SWMUs 30 and 51.

Resistivity data were collected using both Schlumberger and dipole-dipole array surveys (see **Appendix B-3** for further explanation). Use of both array types allows discerning whether observed anomalies are modeling or data collection artifacts, and more credence is given to the results where models constructed from both array types show similar features.

The seismic data were processed using both refractor-layer (earth-layer) and tomographic models. Earth-layer models provide discreet boundaries between horizontal zones (layers) of different seismic velocity, and are limited to a single velocity per model layer. Tomographic models do not have this restriction, and attempt to show both horizontal and vertical changes in velocity. The tomographic cross-section was developed using several different velocity models including the earth-layer solution. Modeling generally resolved into similar solutions, of which one is shown for each profile.

The resistivity and seismic results are presented as color-contoured cross-sectional models with magenta-to-blue colors representing lower values, and red-to-white colors higher values. The same color-contour scheme is used throughout for all four profiles to allow a direct comparison of anomaly magnitudes. For each profile, three model panels are shown, with the upper two panels representing the dipole-dipole and Schlumberger array results, and the bottom panel the seismic refraction results. The seismic model for Profile L-2 is used as comparison with the resistivity data collected on Profile L-3. Also shown on each panel, are the intersecting points of cross-lines, the refractor-layer seismic model (orange trace lines), and the relative position of the SWMU 51 fence (magenta rectangle near ground surface labeled as the “SWMU 51 fenced area”).

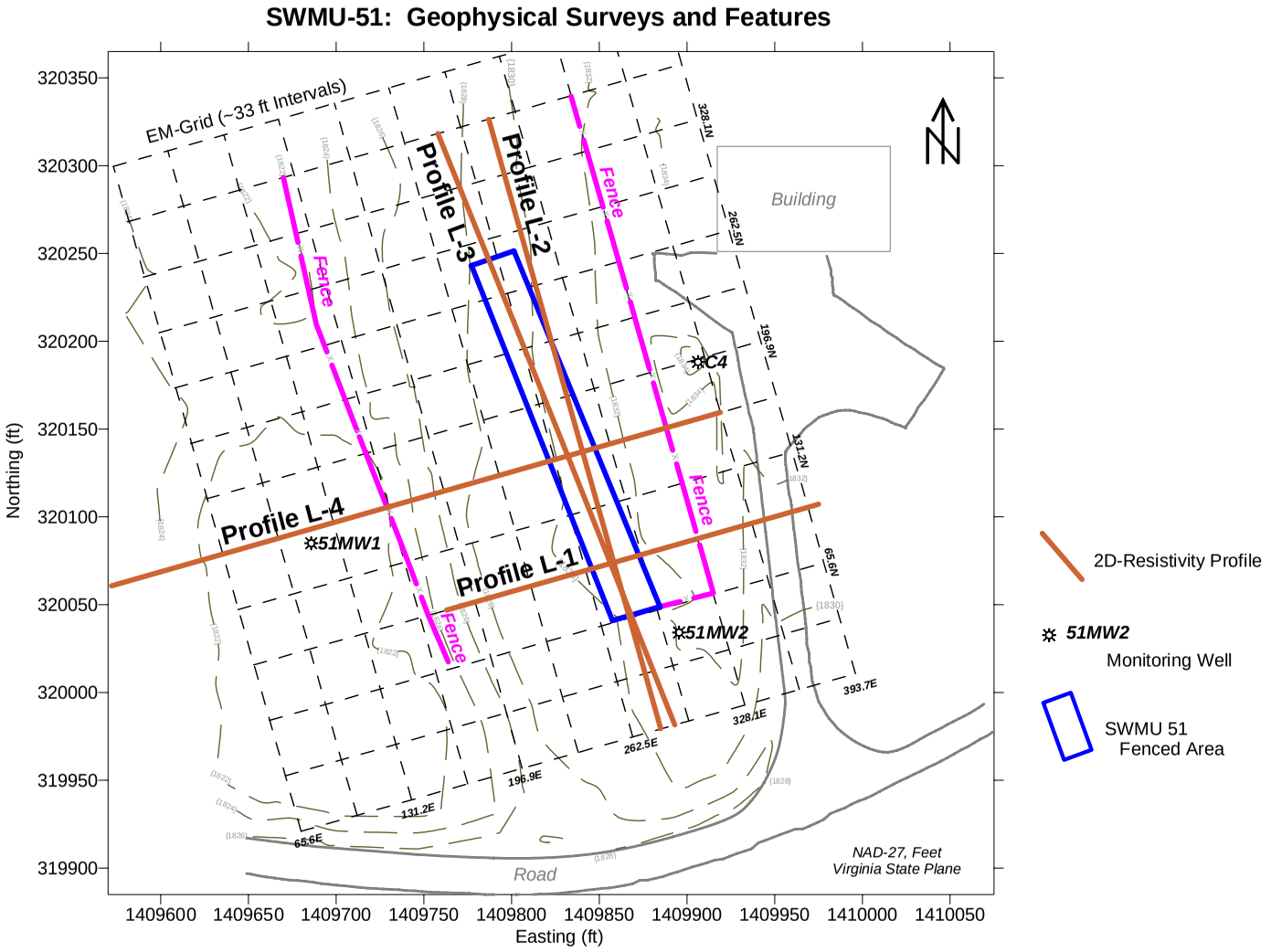


Figure B-1. Base Map for SWMU 51.

Profile L-1

Profile L-1 was acquired along a WSW-ENE transect near the southern end of the SWMU 51 area, along a line perpendicular to the long axis of the TNT trench (**Figure B-1**). Both 2D-ERI and seismic surveys were collect on this profile. The resistivity survey used an electrode spacing of 6.56 ft (2 m) and a total of 28 electrodes, and the seismic profile used a single array of 48 geophones spaced at a 3.28ft (1 m) interval. The resulting geophysical models are shown in **Figure B-2**.

A distinct zone of low-resistivity (<80 ohm-m) is present on the 2D-ERI models (upper 2 panels) of **Figure B-2**. The lateral extent of this low-resistivity zone coincides roughly with the area bounded by the SWMU 51 fence (264X to 292X on the profile). Low-resistivities within this zone are tentatively interpreted as waste and/or waste byproduct resulting from activities at SWMU 51. Depth to top of this low-resistivity zone ranges from 5 to 7 ft below ground surface (bgs), with the shallower depth-to-top near the western and eastern edges of this feature. The base of the low-resistivity occurs at approximately 16 ft bgs, giving 9-11 ft in total thickness.

Material of higher resistivity caps the low-resistivity zone, and is interpreted to correlate with the blocky (cobbles) rubble observed on the ground surface during data collection. Note also that a zone of low-to-moderate resistivity (100-300 ohm-m) occurs in the upper 10 ft of the subsurface in the approximate position of one of the SWMU 30 trenches (profile coordinates 212-250X).

The short length of the resistivity profile was not able to resolve the overburden-bedrock interface. The bedrock surface is approximately 1,780 ft in elevation near well 51MW2, and ~1,782 ft beneath well 51MW1.

A three-layer solution was used to construct the earth-layer model for Profile L-1 using seismic velocities of 400, 700, and 2,000 m/s. The tomographic solution yielded a slightly different set of average velocities (550, 970, 1,550 m/s) for the same range of depths on the earth layer model.

The uppermost refractor surface indicates a broader area of lower velocity material than that indicated by the SWMU 51 fenced area (and corresponding resistivity anomaly). This surface deepens to approximately 15 ft bgs immediately west of the SWMU 51 fence. The tomography model also depicts a zone of low seismic velocity (stippled pattern of velocity less than 450 m/s). The low-velocity zone, however, is much broader than the resistivity anomaly (and location marked by the fence), and extends in depth to approximately the top of the low-resistivity anomaly (base of cap material). The most likely interpretation is that this low-velocity zone is a result of backfilling and capping, and not representative of the waste material within the trench.

The lowermost refractor surface likely corresponds to an interface above the bedrock surface. Note that well 51MW2 (50 ft to the south) places the bedrock approximately 8-to-10 ft deeper than this refractor. The highest velocities observed on tomographic model for Profile L-1 are significantly lower (1,800 m/s versus 2,400-2,700 m/s) than seismic velocities observed for the bedrock on the other three profiles.

Profile L-2

Profile L-2 was collected along a transect sub-parallel to the long axis of the SWMU 51 fenced area, along the 278E axis line of the EM grid **(Figure B-1)**. Both 2D-ERI and seismic

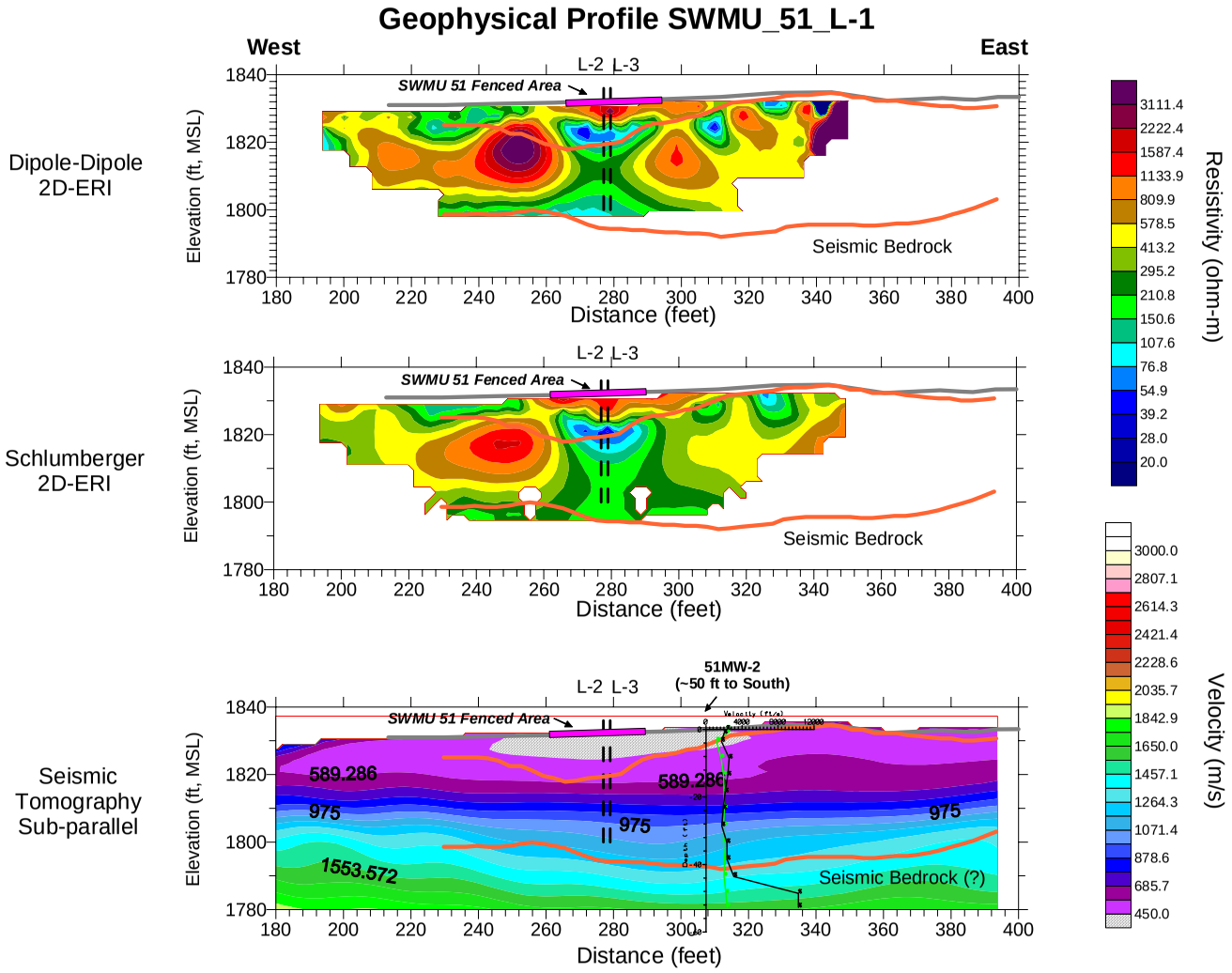


Figure B-2. Geophysical Results for Profile L-1

data were collected. The resistivity survey used an electrode spacing of 13.12 ft (4 m) and a total of 28 electrodes. The seismic profile used two adjacent spreads of 48 geophones spaced at a 3.28 ft (1 m) interval. The resulting geophysical models are shown in **Figure B-3**.

Both resistivity models (upper two panels, **Figure B-3**) show a zone of low-resistivity (<80 ohm-m) extending from 100X to 205X. The electrical response of this zone is interpreted to be caused by the waste and/or waste byproduct based on its position relative to the SWMU 51 fence area (note that Profile L-2 exits the fence enclosure approximately three-quarters the length of the N-S fence length) and similarity to responses observed on the other three profiles. The top of this feature ranges from 6-9 ft bgs and the base from 16 to 21 ft bgs, with a general deepening towards the north. The Schlumberger model (middle panel) does not provide a sharp boundary for the base of this anomaly, but instead models a zone of intermediate resistivity (100-300 ohm-m) immediately beneath the suspected location of the trench.

A three-layer model was used to construct the earth-layer solution for Profile L-2. Layer velocities are higher than that indicated for L-1, and are (top to bottom) 521, 1,046, and 3,035 m/s. The resulting tomographic solution yielded overburden velocities consistent with the earth-layer model, but with a lower bedrock velocity (2,421 m/s).

The uppermost refractor surface exhibits a slight depression in the vicinity of the trench, but the tomographic solution models this interface as a horizontal surface. A distinct zone of low velocity (<450 m/s, stippled area), with a thickness of 5-6 ft, is modeled over the southern two-thirds of the resistivity defined trench location. The upper refractor surface appears to approximate the base of the low-resistivity anomaly within the central part of the profile (150X), but is more likely corresponding to natural changes in subsurface conditions. As with the L-1 Profile, the L-2 seismic data cannot be used to resolve the waste thickness within the SWMU 51 trench.

The top of bedrock, as defined by the earth-layer model, is interpreted as a relatively flat surface ranging approximately 55-60 ft in depth, and with a slight rise to 50 ft bgs near profile coordinate 80X. The corresponding tomographic model images the bedrock as a horizontal surface at approximately 60 ft in depth. A slight decrease in velocity is observed in the bedrock between profile coordinates 50X and 90X.

Profile L-3

Profile L-3 was collected along the long axis of the SWMU 51 fenced area, extending approximately 66 ft to the south of the fenced area and 70 ft to the north. Only resistivity data were collected using 56 electrodes at a spacing of 6.56 ft (2m), which provided a line length of 360.9 ft (110 m). It was hoped that the finer electrode spacing and co-linearity with the trench's long axis would yield a better definition of the trench boundaries. The resulting dipole-dipole and Schlumberger array models are shown in **Figure B-4** (upper two panels), and the seismic model results for Profile L-2 (lower panel) are shown for comparison.

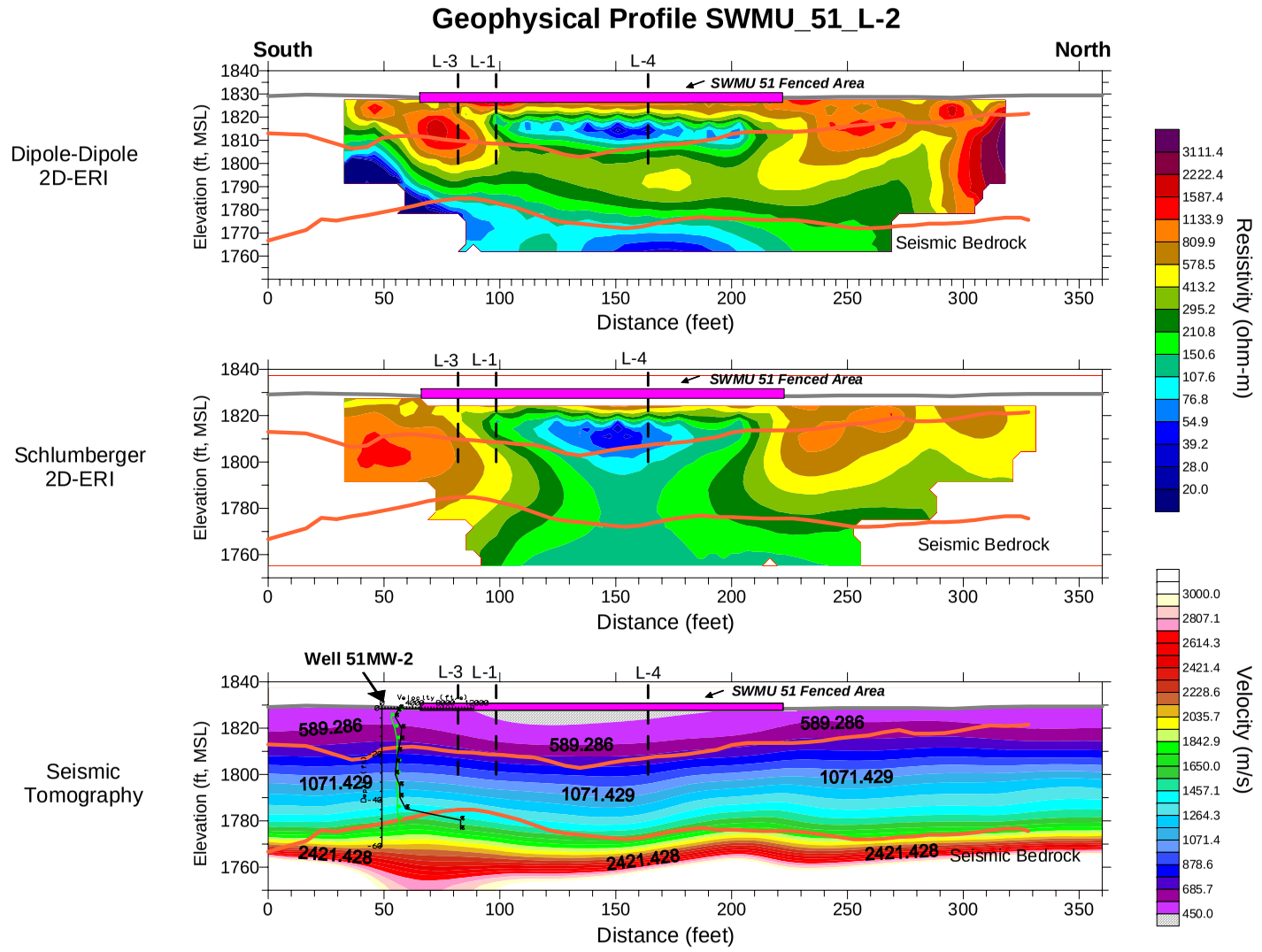


Figure B-3. Geophysical Results for Profile L-2

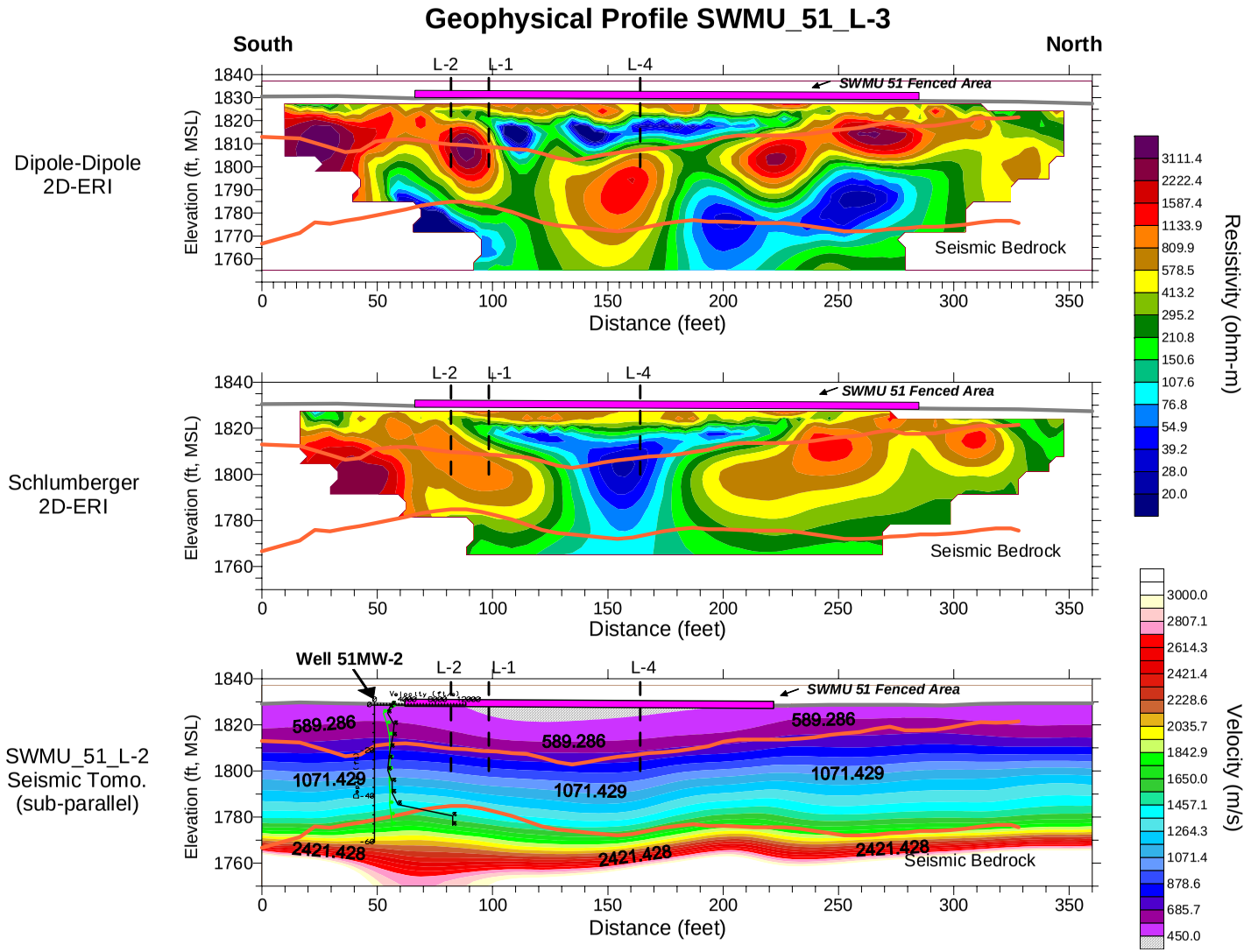


Figure B-4. Geophysical Results for Profile L-3

The resistivity models depict a zone of low-resistivity (<80 ohm-m) between profile coordinates 90X to 225X, with a depth to top ranging from 7-to-9 ft bgs and depth-to-base from 15-to-25 ft (average is approximately 18 ft bgs). Following interpretations for Profiles L-1 and L-2, this low-resistivity zone is probably the electrical response of the waste and/or waste byproduct. The dipole-dipole model indicates less lateral continuity in the trench, exhibiting a break in the low-resistivity near profile coordinate 120X. This low-resistivity zone extends to its greatest depth immediately adjacent to this break. The Schlumberger model does not resolve the base of this anomaly in the central part of the profile, although the upper refractor of the L-2 seismic model appears to mimic the base of the low-resistivity zone.

Other zones of low-resistivity are modeled by the dipole-dipole data near the southern end and northern third of the SWMU 51 fenced area. The Schlumberger model does not image these same features suggesting that they are most likely modeling artifacts.

Profile L-4

Profile L-4 was collected on a line perpendicular to the long axis of the trench along EM grid axis 164N. The profile was extended to the west so that well 51MW1 could be used to help guide the interpretation, and so the electrical and seismic character of the "undisturbed" area west of SWMU 30 could be used as a contrast. The resistivity data were collected with 56 electrodes at a spacing of 6.56 ft (2 m), providing a profile length of approximately 360 ft. Two adjacent spreads of 48 geophones, spaced at 3.28 ft (1m) intervals, were used for seismic data collection. The resulting geophysical models are shown in **Figure B-5**.

A distinct, low-resistivity anomaly (<80 ohm-m) is centered beneath the SWMU 51 fenced area, located between profile coordinates 265X and 280X. The depth-to-top of this anomaly is approximately 7 ft, and the depth-to-bottom, though not fully resolved, is estimated at approximately 20 ft. This depth estimate is based on the Schlumberger model at the point where the upper seismic refractor crosses the base of the low-resistivity anomaly. Note that unlike the results for the other three profiles, the dipole-dipole array did not resolve the base of the low-resistivity zone.

Two other zones of low-resistivity are present at depth to the west of the SWMU 51 fenced area. The zone of low-resistivity occurring between coordinates 170X and 200X is interpreted to correlate with the SWMU 30 trenches. The source for the furthest west zone of low-resistivity is not known, but may be due to the general decrease in resistivity observed near the overburden-bedrock interface.

The seismic model for Profile L-4 (bottom panel **Figure B-5**) shows a relatively flat bedrock surface, and a broad area of lower velocity underlying SWMU 30 and SWMU 51. A three-layer solution was required for the earth-layer model, using velocities of 500, 800, and 2,550 m/s. The tomographic model yielded similar velocities (550, 878, and 2,421 m/s) for equivalent depth ranges. A zone of low-velocity (<450 m/s) is modeled by the tomographic solution as a broad swale underlying the SWMU 51 fenced area. The base of this low-velocity zone corresponds with the top of the low-resistivity anomaly, suggesting that this is related to the cap and/or backfill material.

B.4.2 EM-31 and EM-34 Conductivity Surveys

Electromagnetic (EM) surveys were performed in the grid area shown on **Figure B-1** with the objective of mapping the lateral extent of the SWMU 51 trench, and to determine

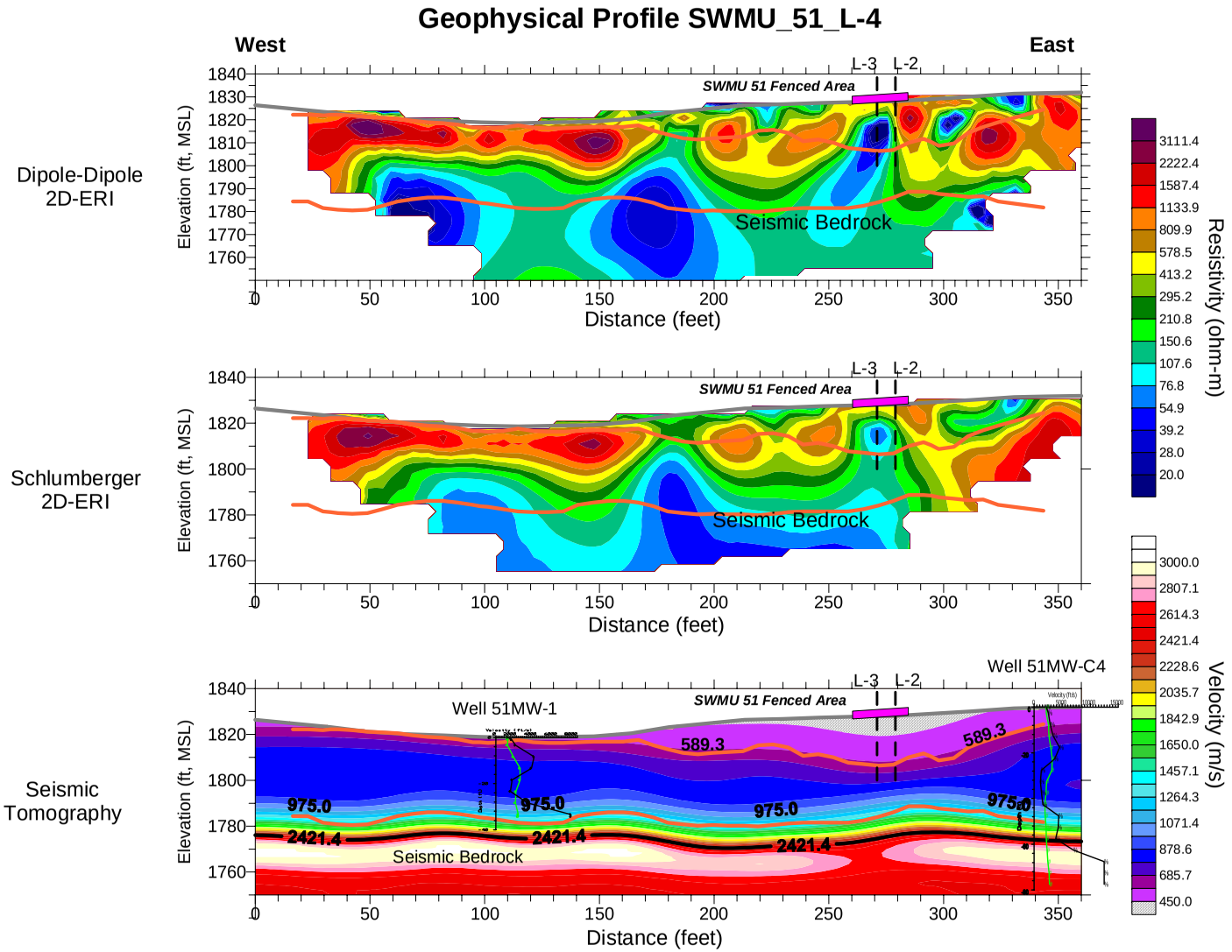


Figure B-5. Geophysical Results for Profile L-4

whether a significant quantity of metallic debris has been buried. It was expected that the activities involved in the construction of and disposal within the trench would alter the subsurface electrical properties, yielding a distinguishable anomalous area associated with the trench. Prior to performing the surveys, the barbed wire fence enclosure surrounding SWMU 51 was removed to the extent practicable, with only the corner fence posts and possibly some rusted fencing material within the vegetation at the site remaining in place.

Both the EM-31 and EM-34 terrain-conductivity meters were used to collect EM measurements at SWMU 51 (see **Appendix B-3** for a further description). EM-31 measurements were collected along profiles spaced at 8 ft (2.5 m) in the approximate north-south direction and along profiles spaced at 33 ft (10 m) in the approximate east-west direction. Both quad-phase (electrical-conductivity) and inphase (percent metals) data were collected with the EM-31. EM-34 surveys were collected along profiles spaced at 33 ft (10 m) in the approximate north-south direction, and along 66 ft (20 m) spaced profiles in the approximate east-west direction (except for profiles along 164E and 328.1E, which were excluded to reduce interference from the SWMU 30 fence lines). The EM-34 collects only quad-phase (electrical conductivity) data.

EM measurements reflect a weighted average with greater weight given to shallower depths. The EM-31 was operated in the vertical dipole mode, and 80% of the measured response correlates with the upper 10 ft (3 m) of subsurface material, with the peak response occurring in the 1.6 to 8.2 ft (0.5-2.5 m) depth range. The EM-34 meter was operated in the horizontal dipole mode using a coil spacing of 66 ft (20 m), which resulted in 80% of the response (also peak response) coming from the upper 33 ft (10 m) of subsurface material.

Figure B-6 shows the conductivity anomaly map constructed from the EM-31 survey. Red-to-white colors indicate areas of relatively higher electrical conductivity, whereas blue-to-magenta colors areas of lower conductivity. The locations of the 4 geophysical profiles are shown as heavy brown lines, and the interpreted area of the trench (from 2D ERI profiles) as a crosshatched region. Site features including roads, fences, wells, and ground-surface topography are also shown. Some of the EM-31 data were not included in construction of the map due to their proximity to the fence lines. Natural or background conditions are inferred on **Figure B-6** for the western side of the grid (west of the fence line) where conductivity values range from 5-to-7 mS/m.

The high conductivity anomalies (>12 mS/m) located to the west of Profile L-3, and north of Profile L-1 (grid area: 99N-to-396N; 164E-to-260E), are most likely related to one or more of the SWMU 30 disposal trenches. Another zone of high conductivity parallels the easternmost fence line, and may be related to another SWMU 30 trench. Profile data collected within 10 ft of this easternmost fence were excluded from the plot, and thus the observed anomalous character cannot fully be due to the fence. Note that the original description of SWMU 51 cites that the neutralization sludge trench lies between two adjacent SWMU 30 trenches, supporting this interpretation of the EM-31 plot.

Inspection of the EM-31 anomaly map reveals a slight increase in conductivity within the southern two-thirds of the SWMU 51 fenced area. This increase, related to changes in electrical properties within the upper 10 ft (3 m) at the site, is approximately 1-2 mS/m higher than background levels, and is roughly coincident with the trench area defined by the resistivity profiles. All four resistivity profiles indicate an electrically conductive zone from 5-9 ft bgs, which is near the practicable depth limits of the EM-31 instrument.

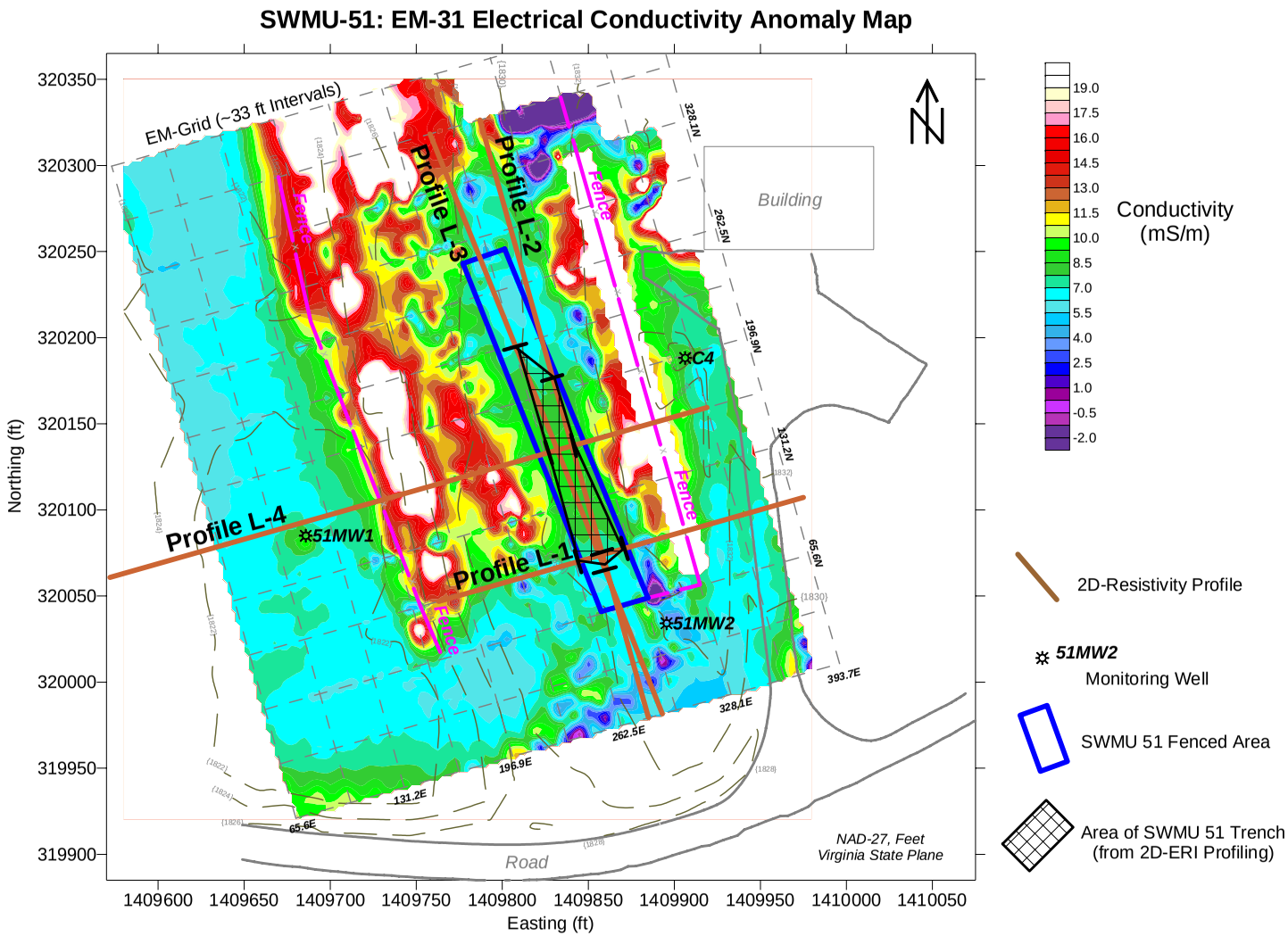


Figure B-6. EM-31 Conductivity Anomaly Map

In-phase (metals) data were collected concurrently with the EM-31 conductivity data, and the resulting anomaly map is shown in **Figure B-7**. No metal response is indicated in the areas west, south, and east of the SWMU 30 fence (outer fence lines). No metal (other than a couple fence posts at the inner fence corners) was detected within the fenced boundary of SWMU 51 (blue outlined rectangle). Metal related anomalies associated with other site activities were detected to the west, north, and east of SWMU 51 corresponding with anomalous areas shown on the conductivity plot **(Figure B-6)**.

The EM-34 conductivity anomaly map is shown in **Figure B-8** using the same color scale as that used in **Figure B-6** (EM-31 conductivity). The relatively higher "background" conductivity (8-10 mS/m vs. 5-7 mS/m) is interpreted to result from the EM-34 sampling to a greater depth, and thus including presumably wetter soils in the measurement (depth to bedrock is great enough to have little impact on the EM measurements).

An area of increase in conductivity (~4 mS/m) is observed within the southern two-thirds of the SWMU 51 fenced area. This relative high area is in the approximate location as a conductivity increase observed in the EM-31 data, though of greater relative magnitude. Therefore, it is likely that the conductive material (possibly the waste itself or leached material) delineated by the EM surveys extend to depths greater than 10 ft (~3 m). The north-south extent of this anomaly is less than the areal coverage indicated by the 2D-ERI profiles (crosshatched polygon). Other areas of high-conductivity, the grid area between 164E-260E, 99N-230N, and those north of grid 250N are most likely related to the trenches of SWMU 30.

B.5 SUMMARY

Seismic refraction profiling, two-dimensional electrical-resistivity imaging (2D-ERI), and electromagnetic terrain-conductivity surveying were conducted at SWMU 51 in order to delineate the boundaries of the disposal trench. The geophysical data suggest that the SWMU 51 related trenching and disposal is contained within the current SWMU 51 fence, and restricted to the southern two-thirds of the fenced area.

Seismic refraction tomography mapped a low-velocity zone interpreted to be due to the capping or backfilled material, but did not map the base of the trench. Earth-layer models constructed for the profiles indicate an intra-overburden increase in velocity, which occurs near the base of the trenching, and may indicate a maximum boundary for trenching. No significant structural features were indicated for the bedrock, and top-of-bedrock was mapped as a relatively horizontal surface.

2D-ERI profiling modeled a zone of low-resistivity (<80 ohm-m) underlying the SWMU 51 fenced area. The source for the low-resistivity is interpreted to be either the waste or waste byproducts (leachate or leached material). Depth-to-top of this low-resistivity zone ranged from 5-9 ft bgs, and averaged 6-7 ft bgs. Therefore it is argued that the waste material deposited in the SWMU 51 trench is at least 5 ft bgs.

Depth to the true base of waste is the issue. The resistivity data indicate a range of 15-to-25 ft bgs for the base, though it is possible that a downward migration of leachate (or leached material) has increased thickness of the low-resistivity zone, thus overstating the thickness of the waste. At best, the base of the low-resistivity zone can serve as an upper boundary for estimating the thickness of the waste material.

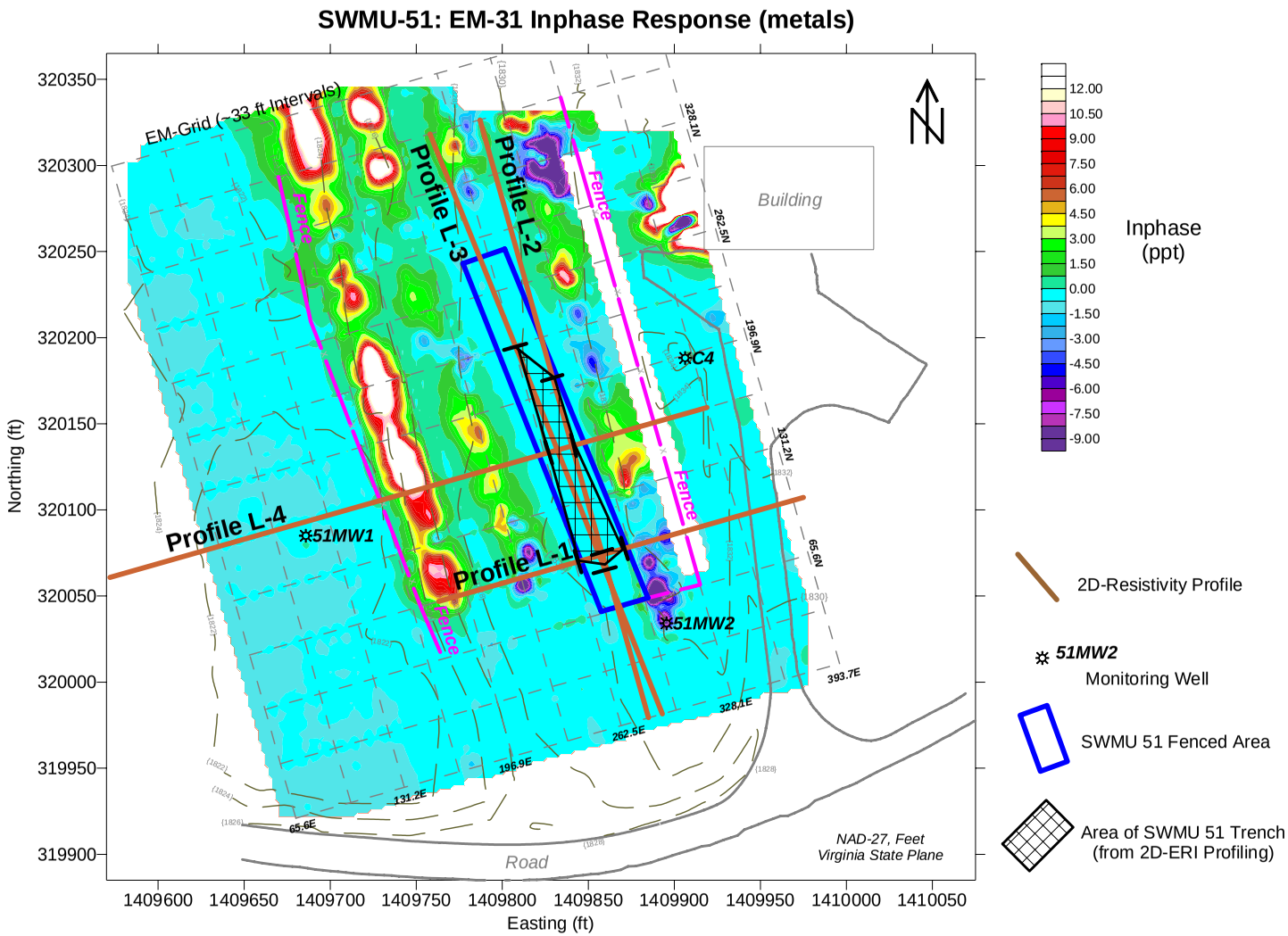


Figure B-7. EM-31 Inphase Response (Metals) Anomaly Map

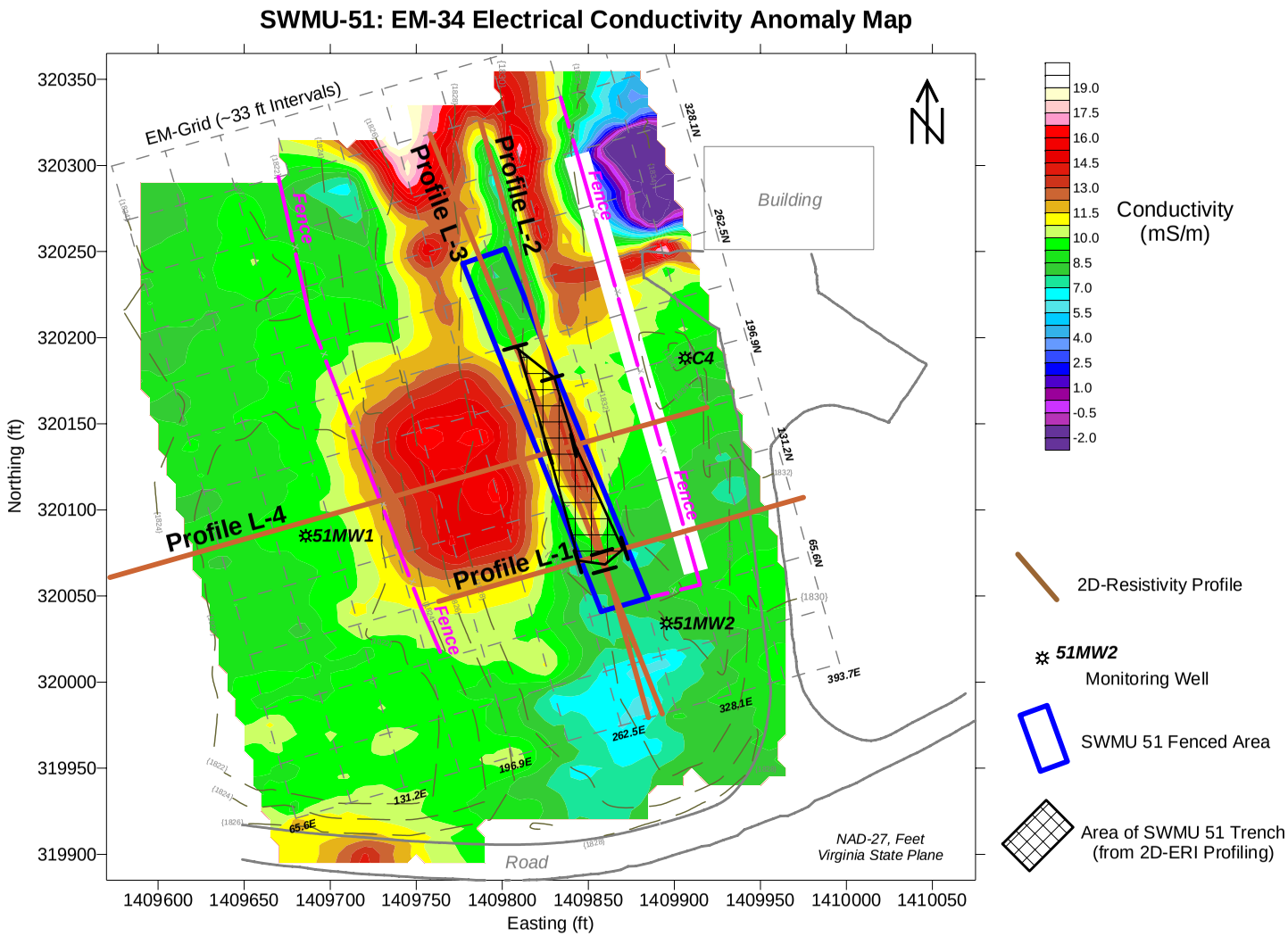


Figure B-8. EM-34 Conductivity Anomaly Map

Electromagnetic surveys using the EM-31 and EM-34 instruments mapped a zone of increased electrical-conductivity (decreased resistivity) within the southern two-thirds of the SWMU 51 fenced area. A 1-2 mS/m increase was measured by the EM-31, and suggests that the top of the anomalous region must be within the upper 10 ft (3 m) of the subsurface. The EM-34 instrument yielded a greater electromagnetic response than the EM-31, indicating that the source of this electrically conductivity zone (low-resistivity) extends below 10 ft (~3 m in depth). The anomalous area mapped by the EM-34 is approximately two-thirds that indicated by the 2D-ERI profiles.

The volume of waste is estimated as follows:

- The maximum areal extent of the trench defined by the 2D-ERI data is approximately 2,300 square feet (115 ft x 20 ft). The minimum areal extent can be estimated from the EM-34 conductivity anomaly map, and is 1,800 square feet (90 ft x 20 ft).
- Depth to top of the low-resistivity (electrically conductive) zone ranges from 5-9 ft, and averages 6-7 ft. Depth to bottom ranges from 15-25 ft, with an average of approximately 18 ft. The range in thickness is 6-20 ft, and averages approximately 11 ft.
- Using the average thickness (indicated on the 2D-ERI sections) and the areal extent, a volume range of 19,800 (11 ft x 90 ft x 20 ft) to 25,300 (11 ft x 115 ft x 20 ft) cubic ft or 733 to 937 cubic yards is calculated.

GEOPHYSICAL METHODS

2D Electrical Resistivity Imaging

Two-dimensional electrical resistivity imaging (2D-ERI) measures horizontal and vertical variations in the electrical-resistance of the subsurface. For RFAAP, the underlying carbonate rock was expected to be of higher-electrical resistivity than the overburden sediment. The electrical response of the rock is probably more complex, depending on the type of strata present and the electrical properties of the pore fluid. Higher electrical-resistivity should occur if carbonate rock is present, though the presence of an electrically conductive pore-fluid, or a significant clay fraction, could alternately yield lower-resistivities than expected. In addition, weak or fractured zones within the carbonate rock should display changes in electrical character, from either an increase in resistivity for air-filled regions, to a decrease in resistivity for clayey intervals. The trench work within the overburden sediment is expected to produce a zone of lower electrical resistivity. In addition, the presence of waste material and degradation products may also lower the electrical response in the vicinity of the trench.

The Advanced Geosciences, Inc. (AGI) Sting/Swift™ system is an automatic multi-electrode system and earth resistivity meter that acquires data by passing an electric current between two electrodes and measuring the potential difference (voltage) between two separate electrodes. The measured voltage is a factor of the resistance of the earth material and the geometry of the electrode array. Resistivity, an intrinsic property of the earth, is then calculated using the measured voltage, the electric current strength, and a geometric factor for the electrode array. The calculated resistivity value is actually an "apparent-resistivity" because it includes the resistances of all the material that the electrical current passes through. A modeling procedure is then used to convert the measured apparent-resistivity data into earth-layer resistivity sections.

The electrodes used to measure the voltage difference are arranged in various geometries called arrays, and the calculated apparent-resistivity value is interpreted to represent a depth point at the center of an individual array. Depth of measurement is related to width of electrode separation, with greater electrode separation resulting in greater depths of penetration. Classically, two different techniques are used to determine the electrical resistivity of earth materials. In vertical electrical sounding (VES), electrodes are expanded about the center of an array to generate a layered electrical section at a single point (vertical profile). The lateral profiling technique uses an array with a fixed electrode separation, which is marched along a line to image lateral variations at a constant depth.

Two-dimensional electrical-resistivity imaging (2D-ERI) combines VES and lateral profiling into a single survey without the time-consuming process of constantly moving electrodes and reconnecting cables. In 2D-ERI a single cable connects a linear array of electrodes, which are turned on and off using a preprogrammed sequence via a controller box. The raw apparent-resistivity data are typically displayed as a pseudosection where the lateral position of the measurement point is placed at the center of the corresponding electrode array, and the depth of the measurement increases with increasing electrode spacing. Apparent-resistivity pseudosections are useful for performing quality-control checks and for examining whether manmade objects have impacted the data set.

Apparent-resistivity pseudosections are converted, through a process termed inversion, into an electrical-resistivity cross-section showing true earth-layer resistivities. RES2DINV (Loke,

1996), a commercially available program, was used to perform the two-dimensional inversion modeling. During the inversion, the subsurface is divided into a number of blocks equal to or less than the number of measurement points. A smoothness-constrained, least-squares inversion routine is used to estimate the resistivity value of each block, and finite-element or finite-difference forward modeling is used to calculate the resulting pseudosection. The model is iteratively corrected until an apparent-resistivity pseudosection calculated from the model converges with the measured apparent-resistivity pseudosection. A root-mean-square (RMS) error calculation of the difference between the two apparent-resistivity pseudosections is used as a measure of the degree of fit for the model. Maximum convergence often occurs within 3 to 5 iterations, after which RMS values do not change significantly and the model may start to become unstable.

Electromagnetic Terrain-Conductivity Surveying

Electromagnetic-induction instruments (EM-31 and EM-34) are used to measure the electrical conductivity of the near surface, and can also be used to locate buried metallic objects. A transmitter coil is used to induce an electrical current into the ground, and the receiver coil measures the strength of the secondary magnetic field generated by these currents. Two components of the secondary magnetic field are recorded: 1) the quadrature-phase component which is used to measure the ground conductivity, and 2) the inphase component which is used for metallic detection due to its extreme sensitivity to large metallic objects (Geonics Ltd., 1991). The electrical conductivity of the ground is nearly linearly proportional to strength of the quadrature-phase component and is given in units of milli-siemens per meter (mS/m). The inphase measurement is the ratio of the secondary magnetic field to the primary field, and is expressed in parts per thousands (ppt).

The coils can be oriented in either a vertical dipole or horizontal dipole configuration. For the vertical dipole case, the axes of the coils are oriented perpendicular to the ground surface, and for the horizontal dipole, the axes are parallel to the ground surface. For both cases, the coils are maintained in a coplanar state. The vertical dipole orientation is generally preferred over the horizontal dipole because it provides for a greater investigative depth and is less sensitive to near surface variations.

The separation between the transmitter and receiver coils is the primary component that determines the depth of penetration. **Table B-1** lists the depth of investigation for different coil orientations and separations for the Geonics EM-31 and EM-34 meters. The “Practical Depth” is roughly the depth at which 80% of the instrument response has occurred, and the “Effective Depth Range” is the where the instrument’s overall response is the greatest. Thus, layers within the “Effective Depth Range” contribute most to the measured conductivity. The bolded numbers are for configurations used in this study.

Table B-1
Effective Penetration Depth of the EM-31 and EM-34 Instruments

Instrument	Coil Orientation	Practical Depth	Effective Depth Range
EM-31 (3.3 m)	Horizontal Dipole	5.5 ft (1.7 m)	0-5.5 ft (0-1.7 m)
	Vertical Dipole	10 ft (3 m)	1.6-8.2 ft (0.5-2.5 m)
EM-34 (20 m)	Horizontal Dipole	33 ft (10 m)	0-33 ft (0-10 m)
	Vertical Dipole	59 ft (18 m)	10-49 ft (3-15 m)

Conductivity values obtained in EM surveying represent weighted mean values of all the layer conductivities from the ground surface to the maximum depth that is sensed by the EM instrument (McNeill, 1980). If the underlying rock or sediment is uniform, the measured conductivity value will be the true conductivity. The amount of contribution to the measured conductivity from a single layer depends on its conductivity, depth, and thickness. In general, deeper layers contribute less to the final value than do near-surface layers, as do layers outside the effective depth range.

Geonics EM-31. The EM-31 transmitter and receiver coils are housed in a 3.5m long sensor boom, and a single person can operate the instrument (Geonics, 1991). A nominal depth of investigation of 18-ft (5.5-m) is realized when measurements are made using the vertical-dipole mode. Measurements are collected at ½ second intervals, and the quadrature and inphase components are collected simultaneously. This allows discrimination between anomalies sourced by buried metallic objects from those that are either lithologically or hydrologically controlled. Additional information consisting of the profile position, starting, and ending points, as well as fiducial mark locations along the profile, were recorded with an OMNI 720 data logger (Polycorder). This information is then downloaded to a personal computer for processing and display.

Geonics EM-34. The EM-34 is a two-person operable instrument that can measure terrain conductivities to depths of 150-ft (Geonics, 1991). Data were collected at approximately 1 sample per two-feet, and fiducial marker points are recorded at 20-to-50-ft intervals to help mitigate measurement point location errors due to uneven walking speeds. A Polycorder data logger is used to record the line geometry and profile data, which are downloaded to a personal computer for processing and display.

Seismic Refraction Tomography

Seismic refraction provides acoustic velocity and layer depth information (Redpath, 1973). The refraction method generally depends on an increase in seismic-wave velocity (speed of sound through earth material) with depth, though the newer tomographic codes presently available have the capability of handling a velocity inversion (zones of lower seismic velocity underlying zones of higher velocity). Both a tomographic model and an earth-layer (refractor) cross-section are planned as processing outputs from the refraction profiling. The commercially available SeisOpt2D code will be used to construct the tomographic model, and the SIPT software package was used to generate the earth-layer cross-section.

In the refraction method, the seismic energy (or wave) bends (refracts) at interfaces between layers of different velocities. In the special case where the seismic wave has been refracted parallel to the interface, the seismic energy travels along this interface, generating a head wave

that returns to the surface. A linear array of acoustic receivers (geophones) is used to record the travel-time of the first returning seismic signal. This information is plotted on a time-distance graph; for the case of plane layer geometry, the time-distance plot will show distinct linear segments for each layer where the inverse of the slope of a segment is equivalent to the apparent seismic velocity for a particular layer.

A multi-channel, engineering seismograph was used to record the seismic refraction information, and either a 500-lb weight drop (EWG) or a 16-lb. sledgehammer were used as the energy source. Geophones (seismic-receivers) were spaced at a 3.28-ft (1-m) interval during surveying. Shot points were acquired at every fifth geophone position, which allows input to the tomographic modeling software.

The processing sequence for the refraction data consists of:

- Picking first arrival times of return energy for each shot;
- Assigning the array-geometric to the first arrival data;
- Inverting the first-arrival information for velocity and depth using the SIPT algorithm (delay-time method); and
- Constructing a tomographic model of the first-arrival information using the either the SeisOpt2D code available from Optim Software, or the GeoCT-II code from GeoTomo.

The SIPT method takes advantage of the reverse-spread geometry and far offset shot points of the survey to compute depths to interfaces below each geophone. The algorithm employs the delay-time method of Pakiser and Black (1957) to calculate depth and position of refraction horizons. The generated refraction model is further refined using a ray-tracing algorithm which overcomes difficulties associated with dipping or undulating horizons.

The SeisOpt2D software achieves a globally optimized, velocity model using only first arrival travel time data and array geometry as input. SeisOpt2D requires no prior assumptions of subsurface structure, or any other subjective data, as input. A controlled Monte-Carlo inversion method is employed where the derived models are conditionally accepted or rejected based on a probability criterion. The criterion allows the algorithm to escape from non-unique, local, travel time minima to achieve a unique, globally optimized model of subsurface velocity structure. The algorithm makes no assumptions on the orientation of the subsurface velocity gradient, and can therefore reveal vertical structures and strong lateral gradients, if present.

The GeoCT-II inversion code also uses the geometry and first-arrival information as a starting point to apply a nonlinear continuum inversion in order to achieve a velocity-depth model. This package also allows providing a priori constraints such as known velocities from downhole surveys, and using earth-layer models as starting points.

Vertical Seismic Profiling

Vertical seismic profiles (check shots) are used to measure the in-situ velocity of the underlying sediment and rock, and these data provide confirmatory velocity information for the refraction models. The general configuration for recording the downhole seismic data consists of a three-component geophone, implementing 40Hz receiver elements. The downhole geophone is moved in 5-ft increments within the borehole (5-ft receiver spacing). A sledgehammer is used as the energy source, and is placed at offsets up to 15-ft from the borehole. Three additional geophones are placed on the surface at offsets up to 20-ft from the borehole, and are required to resolve any shot-timing variations that occur when using impact sources. Data are recorded at a 0.1 ms

interval (10,000 samples per second), which is required so that very small changes in arrival time (up to 0.2 milli-seconds) can be detected. The small arrival time changes are due to the presence of fast-velocity limestones and dolomites and correspond to a seismic wave traveling from 10,000 to 25,000-ft/s (yields arrival-time changes of 0.2 to 0.5milliseconds over a 5 foot interval).

Data processing consisted of the following:

- Pick first arrival energy for the downhole and reference geophones;
- Sort the arrival-time data by depth point;
- Compute and apply shot-timing corrections using the arrival time picks obtained from the reference geophones;
- Compute the average velocity to a receiver station using the straight-line distance from the shot to the receiver and the corrected arrival time;
- Convert to vertical travel-time using the depth point for the receiver and the computed average velocities; and
- Compute interval velocities using least squares line-fitting algorithm to estimate the slope (inverse of velocity) between measurement points. The least-squares operator has the advantage of smoothing over small time-picking errors.
- Where available, the data are correlated with the lithologic information and other available borehole geophysical data.

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APPENDIX D.2.4

PREVIOUS INVESTIGATIONS – SSA 77

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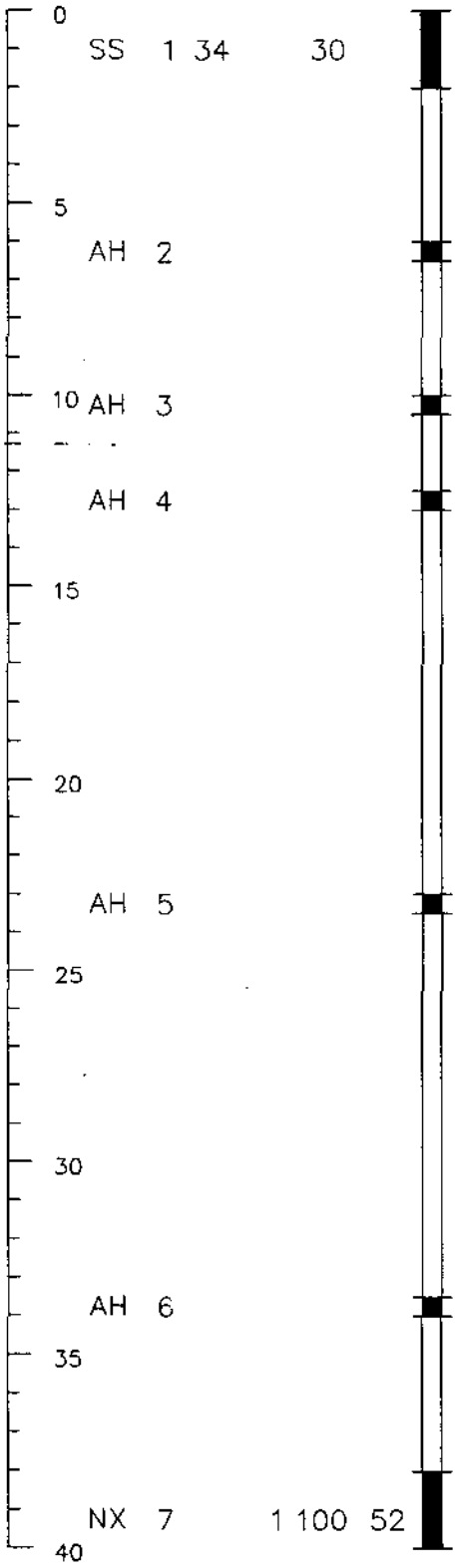
BORING 17PZ1

Surface Elevation: 1904.7 Feet, MSL
Location: Radford AAP, Virginia
Start: 2:11 on 10-30-91
Finish: 1:20 on 11-1-91



Symbols	Description
ML	VERY PALE BROWN (10YR 7/4) FINE SANDY SILT, DRY, VERY STIFF
	ENCOUNTER ROCK AT 3 FEET CONTINUE DRILLING USING 8-INCH AIR HAMMER LOG BOREHOLE FROM CUTTINGS
	GRAY (5Y 5/1) DOLOSTONE, FINE GRAINED, DRY, HARD, DUSTY CONDITIONS
DS/LS Shale	INTERBEDDED WITH LIGHT YELLOWISH BROWN LIMESTONE
	WITH PALE RED (2.5YR 6/2) AND BROWNISH YELLOW (10YR 6/6) SILTSTONE
	SOFT HIGHLY WEATHERED ZONE FROM 17.5 TO 20.0 FEET, WITH MUCH CLAY AND SILT, SLIGHTLY MOIST
	ALTERNATING BEDS OF HARD GRAY DOLOSTONE AND SOFT BROWNISH YELLOW SILTSTONE AND LIMESTONE
	SOFT INTERBEDDED DOLOMITE LIMESTONE AND SILTSTONE
	HARDER
	VERY DARK GRAY (2.5Y N/3) DOLOSTONE, HARD, WITH SOME CALCITE AND LIMESTONE SEAMS
	BEGIN NX CORING VERY DARK GRAY DOLOSTONE, HARD, SLIGHT WEATHERING AT FRACTURES
DS/LS Shale	FREQUENT THIN LIMESTONE SEAMS EVERY 0.1 FEET

PLATE
LOG OF BORING

Dames & Moore

BORING 17PZ1 (Cont'd)

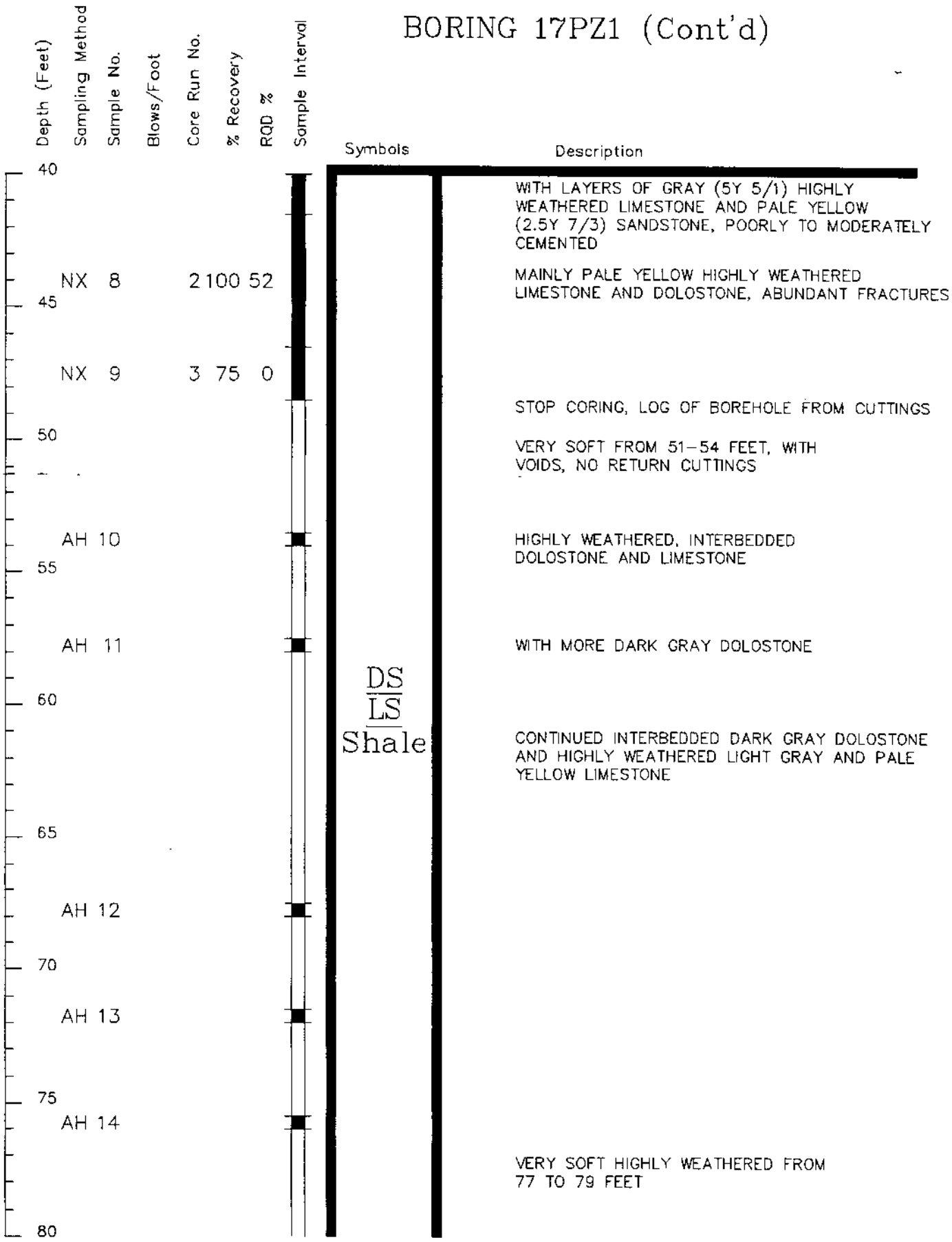


PLATE
LOG OF BORING

Dames & Moore

BORING 17PZ1 (Cont'd)

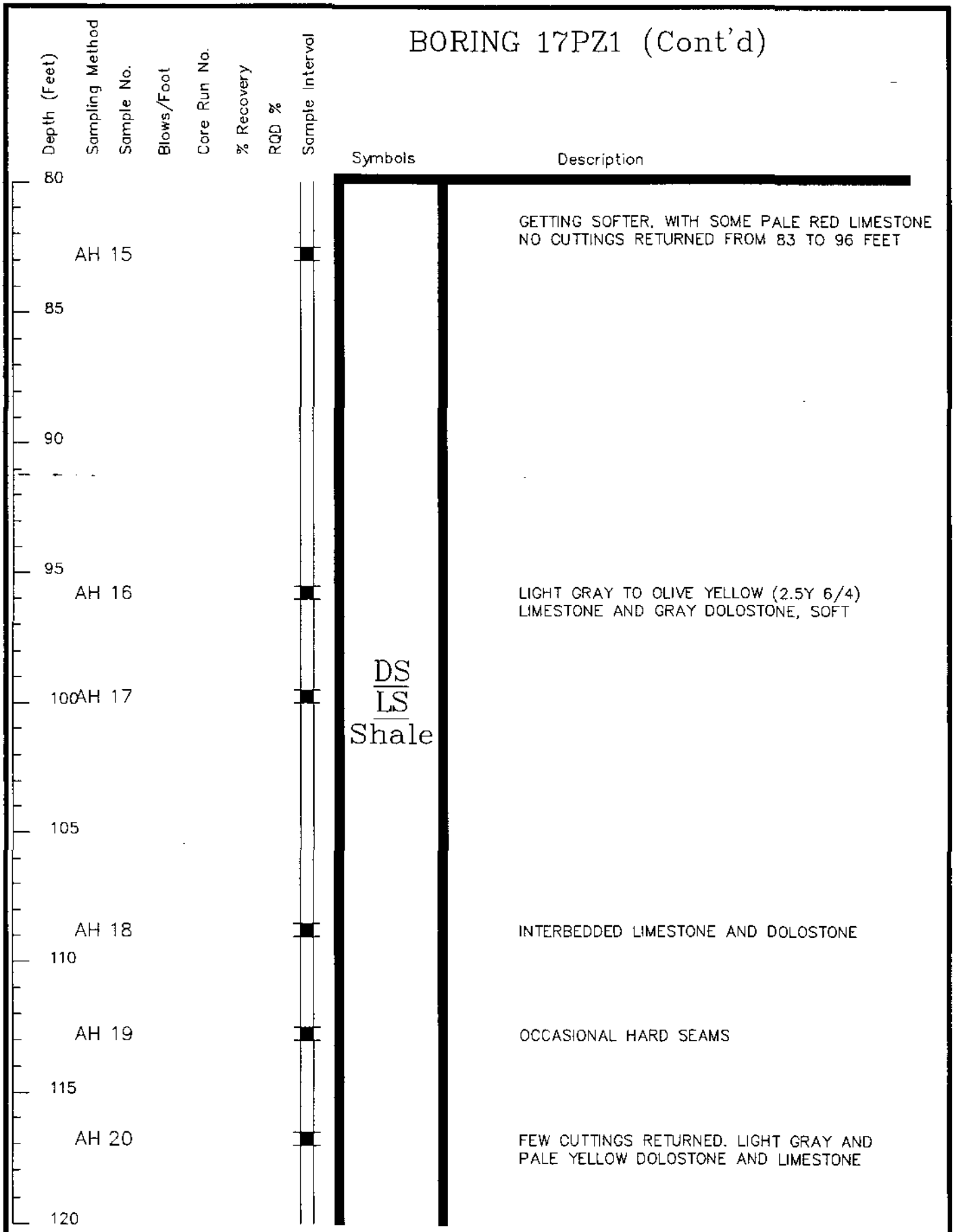


PLATE
LOG OF BORING

Dames & Moore

BORING 17PZ1 (Cont'd)

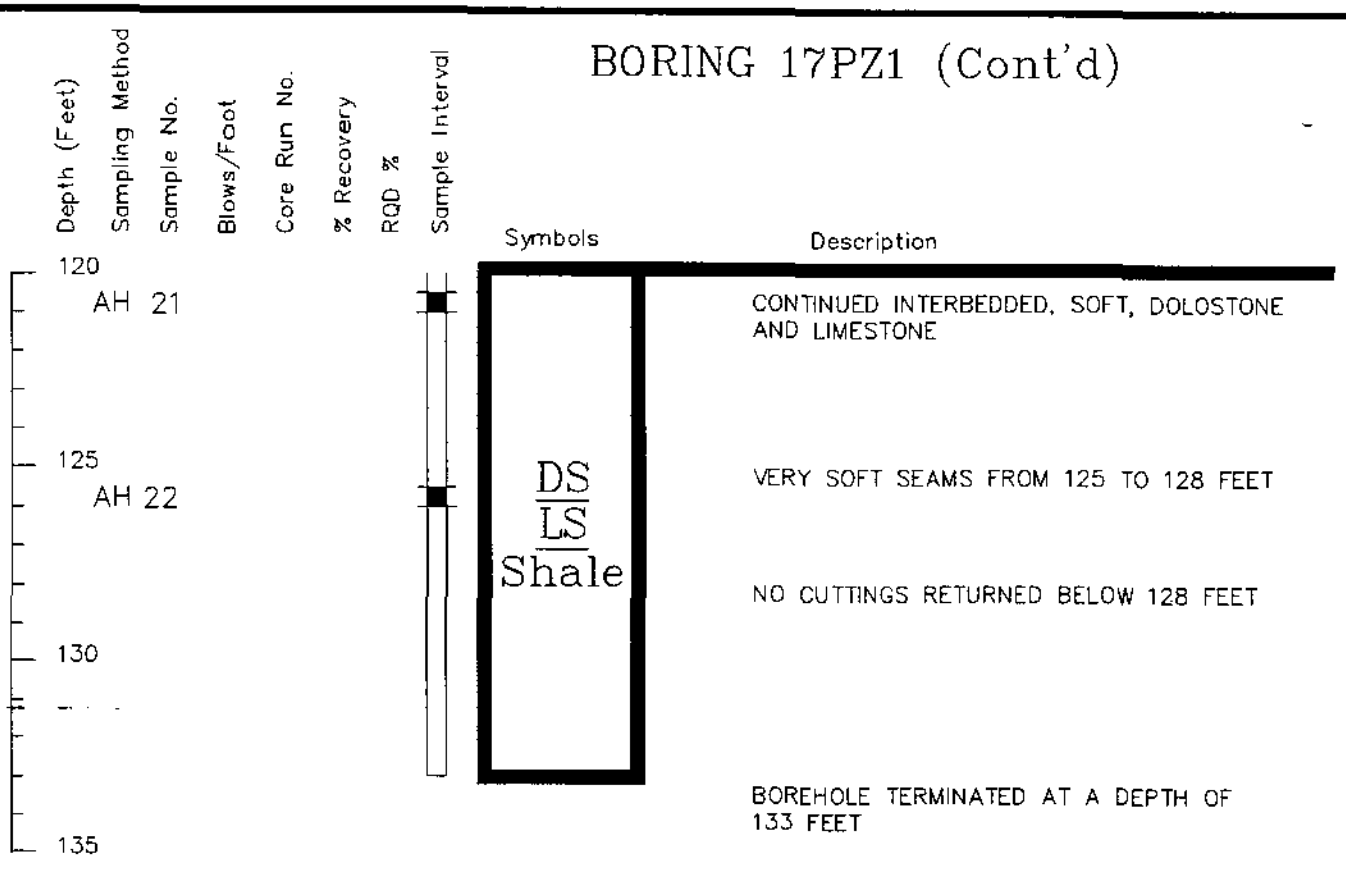


PLATE
LOG OF BORING

Dames & Moore

RILL. CONTR.: EDI
DRILLER: T. Lynch
GEOLOGIST: J. Titus
G TYPE: Mobile B-80
ING METHOD: Air Hammer

WATER LEVEL MEASUREMENT
EASUREMENT POINT: TOC
DATE/TIME: 10-Jun-93; 0956
EPTH TO WATER: 79.83 ft.

ENGINEERING-SCIENCE, INC.
DRILLING RECORD

INSTALLATION: RAAP
SITE: SWMU 17
CLIENT: USAEC
PROJECT NO.: FB517
DATE/TIME START: 19-May-93; 0745
DATE/TIME END: 20-May-93; 1505

BORING/WELL ID: 17MW2

TOTAL DEPTH (feet): 173
BOREHOLE DIAM.: 8 in.
CASING DIAM.: 4 in.
TOC ELEV.: 1906.29 ft. msl
GS ELEV.: 1903.99 ft. msl

DEPTH (FEET)	DRILL RATE	HCl TEST	LITHOLOGY/REMARKS	LITHOLOGIC COLUMN	WELL COMPLETION	DEPTH (FEET)
0			DRILLING WITH 10-INCH AIR ROTARY BIT SILT and CLAY; color: dark yellowish brown (10YR4/4)		10-inch borehole	0
			BEDROCK SWITCH TO 8-INCH AIR HAMMER			
5	1ft/4min	+pwd	interbedded DOLOTONE and argillaceous DOLOSTONE			5
10	1ft/4min		DOLOSTONE: massive, hard color: gray (10YR5/1 to 2.5YR6/0)			10
			argillaceous DOLOSTONE: weathered, soft weathered color: light, yellowish brown (2.5Y7/6) unweathered color: gray (2.5Y6/0)			15
20	1ft/5min				8-inch borehole grout	20
			VOID, filled with fine SAND and SILT color: reddish brown		4-inch ID PVC riser	
25	1ft/4.5min					25
30	1ft/7min					30
35						35
40						40

RILL. CONTR.: EDI
DRILLER: T. Lynch
GEOLOGIST: J. Titus
IG TYPE: Mobile B-80
NG METHOD: Air Hammer

WATER LEVEL MEASUREMENT
EASUREMENT POINT: TOC
DATE/TIME: 10-Jun-93; 0956
EPTH TO WATER: 79.83 ft.

ENGINEERING-SCIENCE, INC.
DRILLING RECORD

INSTALLATION: RAAP
SITE: SWMU 17
CLIENT: USAEC
PROJECT NO.: FB517
DATE/TIME START: 19-May-93; 0745
DATE/TIME END: 20-May-93; 1505

BORING/WELL ID: 17MW2

TOTAL DEPTH (feet): 173
BOREHOLE DIAM.: 8 in.
CASING DIAM.: 4 in.
TOC ELEV.: 1906.29 ft. msl
GS ELEV.: 1903.99 ft. msl

DEPTH (FEET)	DRILL RATE	HO TEST	LITHOLOGY/REMARKS	LITHOLOGIC COLUMN	WELL COMPLETION	DEPTH (FEET)
45						45
50						50
			interbedded DOLOSTONE and argillaceous DOLOSTONE			55
			DOLOSTONE massive, hard color: gray (10YR5/1 to 2.5YR6/0)		8-inch borehole	
60					grout	60
			argillaceous DOLOSTONE weathered, soft weathered color: light, yellowish brown (2.5Y7/6) unweathered color: gray (2.5Y6/0)		4-inch ID PVC riser	
65		+pwd				65
70						70
75						75
			VOID, some clayey SILT color: reddish brown (7.5YR6/8)		bentonite seal (78-80)	
80						80

DRILL CONTR.: EDI
DRILLER: T. Lynch
GEOLOGIST: J. Titus
RIG TYPE: Mobile B-80
DRILLING METHOD: Air Hammer

WATER LEVEL MEASUREMENT
MEASUREMENT POINT: TOC
DATE/TIME: 10-Jun-93; 0956
DEPTH TO WATER: 79.83 ft.

ENGINEERING-SCIENCE, INC.
DRILLING RECORD

INSTALLATION: RAAP
SITE: SWMU 17
CLIENT: USAEC
PROJECT NO.: FB517
DATE/TIME START: 19-May-93; 0745
DATE/TIME END: 20-May-93; 1505

BORING/WELL ID: 17MW2

TOTAL DEPTH (feet): 173
BOREHOLE DIAM.: 8 in.
CASING DIAM.: 4 in.
TOC ELEV.: 1906.29 ft. msl
GS ELEV.: 1903.88 ft. msl

DEPTH (FEET)	DRILL RATE	HCl TEST	LITHOLOGY/REMARKS	LITHOLOGIC COLUMN	WELL COMPLETION	DEPTH (FEET)
85	1ft/6min	+pwd				85
90						90
95			interbedded DOLOSTONE and argillaceous DOLOSTONE			95
100			DOLOTONE massive, hard color: gray (10YR5/1 to 2.5YR6/0)		8-inch borehole no grout present (80-142) due to formation bridging	100
105	1ft/1min		argillaceous DOLOSTONE weathered, soft weathered color: light, yellowish brown (2.5Y7/6) unweathered color: gray (2.5Y6/0)		4-inch ID PVC riser	105
110						110
115						115
120						120

DRILL CONTR.: EDI
DRILLER: T. Lynch
GEOLOGIST: J. Titus
RIG TYPE: Mobile B-80
DRILLING METHOD: Air Hammer

WATER LEVEL MEASUREMENT
MEASUREMENT POINT: TOC
DATE/TIME: 10-Jun-93; 0956
DEPTH TO WATER: 79.83 ft.

ENGINEERING-SCIENCE, INC. DRILLING RECORD

INSTALLATION: RAAP
SITE: SWMU 17
CLIENT: USAEC
PROJECT NO.: FB517
DATE/TIME START: 19-May-93; 0745
DATE/TIME END: 20-May-93; 1505

BORING/WELL ID: 17MW2

TOTAL DEPTH (feet): 173
BOREHOLE DIAM: 8 in.
CASING DIAM.: 4 in.
TOC ELEV.: 1906.29 ft. msl
GS ELEV.: 1903.99 ft. msl

DEPTH (FEET)	DRILL RATE	HCl TEST	LITHOLOGY/REMARKS	LITHOLOGIC COLUMN	WELL COMPLETION	DEPTH (FEET)
125						125
130			VOID, some CLAY and v. fine SAND MAJOR WATER PRODUCING ZONE		8-inch borehole; no grout present (80-142) due to formation bridging	130
135	111/5.5min	+pwd	interbedded DOLOSTONE and argillaceous DOLOSTONE DOLOSTONE massive, hard color: gray (10YR5/1 to 2.5Y6/0) argillaceous DOLOSTONE weathered, soft weathered color: light, yellowish brown (2.5Y7/6) unweathered color: gray (2.5Y6/0)		4-inch ID PVC riser	135
140						140
145					sand; bentonite seal (144-147) Baroid, 3/8" pellets	145
150					sand filter pack Morie, #1	150
155	111/1.3min				screen (150-170) PVC, 0.010 inch slot	155
160						160

RILL CONTR.: EDI
DRILLER: T. Lynch
GEOLOGIST: J. Titus
G TYPE: Mobile B-80
G METHOD: Air Hammer

WATER LEVEL MEASUREMENT
EASUREMENT POINT: TOC
DATE/TIME: 10-Jun-93; 0956
PTH TO WATER: 79.83 ft.

ENGINEERING-SCIENCE, INC.
DRILLING RECORD

INSTALLATION: RAAP
SITE: SWMU 17
CLIENT: USAEC
PROJECT NO.: FB517
DATE/TIME START: 19-May-93; 0745
DATE/TIME END: 20-May-93; 1505

BORING/WELL ID: 17MW2

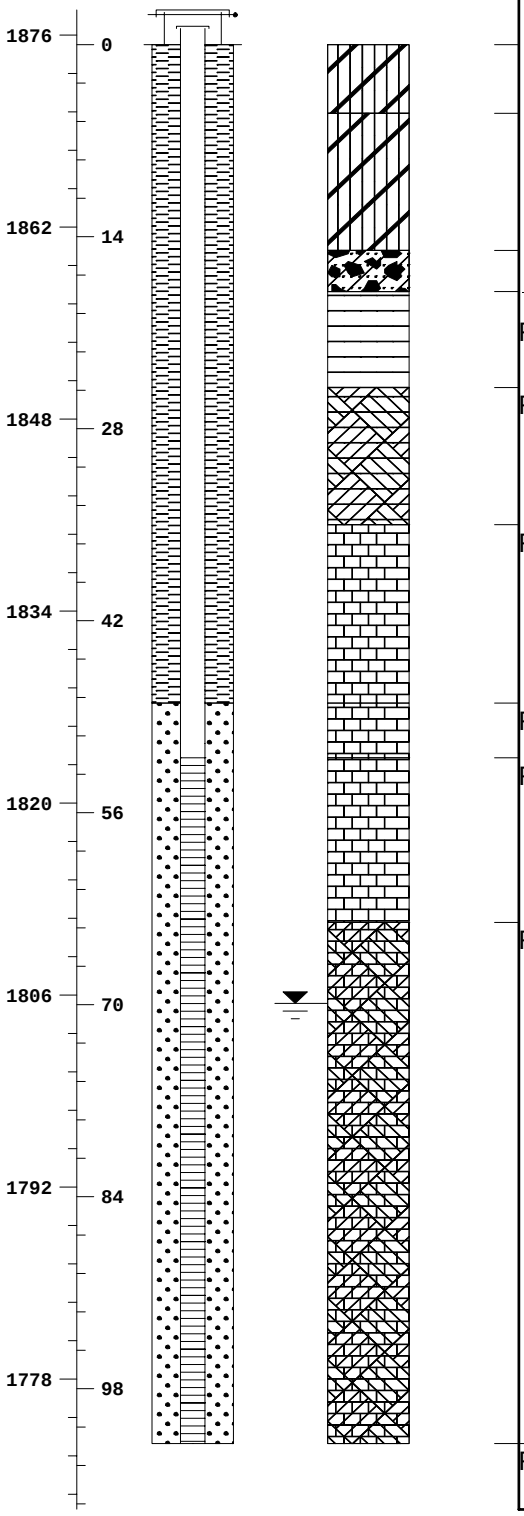
TOTAL DEPTH (feet): 173
BOREHOLE DIAM.: 8 in.
CASING DIAM.: 4 in.
TOC ELEV.: 1906.28 ft. msl
GS ELEV.: 1903.99 ft. msl

DEPTH (FEET)	DRILL RATE	HCl TEST	LITHOLOGY/REMARKS	LITHOLOGIC COLUMN	WELL COMPLETION	DEPTH (FEET)
	1ft/4min		interbedded DOLOSTONE and argillaceous DOLOSTONE			
165			DOLOSTONE massive, hard color: gray (10YR5/1 to 2.5YR6/0)		screen (150-170) PVC, 0.010 inch slot	165
170		+pwd	argillaceous DOLOSTONE weathered, soft weathered color: light, yellowish brown (2.5Y7/6) unweathered color: gray (2.5Y6/0)		sand filter pack Morie, #1	170
175						175
180						180
185						185
190						190
195						195
200						200

DRILL HOLE LOG
DRILL HOLE NO.: LFMW01

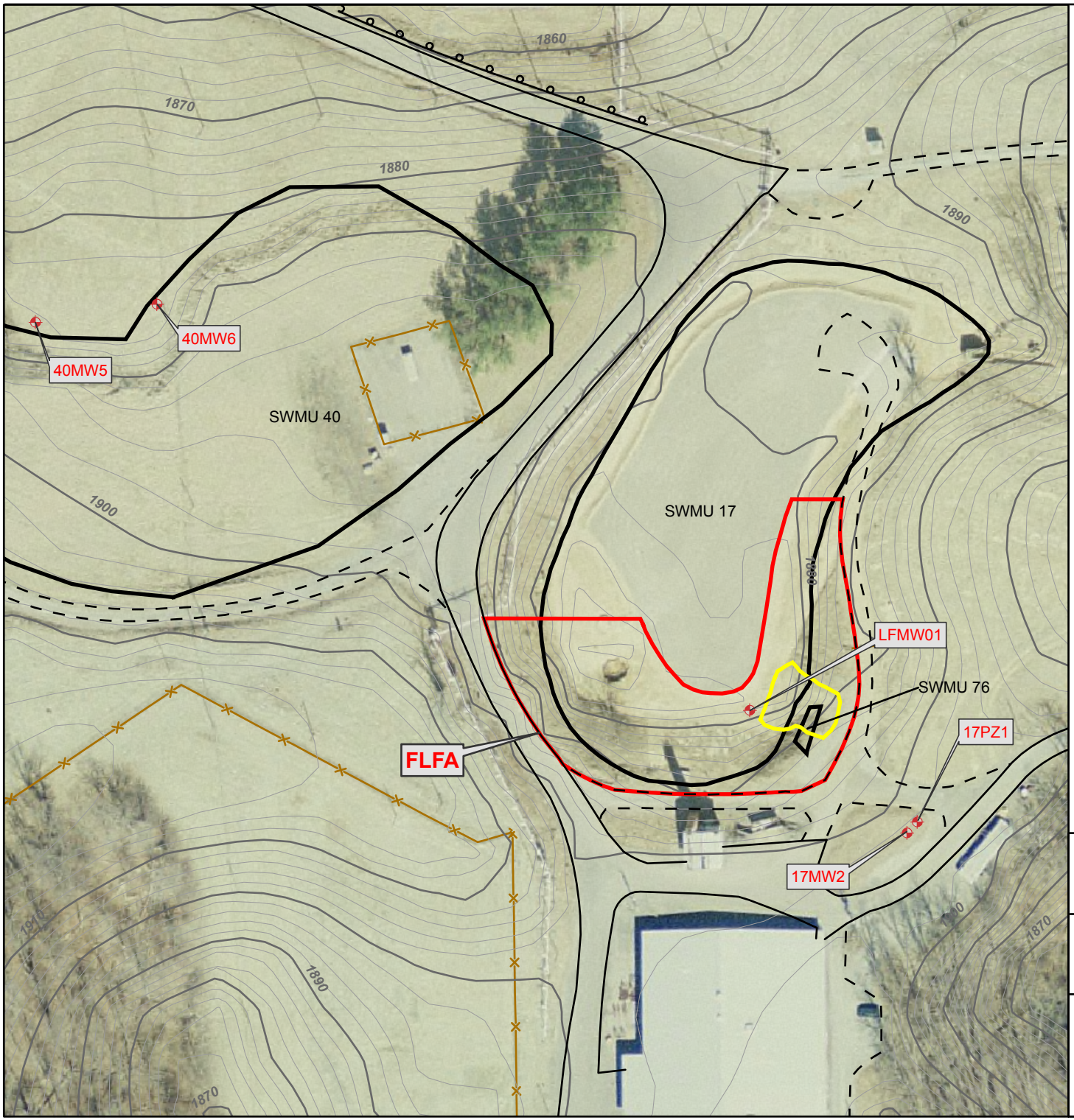
PROJECT: WPA 019 Groundwater Investigation
CLIENT/OWNER: RFAAP
HOLE LOCATION: RFAAP Radford, VA
DRILLER: Bedford Well Drilling
DRILL RIG: T3 Air Rotary
DEPTH TO WATER: 69.9
HOLE DIAMETER: 6 Inch

PROJECT NO.: 123461
DATE: 8/10/07
TOC ELEV.: 1877.9
GS ELEV.: 1875.3
LOGGED BY: J. Choynowski
HOLE NO.: LFMW01



ELEVATION / DEPTH	USCS	DESCRIPTION	Sample Number	Recovery	Water Content
		4" Protective case.			
0	CL-ML	Dark brown clay and silt, little(+) gravel. 2" PVC well pipe.			
5	CL-ML	Yellowish brown clay & silt.			
15	GC-SC	Yellowish brown clay w/ gravel, little(-) silt, some(+) coarse to medium sand.			
18	ROCK	Pale brown shale.			
25	ROCK	Pale brown shale & dolostone.			
35	ROCK	Pale brown limestone			
48	ROCK	Top of sand filter layer.			
52	ROCK	Top of well screen, 0.010" slot.			
64	ROCK	Alternating layers of Limestone and dolostone.			
102	ROCK	Bottom of screen and well.			

FIGURE NO.



LEGEND

- Monitoring Well
- Fence Line
- Dirt Road
- Paved Road
- 10 Ft Elevation Contour
- 1998 RFI Excavation Boundary
- Other SWMU Boundary
- Former Lead Furnace Area Boundary

Notes:
1) Aerial photo, dated 2005, was obtained from Montgomery County, VA Planning & GIS Services.

N

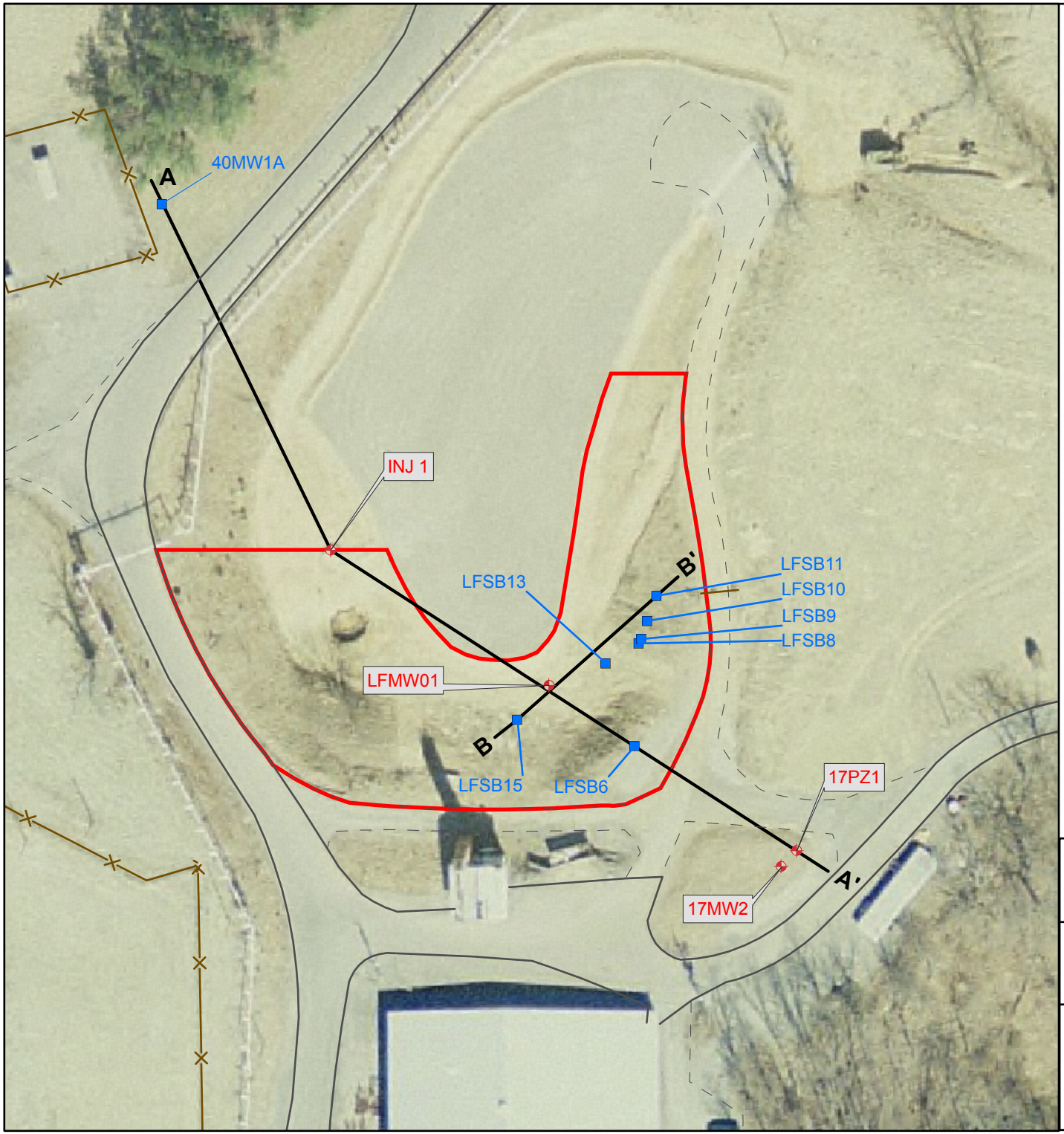
Scale:
0 55 110 220 Feet

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 2-1
Former Lead Furnace Area
Site Map
Radford Army Ammunition Plant,
Radford, VA

ArcGIS File: RFAAP_Fig2-1_FLFA_Site_Map.mxd (1/31/2008 2:40:11 PM)



LEGEND

- Soil Sample Location
- Monitoring Well
- Dirt Road
- Paved Road
- Fence Line
- Geologic Cross Section Line
- Former Lead Furnace Area Boundary

Notes:
1) Aerial photo, dated 2005, was obtained from Montgomery County, VA Planning & GIS Services.

N

Scale:

0 37.5 75 150 Feet

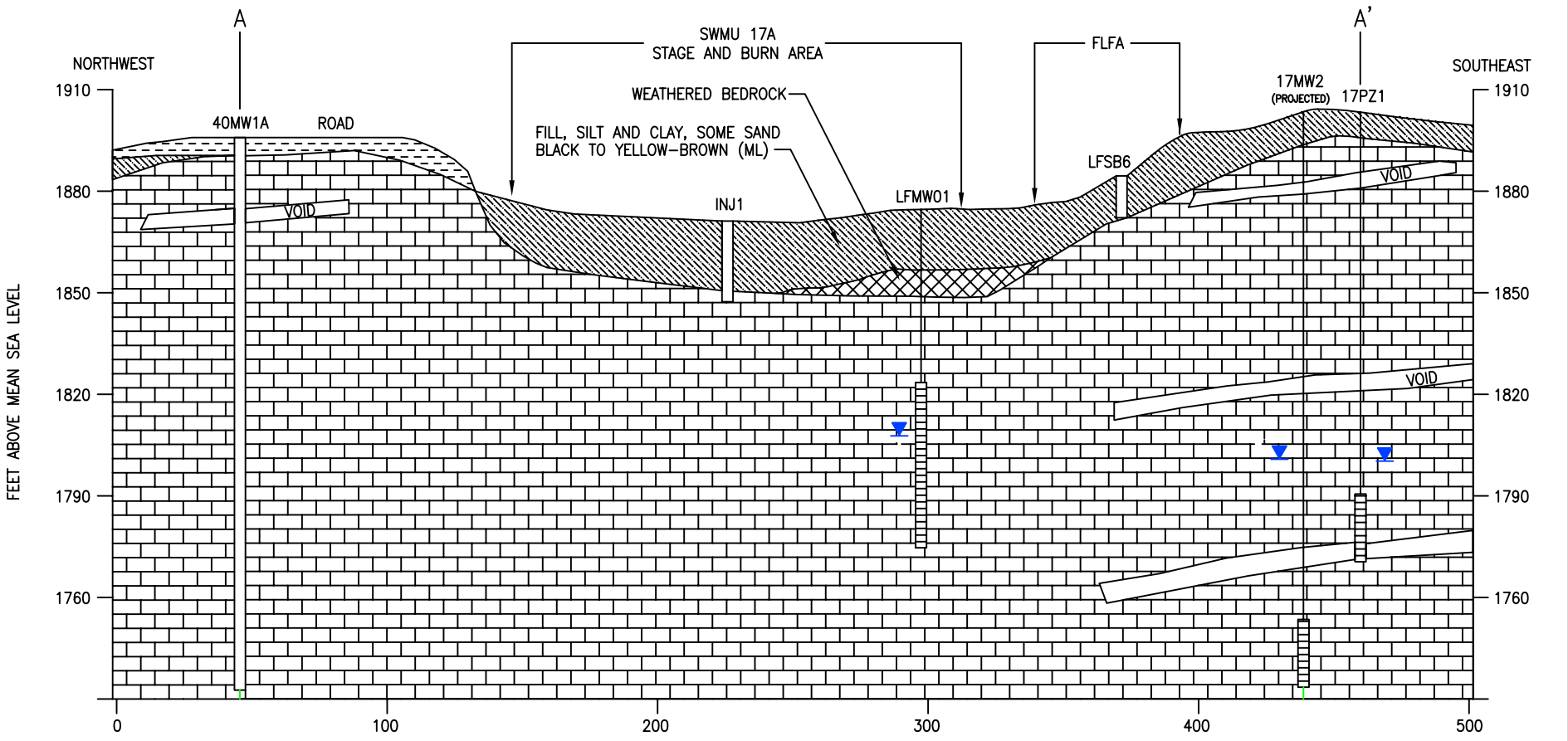
U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 2-3
Former Lead Furnace Area
Geologic Cross Section Lines A-A' and B-B'

Radford Army Ammunition Plant,
Radford, VA

GIS File: RFAAP_Fig2-3_FLFA_XSect.mxdjoy.pasquarelli (1/29/2008 11:28:55 AM)



HORIZ. SCALE: 0 50 100

VERT. SCALE: 0 15 30 45 60 75

LEGEND

- CLAY AND SILT, LITTLE SAND, RED-BROWN (CL)
- SILT AND CLAY (ML/CL)
- WEATHERED BEDROCK
- LIMESTONE, GRAY-BROWN, ARGILLACEOUS (LMSN)
- STATIC GROUNDWATER LEVEL

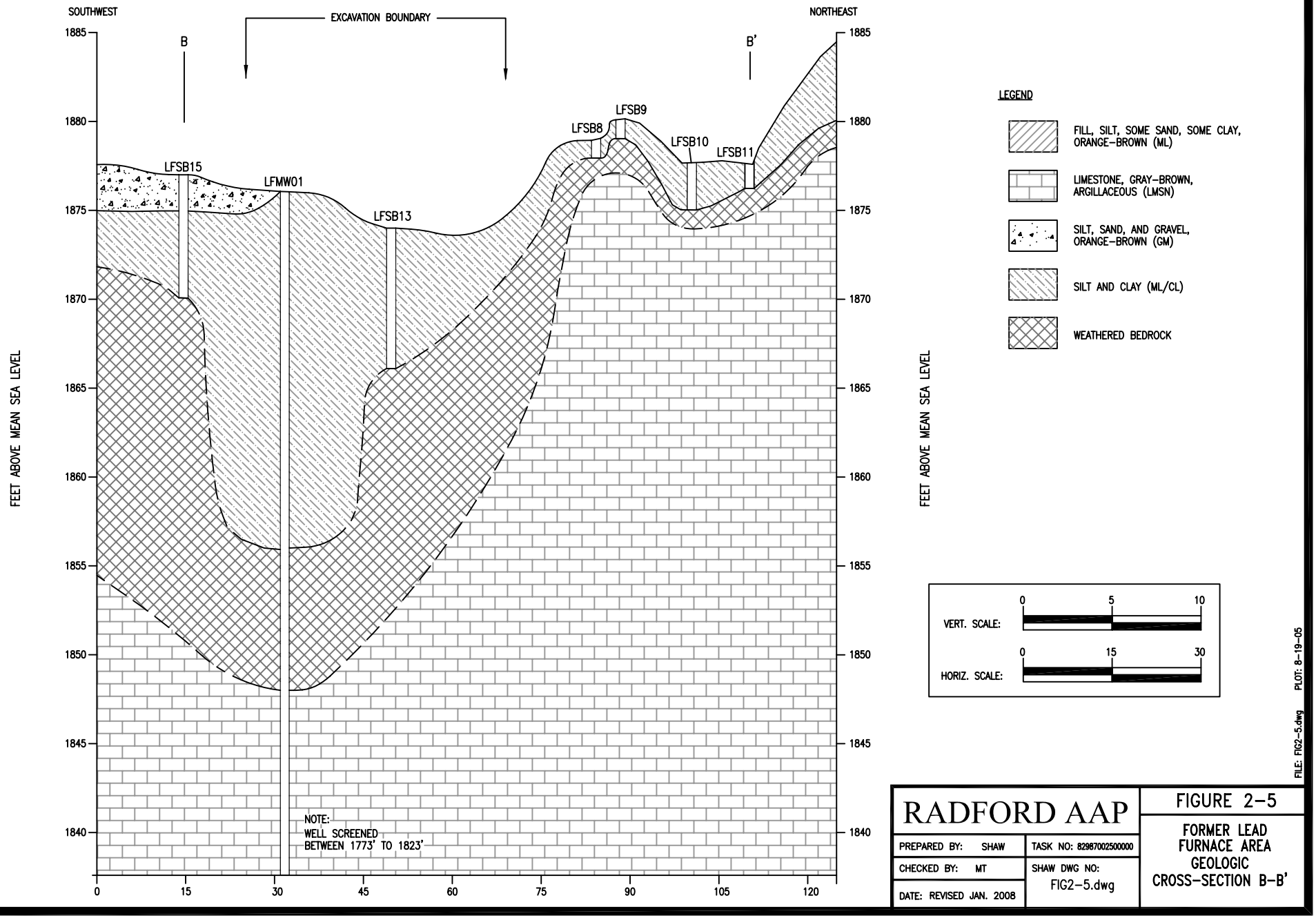
NOTES

1) WATER LEVELS MEASURED DECEMBER 2007 (17MW2 AND 17PZ1) AND AUGUST 2007 (LFMW01)
2) SOME DATA POINTS ARE PROJECTED ONTO PROFILE.
3) 40MW1A AND 17PZ1 LITHOLOGY FROM DAMES AND MOORE.
4) 40MW1A IS A BORING.
5) INJECTION WELL IS AN OPEN HOLE AT THE BEDROCK INTERFACE.

SOURCE: PARSONS ENGINEERING SCIENCE INC

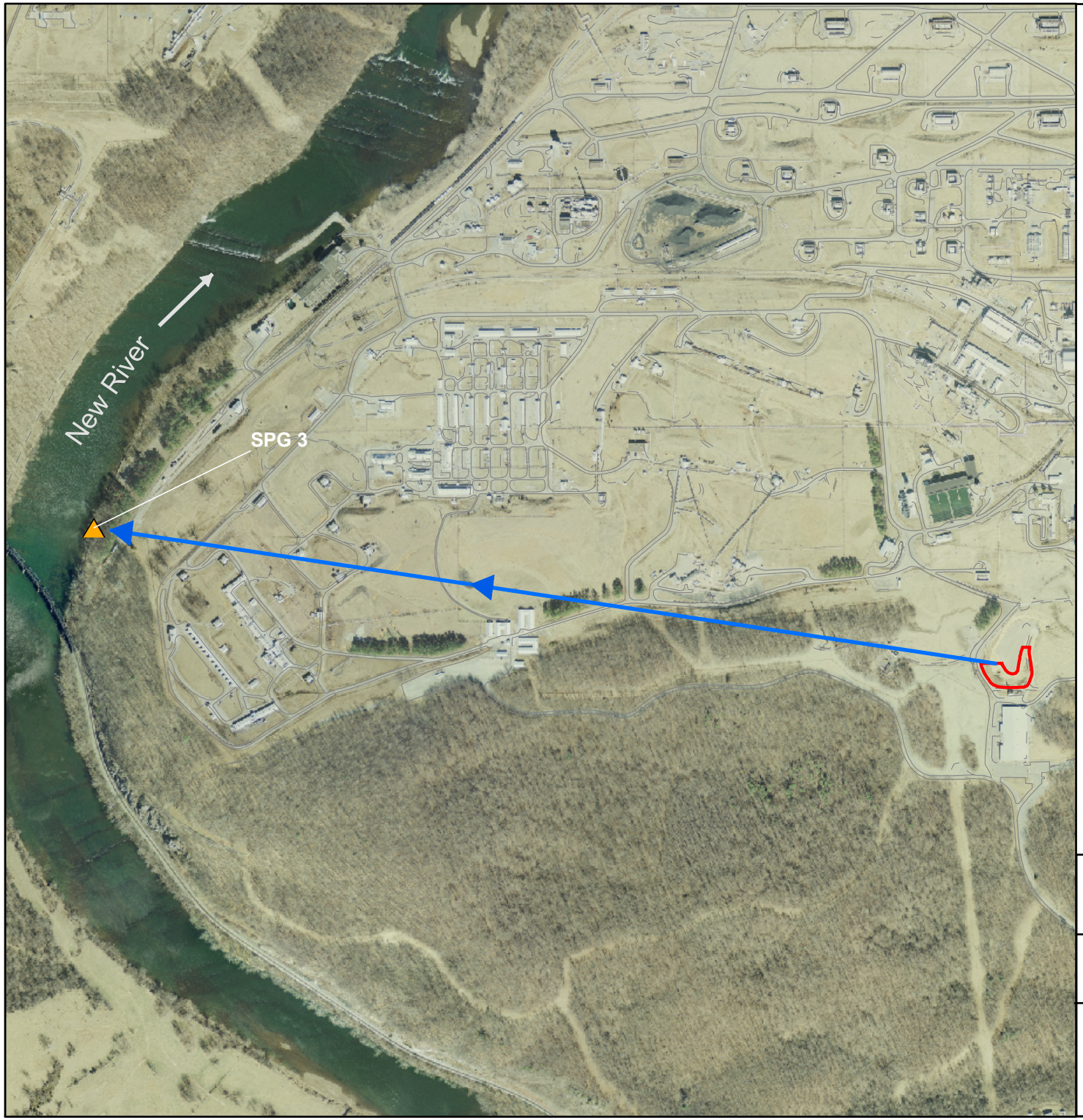
RADFORD AAP		FIGURE 2-4
PREPARED BY: SHAW	TASK NO: 12346161030000	FORMER LEAD FURNACE AREA GEOLOGIC CROSS-SECTION A-A'
CHECKED BY: MT	SHAW DWG NO: FIG 2-4 (A-A').dwg	
DATE: REVISED DECEMBER 2007		

FILE: FIG2-3.dwg PLOT: 8-19-05



FILE: FIG2-5.dwg PLOT: 8-19-05

RADFORD AAP		FIGURE 2-5
PREPARED BY: SHAW	TASK NO: 82987002500000	FORMER LEAD FURNACE AREA GEOLOGIC CROSS-SECTION B-B'
CHECKED BY: MT	SHAW DWG NO: FIG2-5.dwg	
DATE: REVISED JAN. 2008		



LEGEND

- Surface Water/Sediment Sample Location
- Groundwater Flow Path Identified by Engineering Science, Inc. (May 1994)
- Former Lead Furnace Area Boundary

Notes:
1) Aerial photo, dated 2005, was obtained from Montgomery County, VA Planning & GIS Services.

N

Scale:

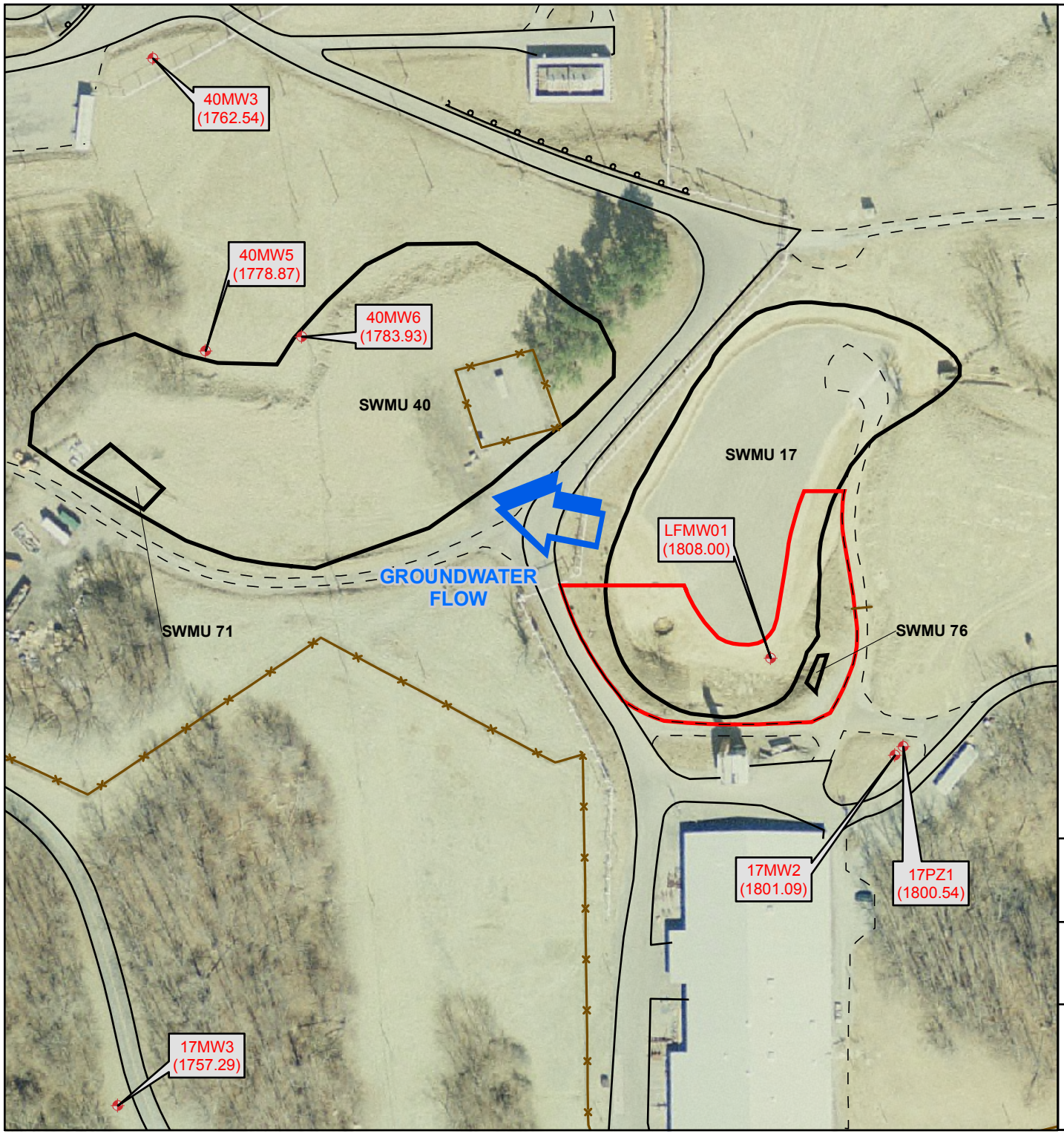
0 400 800 1,600 Feet

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 2-6
Former Lead Furnace Area
Groundwater Flow Path From
FLFA Sinkhole to Spring Discharge
Radford Army Ammunition Plant
Radford, VA

ArcGIS File: RFAAP_Fig2-6_FLFA_GW_Flow.mxd (1/24/2008 4:05:20 PM)



LEGEND

- Monitoring Well Location
- Dirt Road
- Paved Road
- Fence Line
- Former Lead Furnace Area Boundary
- Other Site Boundary

Notes:

1) Aerial photo, dated 2005, was obtained from Montgomery County, VA Planning & GIS Services.
2) All water levels measured in December 2007, except LFMW01, which was measured in August 2007.
3) Water levels are expressed in feet above mean sea level.
4) Groundwater flow direction is based on the 1994 dye trace study results (Engineering Science, 1994).

N

Scale:

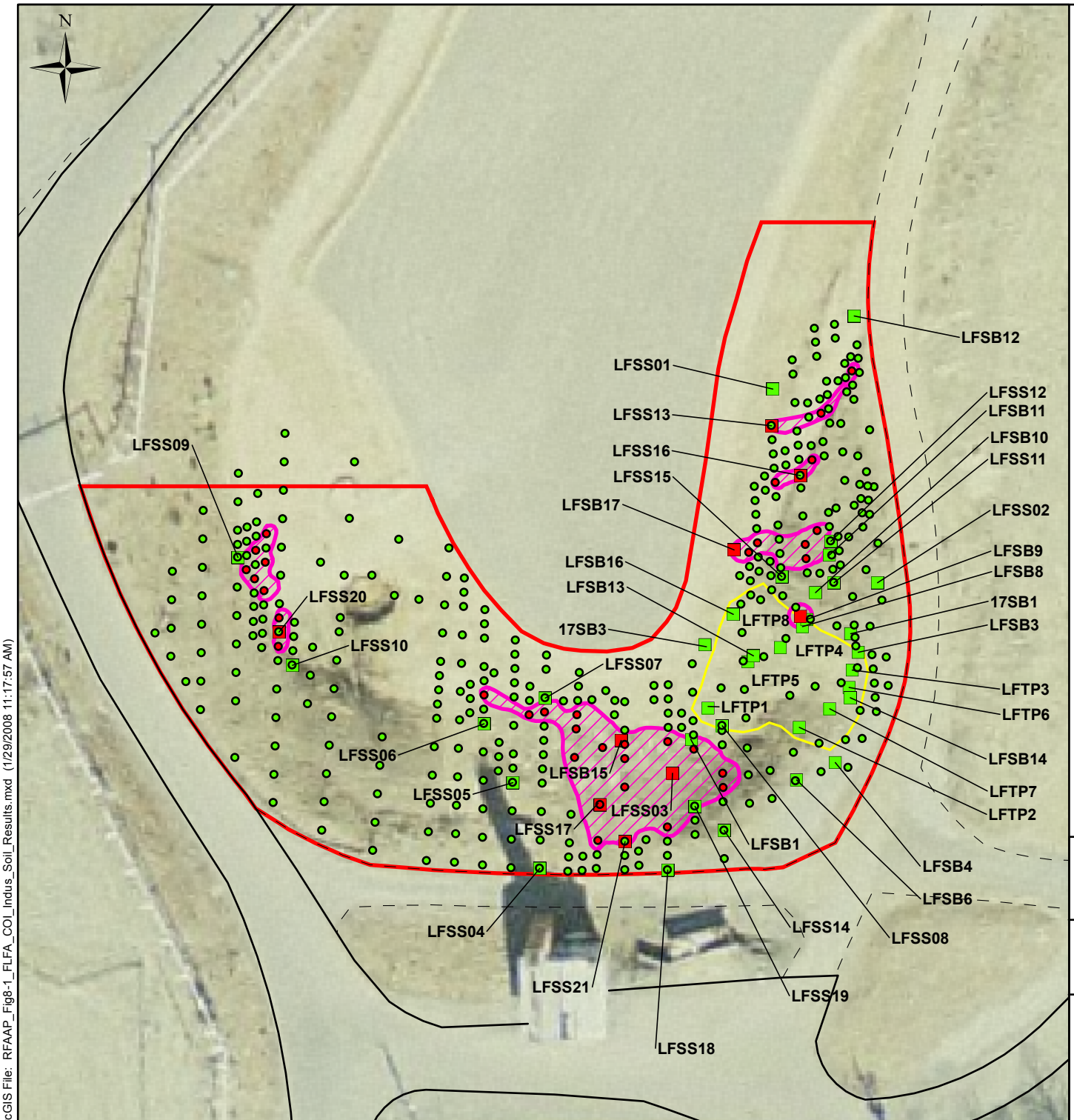
0 70 140 280 Feet

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 2-7
Former Lead Furnace Area
Groundwater Flow Map
Radford Army Ammunition Plant,
Radford, VA

GIS File: RFAAP_Fig2-7_FLFA_GW_Flow.mxd (1/28/2008 10:14:12 AM)



LEGEND

- Sample Location (XRF Lead Result Below Industrial Remedial Goal)
- Sample Location (XRF Lead Result Above Industrial Remedial Goal)
- Sample Location (Contaminants of Interest Below Industrial Remedial Goal)
- Sample Location (Contaminants of Interest Above Industrial Remedial Goal)
- Dirt Road
- Paved Road
- Industrial Remedial Goal Excavation Area
- 1998 RFI Soil Excavation Area
- Former Lead Furnace Area Boundary

Notes:
1) Aerial photo, dated 25 May 2000, was obtained from the Army Topographic Engineering Center.

Scale:
0 25 50 100 Feet

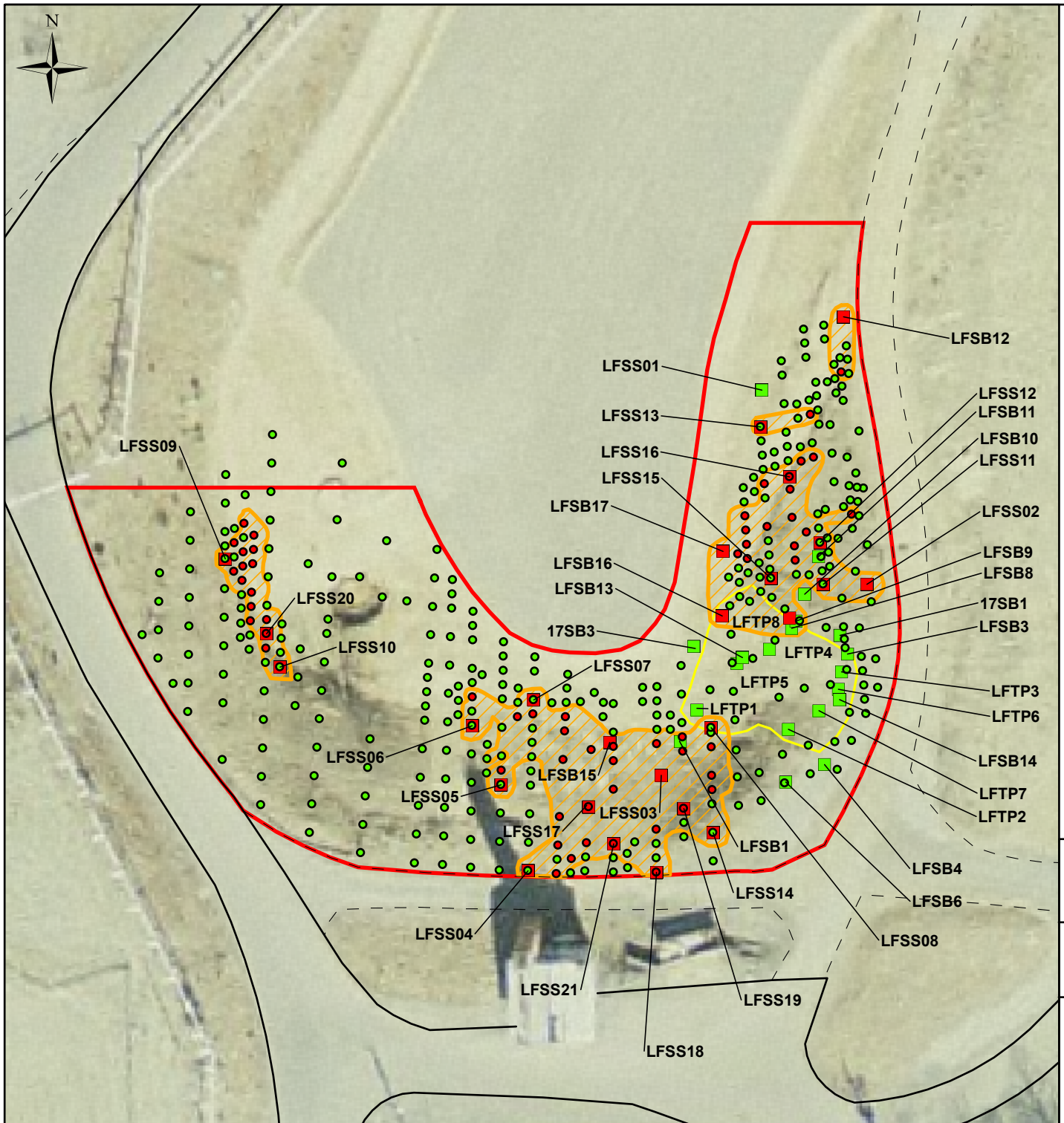
U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 8-1
Former Lead Furnace Area
Area of Soil Contamination
Above Industrial Remedial Goals

Radford Army Ammunition Plant,
Radford, VA

ArcGIS File: RFAAP_Fig8-1_FLFA_COI_Indus_Soil_Results.mxd (1/29/2008 11:17:57 AM)



LEGEND

- Sample Location (XRF Lead Result Below Residential Remedial Goal)
- Sample Location (XRF Lead Result Above Residential Remedial Goal)
- Sample Location (Contaminants of Interest Below Residential Remedial Goal)
- Sample Location (Contaminants of Interest Above Residential Remedial Goal)
- Dirt Road
- Paved Road
- Residential Remedial Goal Excavation Area
- 1998 RFI Soil Excavation Area
- Former Lead Furnace Area Boundary

Notes:
1) Aerial photo, dated 25 May 2000, was obtained from the Army Topographic Engineering Center.

Scale:
0 25 50 100 Feet

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

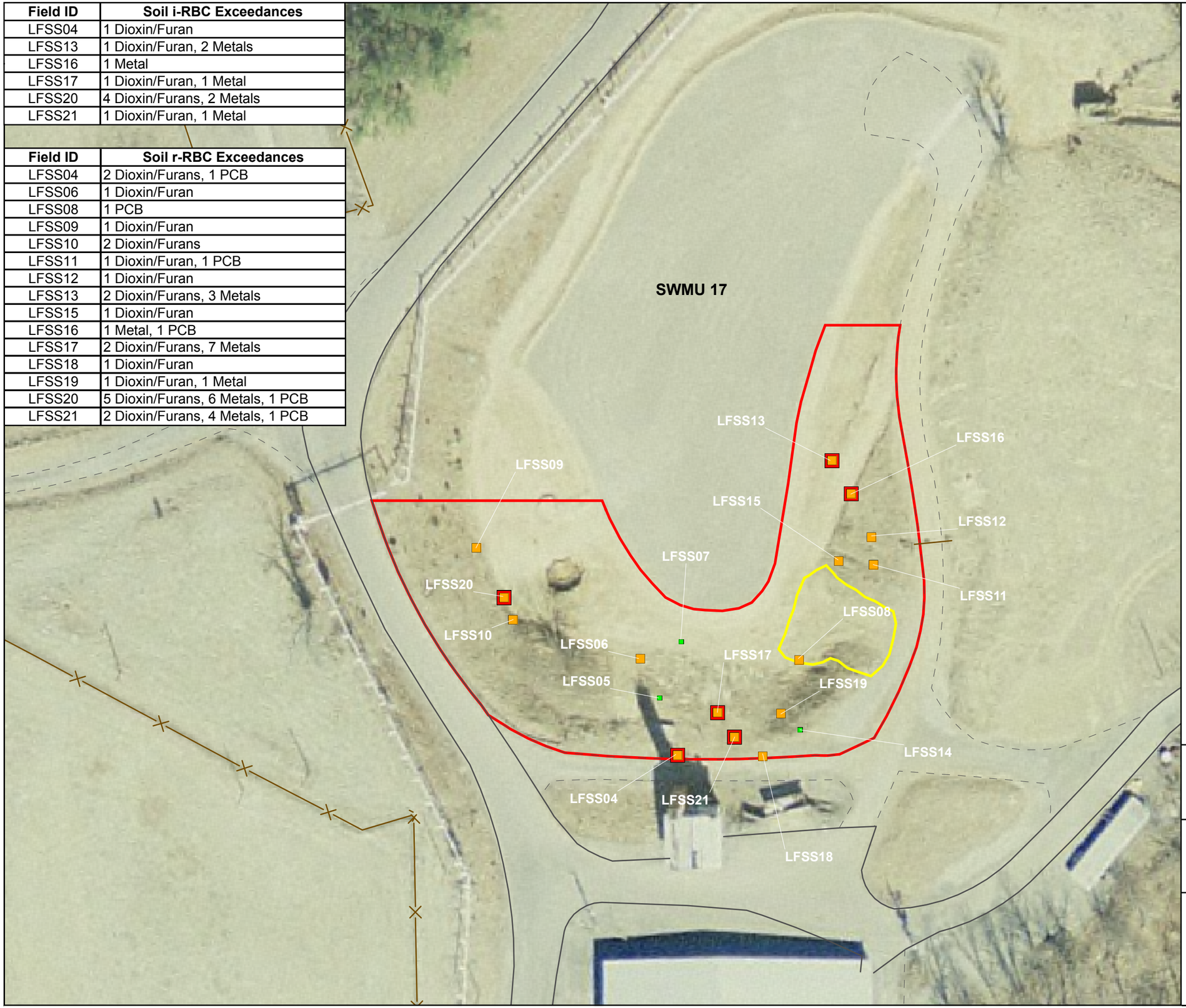
FIGURE 8-2
Former Lead Furnace Area
Area of Soil Contamination
Above Residential Remedial Goals

Radford Army Ammunition Plant,
Radford, VA

ArcGIS File: RFAAP_Fig8-2_FLFA_COI_Res_Soil_Results.mxd (1/29/2008 11:01:18 AM)

Field ID	Soil i-RBC Exceedances
LFSS04	1 Dioxin/Furan
LFSS13	1 Dioxin/Furan, 2 Metals
LFSS16	1 Metal
LFSS17	1 Dioxin/Furan, 1 Metal
LFSS20	4 Dioxin/Furans, 2 Metals
LFSS21	1 Dioxin/Furan, 1 Metal

Field ID	Soil r-RBC Exceedances
LFSS04	2 Dioxin/Furans, 1 PCB
LFSS06	1 Dioxin/Furan
LFSS08	1 PCB
LFSS09	1 Dioxin/Furan
LFSS10	2 Dioxin/Furans
LFSS11	1 Dioxin/Furan, 1 PCB
LFSS12	1 Dioxin/Furan
LFSS13	2 Dioxin/Furans, 3 Metals
LFSS15	1 Dioxin/Furan
LFSS16	1 Metal, 1 PCB
LFSS17	2 Dioxin/Furans, 7 Metals
LFSS18	1 Dioxin/Furan
LFSS19	1 Dioxin/Furan, 1 Metal
LFSS20	5 Dioxin/Furans, 6 Metals, 1 PCB
LFSS21	2 Dioxin/Furans, 4 Metals, 1 PCB



LEGEND

- Soil Sample Location Result < r-RBC and < i-RBC
- Soil Sample Location Result >= r-RBC
- Soil Sample Location Result >= i-RBC
- Fence Line
- Dirt Road
- Paved Road
- Excavation Boundary
- Former Lead Furnace Area Boundary

Notes:
1) Aerial photo, dated 2005, was obtained from Montgomery County, VA Planning & GIS Services.
2) i-RBC and r-RBC values as of October 2007.

N

Scale:

0 25 50 100 Feet

U.S. Army Corps of Engineers

Shaw® Shaw Environmental, Inc.

FIGURE 4-2
Former Lead Furnace Area
2007 Investigation Soil Results
Radford Army Ammunition Plant
Radford, VA

ArcGIS File: RFAAP_Fig4-2_FLFA_2007_Soil_Results.mxd (1/9/2008 11:31:16 AM)

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Table 4-2
Analytes Detected in FLFA Soil - 2007 Investigation

Analyte				Sample ID	LFSS04					LFSS05					LFSS06				
				Sample Date	8/2/07					8/2/07					8/2/07				
				Sample Depth	0-0.5					0-0.5					0-0.5				
	i-RBC	r-RBC	Background		Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
PCBs (mg/kg)																			
PCB-1254	1.4	0.16	na		0.161	J	J	*0.021*	*0.042*	0.0285		J	*0.01*	*0.021*	0.0243		J	*0.0096*	*0.019*
PCB-1260	1.4	0.32	na		0.0568	J	J	*0.021*	*0.042*	0.021	U		*0.01*	*0.021*	0.019	U		*0.0096*	*0.019*
Metals (mg/kg)																			
Aluminum	100000	7800	40041		16300		J	*3*	*12*	17800		J	*2.8*	*12*	10200		J	*2.7*	*11*
Antimony	41	3.1	na		1	J	B	*0.24*	*3.7*	0.94	J	B	*0.22*	*3.5*	0.89	J	B	*0.21*	*3.4*
Arsenic	1.9	0.43	15.8		12.2		J	*0.24*	*0.5*	3.7		J	*0.23*	*0.47*	5.9		J	*0.22*	*0.45*
Barium	20000	1600	209		90		J	*0.31*	*12*	90.3		J	*0.29*	*12*	**253**	**C**	**J**	*0.28*	*11*
Beryllium	200	16	1.02		**1.5**		**B**	*0.12*	*0.62*	**1.6**		**B**	*0.12*	*0.58*	0.98		B	*0.11*	*0.56*
Cadmium	51	3.9	0.69		0.062	U	UL	*0.062*	*0.25*	0.59	U	UL	*0.59*	*1.2*	0.28	U	UL	*0.28*	*0.44*
Calcium	na	na	na		5420		J	*6.2*	*310*	4140		J	*5.9*	*290*	1520		J	*5.6*	*280*
Chromium	310	23	65.3		30.2		J	*0.087*	*0.62*	32.7		J	*0.082*	*0.59*	20.6		J	*0.078*	*0.56*
Cobalt	na	na	72.3		11.9		J	*0.068*	*3.1*	9.4		J	*0.064*	*2.9*	22.5		J	*0.061*	*2.8*
Copper	4100	310	53.5		**160**		**J**	*0.12*	*1.6*	**54.3**		**J**	*0.11*	*1.5*	**64.2**		**J**	*0.11*	*1.4*
Iron	72000	5500	50962		22300		J	*0.87*	*6.2*	21100		J	*0.82*	*5.9*	19600		J	*0.78*	*5.6*
Lead	800	400	26.8		**118**		**J**	*0.15*	*6.2*	**94.5**		**J**	*0.14*	*5.9*	**135**		**J**	*0.13*	*5.6*
Magnesium	na	na	na		4450		J	*6.2*	*310*	11000		J	*5.9*	*290*	4490		J	*5.6*	*280*
Manganese	2000	160	2543		435	C	J	*0.062*	*0.93*	360	C	J	*0.059*	*0.88*	2060		J	*0.56*	*8.4*
Mercury	31	2.3	0.13		**0.21**		**J**	*0.012*	*0.1*	**0.16**		**J**	*0.012*	*0.094*	0.081	J	J	*0.011*	*0.088*
Nickel	2000	160	62.8		16.4		J	*0.16*	*2.5*	19.3		J	*0.15*	*2.3*	12.8		J	*0.14*	*2.2*
Potassium	na	na	na		1920		J	*6.2*	*620*	2550		J	*5.9*	*590*	1440		J	*5.6*	*560*
Selenium	510	39	na		0.61	J	L	*0.28*	*6.2*	0.53	J	L	*0.26*	*5.9*	1.1	J	L	*0.25*	*5.6*
Silver	510	39	na		0.91		L	*0.087*	*0.62*	0.62		L	*0.082*	*0.59*	0.6		L	*0.078*	*0.56*
Sodium	na	na	na		465	J	L	*31*	*620*	328	J	L	*29*	*590*	307	J	L	*28*	*560*
Thallium	7.2	0.55	2.11		0.7	U	UL	*0.7*	*1.2*	0.66	U	UL	*0.66*	*1.2*	0.62	U	UL	*0.62*	*1*
Vanadium	102	7.8	108		44.6		J	*0.062*	*3.1*	44.8		J	*0.059*	*2.9*	32.7		J	*0.056*	*2.8*
Zinc	31000	2300	202		**290**	**C**	**J**	*0.31*	*1.2*	165		J	*0.29*	*1.2*	**327**	**C**	**J**	*0.28*	*1.1*
Dioxins/Furans (ng/kg)																			
2,3,7,8-TCDF	na	na	na		29.9					6.95					7.6				
2,3,7,8-TCDD	19	4.3	na		11					2.88					2.67				
1,2,3,7,8-PECDD	na	na	na		38.8	EMPC	J	*0.584*	*0.584*	3.54	J	J			5.17	J	J		
1,2,3,4,7,8-HXCDD	460	100	na		43.8					3.75	J	J			6.11				
1,2,3,6,7,8-HXCDD	460	100	na		85.6					8.13					9.98				
1,2,3,7,8,9-HXCDD	460	100	na		80.7					7.67					10.2				
1,2,3,4,6,7,8-HPCDD	na	na	na		1730					158					155				
OCDD	na	na	na		11500	E	J			5280	E	J			2670				
1,2,3,7,8-PECDF	na	na	na		26.1					3.42	J	J			6.31				
2,3,4,7,8-PECDF	na	na	na		45.3					7.92					8.67				
1,2,3,4,7,8-HXCDF	na	na	na		59.3					12.1					10.8				
1,2,3,6,7,8-HXCDF	na	na	na		47.7					7.36					7.82				
2,3,4,6,7,8-HXCDF	na	na	na		58					9.75					10.6				
1,2,3,7,8,9-HXCDF	na	na	na		15					2.73	J	J			2.79	J	J		
1,2,3,4,6,7,8-HPCDF	na	na	na		467					52.3					47.3				
1,2,3,4,7,8,9-HPCDF	na	na	na		33.3					4.06	J	J			3.52	J	J		
OCDF	na	na	na		1000					60.1					52				
TOTAL TCDD	na	na	na		166	EMPC	J			27.6	EMPC	J			40.4	EMPC	J		
TOTAL PECDD	na	na	na		347	Q, EMPC	J			46.1					73.3				
TOTAL HXCDD	460	100	na		828					80.6					113				
TOTAL HPCDD	na	na	na		3880					373					370				
TOTAL TCDF	na	na	na		408	Q, EMPC	J			77.5	EMPC	J			81.4	EMPC	J		
TOTAL PECDF	na	na	na		362	Q, EMPC	J			66.9	EMPC	J			73.2	EMPC	J		
TOTAL HXCDF	na	na	na		542					76.3	EMPC	J			86				
TOTAL HPCDF	na	na	na		1330					100					95.7	EMPC	J		

**Refer to legend immediately following this table for a list of definitions and table notes

Table 4-2
Analytes Detected in FLFA Soil - 2007 Investigation

Analyte	Sample ID			LFSS07					LFSS08					LFSS09				
	Sample Date			8/2/07					8/2/07					8/2/07				
	Sample Depth			0-0.5					0-0.5					0-0.5				
	i-RBC	r-RBC	Background	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
PCBs (mg/kg)																		
PCB-1254	1.4	0.16	na	0.0135	J	J	*0.009*	*0.018*	0.309			*0.043*	*0.087*	0.0453	J	J	*0.0098*	*0.02*
PCB-1260	1.4	0.32	na	0.018	U		*0.009*	*0.018*	0.087	U		*0.043*	*0.087*	0.0621	J	J	*0.0098*	*0.02*
Metals (mg/kg)																		
Aluminum	100000	7800	40041	14300		J	*2.7*	*11*	9770		J	*2.5*	*10*	16400		J	*2.9*	*12*
Antimony	41	3.1	na	0.34	J	B	*0.21*	*3.3*	0.42	J	B	*0.2*	*3.1*	1	J	B	*0.23*	*3.6*
Arsenic	1.9	0.43	15.8	1.9		J	*0.22*	*0.44*	2.6		J	*0.2*	*0.41*	5.1		J	*0.23*	*0.48*
Barium	20000	1600	209	79.9		J	*0.28*	*11*	65.1		J	*0.26*	*10*	70.6		J	*0.3*	*12*
Beryllium	200	16	1.02	0.8		B	*0.11*	*0.56*	0.9		B	*0.11*	*0.56*	**1.5**		**B**	*0.12*	*0.6*
Cadmium	51	3.9	0.69	0.55	U	UL	*0.55*	*0.88*	1	U	UL	*1*	*2.1*	1.2	U	UL	*1.2*	*2.4*
Calcium	na	na	na	5540		J	*5.5*	*280*	3740		J	*5.2*	*260*	1580		J	*6*	*300*
Chromium	310	23	65.3	18.5		J	*0.078*	*0.55*	13.1		J	*0.072*	*0.52*	35.7		J	*0.083*	*0.6*
Cobalt	na	na	72.3	8.7		J	*0.061*	*2.8*	6.4		J	*0.057*	*2.6*	12.1		J	*0.066*	*3*
Copper	4100	310	53.5	46.4		J	*0.11*	*1.4*	30.3		J	*0.098*	*1.3*	**62.1**		**J**	*0.11*	*1.5*
Iron	72000	5500	50962	17800		J	*0.78*	*5.5*	14100		J	*0.72*	*5.2*	25000		J	*0.83*	*6*
Lead	800	400	26.8	**51.1**		**J**	*0.13*	*5.5*	**37.1**		**J**	*0.12*	*5.2*	**126**		**J**	*0.14*	*6*
Magnesium	na	na	na	4910		J	*5.5*	*280*	2720		J	*5.2*	*260*	5160		J	*6*	*300*
Manganese	2000	160	2543	417	C	J	*0.055*	*0.83*	247	C	J	*0.052*	*0.77*	467	C	J	*0.06*	*0.89*
Mercury	31	2.3	0.13	0.049	J	J	*0.011*	*0.086*	0.03	J	J	*0.011*	*0.086*	0.12		J	*0.012*	*0.096*
Nickel	2000	160	62.8	12.3		J	*0.14*	*2.2*	7.7		J	*0.13*	*2.1*	16.3		J	*0.15*	*2.4*
Potassium	na	na	na	1520		J	*5.5*	*550*	1130		J	*5.2*	*520*	1530		J	*6*	*600*
Selenium	510	39	na	0.51	J	L	*0.25*	*5.5*	0.5	J	L	*0.23*	*5.2*	0.7	J	L	*0.27*	*6*
Silver	510	39	na	6.1		L	*0.078*	*0.55*	0.11	J	L	*0.072*	*0.52*	0.19	J	L	*0.083*	*0.6*
Sodium	na	na	na	264	J	B	*28*	*550*	214	J	B	*26*	*520*	341	J	L	*30*	*600*
Thallium	7.2	0.55	2.11	0.78	J	B	*0.62*	*1*	0.83	J	B	*0.6*	*1*	1.3		B	*0.66*	*1.2*
Vanadium	102	7.8	108	33.1		J	*0.055*	*2.8*	21.6		J	*0.052*	*2.6*	53		J	*0.06*	*3*
Zinc	31000	2300	202	123		J	*0.28*	*1.1*	44		J	*0.26*	*1*	145		J	*0.3*	*1.2*
Dioxins/Furans (ng/kg)																		
2,3,7,8-TCDF	na	na	na	3.6					1.62					6.94				
2,3,7,8-TCDD	19	4.3	na	1.25					0.682	J	B			3.03				
1,2,3,7,8-PECDD	na	na	na	4.6	J	J			0.932	J	J			4.8	J	J		
1,2,3,4,7,8-HXCDD	460	100	na	4.71	J	J			1.29	J	J			6.1				
1,2,3,6,7,8-HXCDD	460	100	na	8.42					2.32	J	J			9.94				
1,2,3,7,8,9-HXCDD	460	100	na	8.88					2.76	J	J			10.6				
1,2,3,4,6,7,8-HPCDD	na	na	na	167					57.2					250				
OCDD	na	na	na	4700	E	J			1440					7270	E	J		
1,2,3,7,8-PECDF	na	na	na	4.91	J	J			1.8	J	J			5.28	J	J		
2,3,4,7,8-PECDF	na	na	na	6.99					1.37	J, EMPC	J	*1.37*	*1.37*	5.6	J	J		
1,2,3,4,7,8-HXCDF	na	na	na	11.6					2.15	J	J			8.36				
1,2,3,6,7,8-HXCDF	na	na	na	8.51					1.4	J, EMPC	J	*1.4*	*1.4*	5.46	J	J		
2,3,4,6,7,8-HXCDF	na	na	na	10.1					1.76	J	J			6.04				
1,2,3,7,8,9-HXCDF	na	na	na	2.84	J	J			0.387	J, EMPC	J	*0.378*	*0.378*	1.51	J	J		
1,2,3,4,6,7,8-HPCDF	na	na	na	61.4					12.1					44.6				
1,2,3,4,7,8,9-HPCDF	na	na	na	5.15					0.845	J	J			3.15	J	J		
OCDF	na	na	na	101					23.1					84.9				
TOTAL TCDD	na	na	na	27.6					4.61	EMPC	J			34.1	EMPC	J		
TOTAL PECDD	na	na	na	56.6					12.8	EMPC	J			53	EMPC	J		
TOTAL HXCDD	460	100	na	94.4					25.5	EMPC	J			108				
TOTAL HPCDD	na	na	na	399					137					619				
TOTAL TCDF	na	na	na	63.8	EMPC	J			14.4	EMPC	J			63.3	EMPC	J		
TOTAL PECDF	na	na	na	62.4	EMPC	J			14.1	EMPC	J			53.8	EMPC	J		
TOTAL HXCDF	na	na	na	92.8	EMPC	J			18	EMPC	J			67.1				
TOTAL HPCDF	na	na	na	142					32					116	EMPC	J		

**Refer to legend immediately following this table for a list of definitions and table notes

Table 4-2
Analytes Detected in FLFA Soil - 2007 Investigation

Analyte	Sample ID			LFSS10					LFSS11					LFSS12				
	Sample Date			8/2/07					8/2/07					8/2/07				
	Sample Depth			0-0.5					0-0.5					0-0.5				
	i-RBC	r-RBC	Background	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
PCBs (mg/kg)																		
PCB-1254	1.4	0.16	na	0.067	J	J	*0.011*	*0.022*	0.402			*0.047*	*0.095*	0.117			*0.01*	*0.02*
PCB-1260	1.4	0.32	na	0.0373	J	J	*0.011*	*0.022*	0.095	U		*0.047*	*0.095*	0.02	U		*0.01*	*0.02*
Metals (mg/kg)																		
Aluminum	100000	7800	40041	14400		J	*3.1*	*13*	17300		J	*2.6*	*11*	18700		J	*3*	*12*
Antimony	41	3.1	na	0.88	J	B	*0.25*	*3.9*	0.89	J	B	*0.2*	*3.2*	0.86	J	B	*0.23*	*3.7*
Arsenic	1.9	0.43	15.8	3.7		J	*0.25*	*0.52*	6.1		J	*0.21*	*0.43*	6.8		J	*0.24*	*0.49*
Barium	20000	1600	209	69.7		J	*0.33*	*13*	89.8		J	*0.27*	*11*	112		J	*0.31*	*12*
Beryllium	200	16	1.02	**1.7**		**B**	*0.13*	*0.66*	0.7		B	*0.11*	*0.54*	**1.2**		**B**	*0.12*	*0.62*
Cadmium	51	3.9	0.69	1.3	U	UL	*1.3*	*2.6*	1.1	U	UL	*1.1*	*2.2*	1.2	U	UL	*1.2*	*2.5*
Calcium	na	na	na	2070		J	*6.5*	*330*	8340		J	*5.4*	*270*	2930		J	*6.2*	*310*
Chromium	310	23	65.3	29.9		J	*0.091*	*0.65*	24.3		J	*0.075*	*0.54*	32.1		J	*0.086*	*0.62*
Cobalt	na	na	72.3	13.7		J	*0.072*	*3.3*	6.3		J	*0.059*	*2.7*	10.6		J	*0.068*	*3.1*
Copper	4100	310	53.5	**92.3**		**J**	*0.12*	*1.6*	**86.2**		**J**	*0.1*	*1.3*	**121**		**J**	*0.12*	*1.5*
Iron	72000	5500	50962	28700		J	*0.91*	*6.5*	21900		J	*0.75*	*5.4*	25200		J	*0.86*	*6.2*
Lead	800	400	26.8	**86.2**		**J**	*0.16*	*6.5*	**372**	**C**	**J**	*0.13*	*5.4*	**241**		**J**	*0.15*	*6.2*
Magnesium	na	na	na	4540		J	*6.5*	*330*	4460		J	*5.4*	*270*	15000		J	*6.2*	*310*
Manganese	2000	160	2543	500	C	J	*0.065*	*0.98*	823		J	*0.54*	*8.1*	607		J	*0.062*	*0.92*
Mercury	31	2.3	0.13	0.12		J	*0.013*	*0.1*	**0.16**		**J**	*0.011*	*0.09*	0.1		J	*0.012*	*0.098*
Nickel	2000	160	62.8	18.7		J	*0.16*	*2.6*	25.6		J	*0.13*	*2.2*	19.5		J	*0.15*	*2.5*
Potassium	na	na	na	1440		J	*6.5*	*650*	1400		K	*5.4*	*540*	3510		K	*6.2*	*620*
Selenium	510	39	na	0.78	J	L	*0.29*	*6.5*	0.37	J	L	*0.24*	*5.4*	0.34	J	L	*0.28*	*6.2*
Silver	510	39	na	0.5	J	L	*0.091*	*0.65*	0.18	J	K	*0.075*	*0.54*	0.39	J	K	*0.086*	*0.62*
Sodium	na	na	na	357	J	L	*33*	*650*	344	J	J	*27*	*540*	397	J	J	*31*	*620*
Thallium	7.2	0.55	2.11	2		B	*0.74*	*1.2*	0.6	U		*0.6*	*1*	0.64	U		*0.64*	*1.2*
Vanadium	102	7.8	108	45		J	*0.065*	*3.3*	45.3		J	*0.054*	*2.7*	40.2		J	*0.062*	*3.1*
Zinc	31000	2300	202	**223**		**J**	*0.33*	*1.3*	132		J	*0.27*	*1.1*	172		J	*0.31*	*1.2*
Dioxins/Furans (ng/kg)																		
2,3,7,8-TCDF	na	na	na	13.4					9.35					7.34				
2,3,7,8-TCDD	19	4.3	na	16.1					3.94					1.79				
1,2,3,7,8-PECDD	na	na	na	12.1					14.3					5.6	J	J		
1,2,3,4,7,8-HXCDD	460	100	na	12.9					14.1					5.98	J	J		
1,2,3,6,7,8-HXCDD	460	100	na	21					22.8					10.3				
1,2,3,7,8,9-HXCDD	460	100	na	23.3					25.3					11.1				
1,2,3,4,6,7,8-HPCDD	na	na	na	395					458					171				
OCDD	na	na	na	7690	E	J			7440	E	J			1300		K		
1,2,3,7,8-PECDF	na	na	na	10.5					10.6					6.02	J	J		
2,3,4,7,8-PECDF	na	na	na	14.1					14.6					7.4				
1,2,3,4,7,8-HXCDF	na	na	na	20.8					20					8.77				
1,2,3,6,7,8-HXCDF	na	na	na	13.6					13.8					6.47				
2,3,4,6,7,8-HXCDF	na	na	na	15.1					17.3					8.26				
1,2,3,7,8,9-HXCDF	na	na	na	3.64	J	J			4.41	J	J			2.25	J	J		
1,2,3,4,6,7,8-HPCDF	na	na	na	89.9					112					47.6				
1,2,3,4,7,8,9-HPCDF	na	na	na	5.89	J	J			7.39					3.58	J	J		
OCDF	na	na	na	133					191					74.5				
TOTAL TCDD	na	na	na	96	EMPC	J			85	EMPC	J			40.2				
TOTAL PECDD	na	na	na	147					163					68.7				
TOTAL HXCDD	460	100	na	245					255					109	EMPC	J		
TOTAL HPCDD	na	na	na	984					1080					384				
TOTAL TCDF	na	na	na	155	EMPC	J			187	EMPC	J			87.9	EMPC	J		
TOTAL PECDF	na	na	na	123	EMPC	J			127	EMPC	J			66.1	EMPC	J		
TOTAL HXCDF	na	na	na	148	EMPC	J			172	EMPC	J			77.4				
TOTAL HPCDF	na	na	na	187					282					115	EMPC	J		

**Refer to legend immediately following this table for a list of definitions and table notes

Table 4-2
Analytes Detected in FLFA Soil - 2007 Investigation
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Analyte	Sample ID / Sample Date / Sample Depth			LFSS13 8/2/07 0-0.5					LFSS14 8/2/07 0-0.5					LFSS15 8/2/07 0-0.5				
	i-RBC	r-RBC	Background	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
PCBs (mg/kg)																		
PCB-1254	1.4	0.16	na	0.111			*0.011*	*0.021*	0.0533			*0.01*	*0.02*	0.151			*0.018*	*0.037*
PCB-1260	1.4	0.32	na	0.021	U		*0.011*	*0.021*	0.02	U		*0.01*	*0.02*	0.037	U		*0.018*	*0.037*
Metals (mg/kg)																		
Aluminum	100000	7800	40041	20400		J	*2.9*	*12*	14400		J	*2.7*	*11*	17900		J	*2.6*	*11*
Antimony	41	3.1	na	1.4	J	B	*0.23*	*3.6*	0.65	J	B	*0.22*	*3.4*	0.74	J	B	*0.2*	*3.2*
Arsenic	1.9	0.43	15.8	**31.4**		**J**	*0.23*	*0.48*	4.3		J	*0.22*	*0.45*	4.9		J	*0.21*	*0.43*
Barium	20000	1600	209	84		J	*0.3*	*12*	52.9		J	*0.28*	*11*	75.5		J	*0.27*	*11*
Beryllium	200	16	1.02	**1.3**		**B**	*0.12*	*0.6*	0.64		B	*0.11*	*0.56*	0.7		B	*0.11*	*0.54*
Cadmium	51	3.9	0.69	0.14	J	L	*0.06*	*0.24*	1.1	U	UL	*1.1*	*2.3*	1.1	U	UL	*1.1*	*2.1*
Calcium	na	na	na	10600		J	*6*	*300*	1590		J	*5.7*	*280*	6850		J	*5.3*	*270*
Chromium	310	23	65.3	44		J	*0.083*	*0.6*	27.6		J	*0.079*	*0.57*	29.9		J	*0.075*	*0.53*
Cobalt	na	na	72.3	11.2		J	*0.066*	*3*	6.9		J	*0.062*	*2.8*	7.1		J	*0.059*	*2.7*
Copper	4100	310	53.5	**7560**		**J**	*5.7*	*75*	37.5		J	*0.11*	*1.4*	33.4		J	*0.1*	*1.3*
Iron	72000	5500	50962	24600		J	*0.83*	*6*	20400		J	*0.79*	*5.7*	23100		J	*0.75*	*5.3*
Lead	800	400	26.8	**161**		**J**	*0.14*	*6*	**35.9**		**J**	*0.14*	*5.7*	**186**		**J**	*0.13*	*5.3*
Magnesium	na	na	na	9290		J	*6*	*300*	1070		J	*5.7*	*280*	3500		J	*5.3*	*270*
Manganese	2000	160	2543	794		J	*1.2*	*18*	548		J	*0.057*	*0.85*	680		J	*0.53*	*8*
Mercury	31	2.3	0.13	0.087	J	J	*0.012*	*0.099*	0.1		J	*0.012*	*0.095*	**0.14**		**J**	*0.011*	*0.086*
Nickel	2000	160	62.8	34.9		J	*0.15*	*2.4*	7.5		J	*0.14*	*2.3*	10.4		J	*0.13*	*2.1*
Potassium	na	na	na	2250		J	*6*	*600*	712		J	*5.7*	*570*	957		J	*5.3*	*530*
Selenium	510	39	na	0.39	J	L	*0.27*	*6*	1.3	J	L	*0.26*	*5.7*	0.79	J	L	*0.24*	*5.3*
Silver	510	39	na	0.53	J	L	*0.083*	*0.6*	0.19	J	L	*0.079*	*0.57*	0.075	U	UL	*0.075*	*0.53*
Sodium	na	na	na	527	J	L	*30*	*600*	228	J	B	*28*	*570*	304	J	L	*27*	*530*
Thallium	7.2	0.55	2.11	0.66	U	UL	*0.66*	*1.2*	1.7		B	*0.64*	*1.1*	0.78	J	B	*0.6*	*1*
Vanadium	102	7.8	108	48.1		J	*0.06*	*3*	45.2		J	*0.057*	*2.8*	51.3		J	*0.053*	*2.7*
Zinc	31000	2300	202	**2820**		**J**	*6*	*24*	60.5		J	*0.28*	*1.1*	111		J	*0.27*	*1.1*
Dioxins/Furans (ng/kg)																		
2,3,7,8-TCDF	na	na	na	40.3					2.77					3.83				
2,3,7,8-TCDD	19	4.3	na	12.9					1.01	J, EMPC	J	*0.143*	*0.143*	1.84				
1,2,3,7,8-PECDD	na	na	na	35.9					2.76	J	J			5.6	J	J		
1,2,3,4,7,8-HXCDD	460	100	na	27					2.85	J	J			4.95	J	J		
1,2,3,6,7,8-HXCDD	460	100	na	53.8					5.01	J	J			9.97				
1,2,3,7,8,9-HXCDD	460	100	na	57.2					5.47	J	J			11.2				
1,2,3,4,6,7,8-HPCDD	na	na	na	798					123					203				
OCDD	na	na	na	6770	E	J			4270					3430				
1,2,3,7,8-PECDF	na	na	na	40					2.15	J	J			3.26	J	J		
2,3,4,7,8-PECDF	na	na	na	79.5					3.63	J	J			4.3	J	J		
1,2,3,4,7,8-HXCDF	na	na	na	82.9					4.53	J	J			5.97	J	J		
1,2,3,6,7,8-HXCDF	na	na	na	75.5					3.88	J	J			4.69	J	J		
2,3,4,6,7,8-HXCDF	na	na	na	92.9					4.44	J	J			5.07	J	J		
1,2,3,7,8,9-HXCDF	na	na	na	16.1					0.955	J	J			1.22	J	J		
1,2,3,4,6,7,8-HPCDF	na	na	na	457					25.9					38.9				
1,2,3,4,7,8,9-HPCDF	na	na	na	19.5					2.15	J	J			3.12	J	J		
OCDF	na	na	na	327					41.3					80.6				
TOTAL TCDD	na	na	na	257	Q, EMPC	J			15.3	EMPC	J			28.2	EMPC	J		
TOTAL PECDD	na	na	na	370	Q, EMPC	J			30.1	EMPC	J			53.5	EMPC	J		
TOTAL HXCDD	460	100	na	675					57.9					106				
TOTAL HPCDD	na	na	na	1660					314					463				
TOTAL TCDF	na	na	na	1220	Q, EMPC	J			41.4	EMPC	J			53.7	EMPC	J		
TOTAL PECDF	na	na	na	1040	Q, EMPC	J			29	EMPC	J			37.5	EMPC	J		
TOTAL HXCDF	na	na	na	858					37.3	EMPC	J			51.8	EMPC	J		
TOTAL HPCDF	na	na	na	667					57.8					106				

**Refer to legend immediately following this table for a list of definitions and table notes

Table 4-2
Analytes Detected in FLFA Soil - 2007 Investigation
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Analyte	Sample ID			LFSS16					LFSS17					LFSS18				
	Sample Date			8/2/07					8/2/07					8/2/07				
	Sample Depth			0-0.5					0-0.5					0-0.5				
	i-RBC	r-RBC	Background	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
PCBs (mg/kg)																		
PCB-1254	1.4	0.16	na	0.18	U		*0.088*	*0.18*	0.0642	J	J	*0.0094*	*0.019*	0.11	J	J	*0.0099*	*0.02*
PCB-1260	1.4	0.32	na	1.09			*0.088*	*0.18*	0.133	J	J	*0.0094*	*0.019*	0.0677	J	J	*0.0099*	*0.02*
Metals (mg/kg)																		
Aluminum	100000	7800	40041	20000		J	*2.7*	*11*	19300		J	*2.8*	*12*	16100		J	*2.7*	*11*
Antimony	41	3.1	na	1.1	J	B	*0.21*	*3.3*	5.3		L	*0.22*	*3.5*	1.4	J	B	*0.22*	*3.4*
Arsenic	1.9	0.43	15.8	3		J	*0.22*	*0.44*	10.7		J	*0.23*	*0.47*	5.3		J	*0.22*	*0.46*
Barium	20000	1600	209	68.3		J	*0.28*	*11*	**2420**		**J**	*5.9*	*230*	**438**	**C**	**J**	*0.29*	*11*
Beryllium	200	16	1.02	**1.4**		**B**	*0.11*	*0.56*	**1.6**		**B**	*0.12*	*0.58*	**1.4**		**B**	*0.11*	*0.58*
Cadmium	51	3.9	0.69	0.056	U	UL	*0.056*	*0.22*	**5.1**		**L**	*0.059*	*0.23*	0.45		L	*0.057*	*0.23*
Calcium	na	na	na	14200		J	*5.6*	*280*	12400		J	*5.9*	*290*	11300		J	*5.7*	*290*
Chromium	310	23	65.3	30.5		J	*0.078*	*0.56*	59.1		J	*0.082*	*0.59*	33.2		J	*0.08*	*0.57*
Cobalt	na	na	72.3	8.3		J	*0.061*	*2.8*	10.2		J	*0.065*	*2.9*	26.9		J	*0.063*	*2.9*
Copper	4100	310	53.5	**97.3**		**J**	*0.11*	*1.4*	**3090**		**J**	*2.2*	*29*	**179**		**J**	*0.11*	*1.4*
Iron	72000	5500	50962	20600		J	*0.78*	*5.6*	25500		J	*0.82*	*5.9*	26200		J	*0.8*	*5.7*
Lead	800	400	26.8	**1550**		**J**	*1.3*	*56*	**1660**		**J**	*2.8*	*120*	**294**	**C**	**J**	*0.14*	*5.7*
Magnesium	na	na	na	24100		J	*5.6*	*280*	12100		J	*5.9*	*290*	8400		J	*5.7*	*290*
Manganese	2000	160	2543	355		J	*0.56*	*8.3*	907		J	*1.2*	*18*	1940		J	*0.57*	*8.6*
Mercury	31	2.3	0.13	0.048	J	J	*0.011*	*0.086*	**0.89**		**J**	*0.036*	*0.29*	**0.45**		**J**	*0.011*	*0.091*
Nickel	2000	160	62.8	19.8		J	*0.14*	*2.2*	48.3		J	*0.15*	*2.3*	20.3		J	*0.14*	*2.3*
Potassium	na	na	na	3590		J	*5.6*	*560*	2250		J	*5.9*	*590*	2030		J	*5.7*	*570*
Selenium	510	39	na	0.25	U	UL	*0.25*	*5.6*	0.68	J	L	*0.26*	*5.9*	0.49	J	L	*0.26*	*5.7*
Silver	510	39	na	0.36	J	L	*0.078*	*0.56*	65.2		L	*0.082*	*0.59*	6.2		L	*0.08*	*0.57*
Sodium	na	na	na	362	J	L	*28*	*560*	915		L	*29*	*590*	435	J	L	*29*	*570*
Thallium	7.2	0.55	2.11	0.62	U	UL	*0.62*	*1.1*	0.66	U	UL	*0.66*	*1.2*	0.64	U	UL	*0.64*	*1.2*
Vanadium	102	7.8	108	44.6		J	*0.056*	*2.8*	39		J	*0.059*	*2.9*	37.3		J	*0.057*	*2.9*
Zinc	31000	2300	202	135		J	*0.28*	*1.1*	**3150**		**J**	*5.9*	*23*	**369**	**C**	**J**	*0.29*	*1.1*
Dioxins/Furans (ng/kg)																		
2,3,7,8-TCDF	na	na	na	6.29					41.8					19.5				
2,3,7,8-TCDD	19	4.3	na	1.11	J	J			5.67					3.32				
1,2,3,7,8-PECDD	na	na	na	3.2	J	J			21.7					15.4				
1,2,3,4,7,8-HXCDD	460	100	na	2.91	J, EMPC	J	*0.57*	*0.57*	23					23.7				
1,2,3,6,7,8-HXCDD	460	100	na	6.89					46.5					37.1				
1,2,3,7,8,9-HXCDD	460	100	na	6.57					40.3					33.6				
1,2,3,4,6,7,8-HPCDD	na	na	na	144					509					507				
OCDD	na	na	na	1780					3760					4400				
1,2,3,7,8-PECDF	na	na	na	3.44	J	J			63.2					24.6				
2,3,4,7,8-PECDF	na	na	na	4.65	J	J			79.5					43.3				
1,2,3,4,7,8-HXCDF	na	na	na	24					107					61.9				
1,2,3,6,7,8-HXCDF	na	na	na	4.95	J	J			97					50.2				
2,3,4,6,7,8-HXCDF	na	na	na	5.98					116					59.5				
1,2,3,7,8,9-HXCDF	na	na	na	1.59	J	J			29.8					16.4				
1,2,3,4,6,7,8-HPCDF	na	na	na	49.2					567					300				
1,2,3,4,7,8,9-HPCDF	na	na	na	4.11	J	J			42.4					27.7				
OCDF	na	na	na	72.5					414					257				
TOTAL TCDD	na	na	na	21.5	EMPC	J			241	Q	J			135				
TOTAL PECDD	na	na	na	36.3	EMPC	J			355					218	Q, EMPC	J		
TOTAL HXCDD	460	100	na	64	EMPC	J			534					447				
TOTAL HPCDD	na	na	na	321					1290					1170				
TOTAL TCDF	na	na	na	73.3	EMPC	J			882	EMPC	J			353	Q, EMPC	J		
TOTAL PECDF	na	na	na	108	EMPC	J			715	Q, EMPC	J			314	Q, EMPC	J		
TOTAL HXCDF	na	na	na	84.3					820					459				
TOTAL HPCDF	na	na	na	110					903					525				

**Refer to legend immediately following this table for a list of definitions and table notes

Table 4-2
Analytes Detected in FLFA Soil - 2007 Investigation

Analyte	Sample ID			LFSS19					LFSS20					LFSS21				
	Sample Date			8/2/07					8/2/07					8/2/07				
	Sample Depth			0-0.5					0-0.5					0-0.5				
	i-RBC	r-RBC	Background	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL	Result	Lab Q	Val Q	MDL	MRL
PCBs (mg/kg)																		
PCB-1254	1.4	0.16	na	0.0343			*0.01*	*0.02*	0.331	J	J	*0.051*	*0.1*	0.206	J	J	*0.053*	*0.11*
PCB-1260	1.4	0.32	na	0.02	U		*0.01*	*0.02*	0.125	J	J	*0.051*	*0.1*	0.179	J	J	*0.053*	*0.11*
Metals (mg/kg)																		
Aluminum	100000	7800	40041	18500		J	*2.9*	*12*	35600		J	*29*	*120*	21800		J	*3*	*13*
Antimony	41	3.1	na	1.3	J	B	*0.23*	*3.6*	6.2		L	*0.23*	*3.6*	3.8		B	*0.24*	*3.8*
Arsenic	1.9	0.43	15.8	7.3		J	*0.23*	*0.48*	13.8		J	*0.23*	*0.48*	14.1		J	*0.24*	*0.5*
Barium	20000	1600	209	72.3		J	*0.3*	*12*	**824**		**J**	*3*	*120*	**776**		**J**	*3.1*	*130*
Beryllium	200	16	1.02	0.79		B	*0.12*	*0.6*	0.64		B	*0.12*	*0.6*	**1.6**		**B**	*0.12*	*0.62*
Cadmium	51	3.9	0.69	1.5	U	UL	*1.5*	*2.4*	**6.6**		**L**	*0.06*	*0.24*	**4.4**		**L**	*0.063*	*0.25*
Calcium	na	na	na	1740		J	*6*	*300*	8950		J	*6*	*300*	19200		J	*6.3*	*310*
Chromium	310	23	65.3	59.1		J	*0.084*	*0.6*	**162**		**J**	*0.084*	*0.6*	55.8		J	*0.088*	*0.63*
Cobalt	na	na	72.3	18		J	*0.066*	*3*	13.7		J	*0.066*	*3*	12.4		J	*0.069*	*3.1*
Copper	4100	310	53.5	**55.1**		**J**	*0.11*	*1.5*	**37200**		**J**	*23*	*300*	**1130**		**J**	*1.2*	*16*
Iron	72000	5500	50962	40900		J	*8.4*	*60*	40800		J	*8.4*	*60*	48900		J	*8.8*	*63*
Lead	800	400	26.8	**105**		**J**	*0.14*	*6*	**36500**		**J**	*29*	*1200*	**1230**		**J**	*1.5*	*63*
Magnesium	na	na	na	1280		J	*6*	*300*	4880		J	*6*	*300*	15600		J	*6.3*	*310*
Manganese	2000	160	2543	732		J	*0.6*	*9*	906		J	*0.6*	*9*	809		J	*0.63*	*9.4*
Mercury	31	2.3	0.13	**0.21**		**J**	*0.011*	*0.091*	**0.15**		**J**	*0.011*	*0.091*	**2.2**		**J**	*0.066*	*0.54*
Nickel	2000	160	62.8	10.2		J	*0.15*	*2.4*	**123**		**J**	*0.15*	*2.4*	49.4		J	*0.16*	*2.5*
Potassium	na	na	na	945		J	*6*	*600*	2320		J	*6*	*600*	1970		J	*6.3*	*630*
Selenium	510	39	na	1.3	J	L	*0.27*	*6*	0.27	U	UL	*0.27*	*6*	0.28	U	UL	*0.28*	*6.3*
Silver	510	39	na	2.5		L	*0.084*	*0.6*	7.5		L	*0.084*	*0.6*	24.2		L	*0.088*	*0.63*
Sodium	na	na	na	376	J	L	*30*	*600*	3230		L	*30*	*600*	850		L	*31*	*630*
Thallium	7.2	0.55	2.11	**2.9**		**B**	*0.64*	*1.2*	0.64	U	UL	*0.64*	*1.2*	0.7	U	UL	*0.7*	*1.2*
Vanadium	102	7.8	108	75.6		J	*0.06*	*3*	35.1		J	*0.06*	*3*	40.5		J	*0.063*	*3.1*
Zinc	31000	2300	202	133		J	*0.3*	*1.2*	**22100**		**J**	*60*	*240*	**2090**		**J**	*3.1*	*13*
Dioxins/Furans (ng/kg)																		
2,3,7,8-TCDF	na	na	na	12.6					245					43.5				
2,3,7,8-TCDD	19	4.3	na	2.78					166					8.08				
1,2,3,7,8-PECDD	na	na	na	7.19					481					39				
1,2,3,4,7,8-HXCDD	460	100	na	7.29					428					52.1				
1,2,3,6,7,8-HXCDD	460	100	na	13.7					821					75.4				
1,2,3,7,8,9-HXCDD	460	100	na	13.2					826					70.3				
1,2,3,4,6,7,8-HPCDD	na	na	na	215					18100					1010				
OCDD	na	na	na	7090	E	J			135000					6530	E	J		
1,2,3,7,8-PECDF	na	na	na	12.2					273					57.5				
2,3,4,7,8-PECDF	na	na	na	18.8					507					99.2				
1,2,3,4,7,8-HXCDF	na	na	na	25.1					437					137				
1,2,3,6,7,8-HXCDF	na	na	na	19.3					381					117				
2,3,4,6,7,8-HXCDF	na	na	na	24.7					484					157				
1,2,3,7,8,9-HXCDF	na	na	na	6.79					83.3					37.5				
1,2,3,4,6,7,8-HPCDF	na	na	na	108					2330					727				
1,2,3,4,7,8,9-HPCDF	na	na	na	9.47					159					60.2				
OCDF	na	na	na	86.3					4090					565				
TOTAL TCDD	na	na	na	53.9	EMPC	J			2770	Q	J			333				
TOTAL PECDD	na	na	na	92.3					4130	Q	J			545	Q, EMPC	J		
TOTAL HXCDD	460	100	na	149					8090					953				
TOTAL HPCDD	na	na	na	526					34500					2340				
TOTAL TCDF	na	na	na	160	EMPC	J			6890	Q, EMPC	J			972	EMPC	J		
TOTAL PECDF	na	na	na	145	EMPC	J			4380	Q, EMPC	J			873	Q, EMPC	J		
TOTAL HXCDF	na	na	na	175	EMPC	J			3900	Q	J			1110				
TOTAL HPCDF	na	na	na	186					6470					1220				

**Refer to legend immediately following this table for a list of definitions and table notes

Table 4-2
Legend

12	J	Shading and black font indicate an industrial RBC exceedance.
12	J	Bold outline indicates a residential RBC exceedance.
12	**J**	Bold, underlined font indicates a background exceedance.
12	*12*	Shading in the MDL/MRL columns indicates the MDL exceeds a criterion.

RBCs for non-Carcinogenic compounds have been recalculated to an HI of 0.1.
The pyrene RBCs were used for acenaphthylene, benzo(g,h,i)perylene and phenanthrene.
Inorganic results below background UTLs are not indicated as exceedances on the table.
RBC = Risk-Based Concentration (October 2007).
RBC values in table are for the more conservative chromium VI.
RBC values for chromium III are 150,000 (ind) and 12,000 (res), which were not exceeded.
Lead screening values from Technical Review Workgroup for Lead: Guidance Document (April 1999).
mg/kg = milligrams per kilogram (parts per million).
ng/kg = nanograms per kilogram (parts per trillion).
µg/kg = micrograms per kilogram (parts per billion).
NA = not applicable.
NT = analyte not tested.

LQ = Lab Data Qualifiers

B = (organics) Blank contamination. Value detected in sample and associated blank.
A (Dioxins) = B = (metals) Value <MRL and >MDL and is considered estimated.
E (metals) = Reported value is estimated because of the presence of interferences.
EMPC (Dioxins) = The ion-abundance ratio between the two characteristic PCDD/PCDF ions was outside accepted ranges. The detected PCDD/PCDF was reported as an estimated maximum possible concentration (EMPC).
J = (organics) Value <MRL and >MDL and is considered estimated.
U = Analyte not-detected at the method reporting limit.
X = (dioxins) Ion abundance ratio outside acceptable range. Value reported is EMPC.

VQ = Validation Data Qualifiers:

B = blank contamination. Value detected in sample and associated blank.
J = estimated concentration
K = estimated concentration bias high
L = estimated concentration bias low
N = presumptive evidence for tentatively identified compounds using a library search
U = analyte not detected
UJ = estimated concentration non-detect
UL = estimated concentration non-detect bias low

Table 4-3
Summary of Analytes Detected in FLFA Soil - 2007 Investigation

Analyte	i-RBC	r-RBC	Background	# of i-RBC Exceedances	# of r-RBC Exceedances	# of Background Exceedances	# of Detections	# of Samples	Minimum Concentration	Maximum Concentration	Location of Maximum
PCBs (mg/kg)											
PCB-1254	1.4	0.16	na	0	5	na	17	18	0.0135	0.402	LFSS11
PCB-1260	1.4	0.32	na	0	1	na	8	18	0.0373	1.09	LFSS16
Metals (mg/kg)											
Aluminum	100000	7800	40041	0	0	0	18	18	9770	35600	LFSS20
Antimony	41	3.1	na	0	3	na	18	18	0.34	6.2	LFSS20
Arsenic	1.9	0.43	15.8	1	1	1	18	18	1.9	31.4	LFSS13
Barium	20000	1600	209	0	1	5	18	18	52.9	2420	LFSS17
Beryllium	200	16	1.02	0	0	10	18	18	0.64	1.7	LFSS10
Cadmium	51	3.9	0.69	0	3	3	5	18	0.14	6.6	LFSS20
Calcium	na	na	na	na	na	na	18	18	1520	19200	LFSS21
Chromium	310	23	65.3	0	1	1	18	18	13.1	162	LFSS20
Cobalt	na	na	72.3	na	na	0	18	18	6.3	26.9	LFSS18
Copper	4100	310	53.5	2	4	14	18	18	30.3	37200	LFSS20
Iron	72000	5500	50962	0	0	0	18	18	14100	48900	LFSS21
Lead	800	400	26.8	4	4	18	18	18	35.9	36500	LFSS20
Magnesium	na	na	na	na	na	na	18	18	1070	24100	LFSS16
Manganese	2000	160	2543	0	0	0	18	18	247	2060	LFSS06
Mercury	31	2.3	0.13	0	0	9	18	18	0.03	2.2	LFSS21
Nickel	2000	160	62.8	0	0	1	18	18	7.5	123	LFSS20
Potassium	na	na	na	na	na	na	18	18	712	3590	LFSS16
Selenium	510	39	na	0	0	na	15	18	0.34	1.3	LFSS14
Silver	510	39	na	0	1	na	17	18	0.11	65.2	LFSS17
Sodium	na	na	na	na	na	na	18	18	214	3230	LFSS20
Thallium	7.2	0.55	2.11	0	1	1	7	18	0.78	2.9	LFSS19
Vanadium	102	7.8	108	0	0	0	18	18	21.6	75.6	LFSS19
Zinc	31000	2300	202	0	3	8	18	18	44	22100	LFSS20
Dioxins/Furans (ng/kg)											
2,3,7,8-TCDF	na	na	na	na	na	na	18	18	1.62	245	LFSS20
2,3,7,8-TCDD	19	4.3	na	1	6	na	18	18	0.682	166	LFSS20
1,2,3,7,8-PECDD	na	na	na	na	na	na	18	18	0.932	481	LFSS20
1,2,3,4,7,8-HXCDD	460	100	na	0	1	na	18	18	1.29	428	LFSS20
1,2,3,6,7,8-HXCDD	460	100	na	1	1	na	18	18	2.32	821	LFSS20
1,2,3,7,8,9-HXCDD	460	100	na	1	1	na	18	18	2.76	826	LFSS20
1,2,3,4,6,7,8-HPCDD	na	na	na	na	na	na	18	18	57.2	18100	LFSS20
OCDD	na	na	na	na	na	na	18	18	1300	135000	LFSS20
1,2,3,7,8-PECDF	na	na	na	na	na	na	18	18	1.8	273	LFSS20
2,3,4,7,8-PECDF	na	na	na	na	na	na	18	18	1.37	507	LFSS20
1,2,3,4,7,8-HXCDF	na	na	na	na	na	na	18	18	2.15	437	LFSS20
1,2,3,6,7,8-HXCDF	na	na	na	na	na	na	18	18	1.4	381	LFSS20
2,3,4,6,7,8-HXCDF	na	na	na	na	na	na	18	18	1.76	484	LFSS20
1,2,3,7,8,9-HXCDF	na	na	na	na	na	na	18	18	0.387	83.3	LFSS20
1,2,3,4,6,7,8-HPCDF	na	na	na	na	na	na	18	18	12.1	2330	LFSS20
1,2,3,4,7,8,9-HPCDF	na	na	na	na	na	na	18	18	0.845	159	LFSS20
OCDF	na	na	na	na	na	na	18	18	23.1	4090	LFSS20
TOTAL TCDD	na	na	na	na	na	na	18	18	4.61	2770	LFSS20
TOTAL PECDD	na	na	na	na	na	na	18	18	12.8	4130	LFSS20
TOTAL HXCDD	460	100	na	5	13	na	18	18	25.5	8090	LFSS20
TOTAL HPCDD	na	na	na	na	na	na	18	18	137	34500	LFSS20
TOTAL TCDF	na	na	na	na	na	na	18	18	14.4	6890	LFSS20
TOTAL PECDF	na	na	na	na	na	na	18	18	14.1	4380	LFSS20
TOTAL HXCDF	na	na	na	na	na	na	18	18	18	3900	LFSS20
TOTAL HPCDF	na	na	na	na	na	na	18	18	32	6470	LFSS20

APPENDIX D.3

FIELD SAMPLING FORMS

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APPENDIX D.3.1

SOIL SAMPLING FORMS – AUGUST 2009

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Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/12/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	~~Sunny~~ ~ 80° lt rain	Sampling Team:	MW/RW

Sample ID:	72SB1A	Sample Collection Time:	0855
Sampling Device:	Geoprobe	Depth (top):	
		Depth Interval:	0-1

Sample Containers/Preservatives

VOC		Physical Analysis:	
SVOC		PID Reading:	0.0
Pesticides	X		
PCBs	X		
Explosives			
Metals			
Comments:	only Sample PCB/pest		

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID:	72SB1B	Sample Collection Time:	0910
Sampling Device:	Geoprobe	Depth (top):	
		Depth Interval:	8-10'

Sample Containers/Preservatives

VOC	X	Physical Analysis:	
SVOC	X	PID Reading:	0.0
Pesticides	X		
PCBs	X		
Explosives	X		
~~Metals~~	X TAL Inorganics		
Comments:	DUP-2 taken here		

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID:		Sample Collection Time:	
Sampling Device:		Depth (top):	
		Depth Interval:	

Sample Containers/Preservatives

VOC		Physical Analysis:	
SVOC		PID Reading:	
Pesticides			
PCBs			
Explosives			
Metals			
Comments:			

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: _____ Date Completed: 8/12/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/12/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	light rain ~ 80°	Sampling Team:	MF/RW

Sample ID: 18SB2A — Sample Collection Time: 1000

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 0 - 1

Sample Containers/Preservatives

VOC	X	Physical Analysis:	X
SVOC	X	PID Reading:	0-0.5 - 0
Pesticides	X		0.5-1 - 0
PCBs	X		
Explosives	X		
Metals	X TAL Inorganics		

Comments:

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Sample ID: 18SB2B — Sample Collection Time: 1010

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 5-7

Sample Containers/Preservatives

VOC	X	Physical Analysis:	
SVOC	X	PID Reading:	0.0
Pesticides	X		
PCBs	X		
Explosives	X		
Metals	X TAL Inorganics		

Comments:

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: X

Sample ID: ____ Sample Collection Time: ____

Sampling Device: ____ Depth (top): ____ Depth Interval: ____

Sample Containers/Preservatives

VOC		Physical Analysis:	
SVOC		PID Reading:	
Pesticides			
PCBs			
Explosives			
Metals			

Comments:

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Signature of Samplers: MF RW — Date Completed: 8/12/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/12/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Clear ~ 85°	Sampling Team:	MF/RW

Sample ID: 185B4A Sample Collection Time: 1100

Sampling Device: Geoprobe Depth (top): _____

Depth Interval: 0-1

0 to 0.5 = 0.0

0.5-1 = 0.0

Sample Containers/Preservatives

VOC	X	Physical Analysis:	_____
SVOC	X	PID Reading:	_____
Pesticides	X		
PCBs	X		
Explosives	X		
~~Metals~~	X	TAL Inorganics	

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: 185B4B Sample Collection Time: _____

Sampling Device: Geoprobe Depth (top): _____

Depth Interval: 5-7'

Sample Containers/Preservatives

VOC	_____	Physical Analysis:	_____
SVOC	_____	PID Reading:	0
Pesticides	_____		
PCBs	_____		
Explosives	_____		
Metals	_____		

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC	_____	Physical Analysis:	_____
SVOC	_____	PID Reading:	_____
Pesticides	_____		
PCBs	_____		
Explosives	_____		
Metals	_____		

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: _____ Date Completed: 8/12/09

Project Information

Project Name:	RFAAP SSP 6 Sites	Date:	8/12/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657480	Sampling Event:	SSP
Weather Conditions:	Clear ~ 85°	Sampling Team:	MF/RW

Sample ID: 185B3A — Sample Collection Time: 1135

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 0-1'

0-0.5 : 0.0
0.5-1 : 0.0

Sample Containers/Preservatives

VOC	X	Physical Analysis: ____
SVOC	X	PID Reading: ____
Pesticides	X	
PCBs	X	
Explosives	X	
~~Metals~~	X	TAL inorganics

Comments: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Sample ID: 185B3B — Sample Collection Time: 1140

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 5-7'

Sample Containers/Preservatives

VOC	X	Physical Analysis: ____
SVOC	X	PID Reading: 0.0
Pesticides	X	
PCBs	X	
Explosives	X	
~~Metals~~	X	TAL inorganics

Comments: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Sample ID: ____ — Sample Collection Time: ____

Sampling Device: ____ — Depth (top): ____ Depth Interval: ____

Sample Containers/Preservatives

VOC	____	Physical Analysis: ____
SVOC	____	PID Reading: ____
Pesticides	____	
PCBs	____	
Explosives	____	
Metals	____	

Comments: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Signature of Samplers: MF TO — Date Completed: 8/12/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/12/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Clear ~ 850	Sampling Team:	MF/RW

Sample ID: 18SB1A — Sample Collection Time: 1155

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 0-1

0-0.5 = 0
0.5-1 = 0

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	X
Explosives	X
~~Metals~~ TAL Inorg.	X

Physical Analysis: ____
PID Reading: ____

Comments: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: 18SB1B — Sample Collection Time: 1200

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: ~~0-8'~~ 8-10'

Sample Containers/Preservatives

VOC	____
SVOC	____
Pesticides	____
PCBs	____
Explosives	____
Metals	____

subsurface physical sample taken here

Physical Analysis: X
PID Reading: 0.0

Comments: ~~hit refusal @ 8' could not collect an 8 to 10' sample~~

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: ____ Sample Collection Time: ____

Sampling Device: ____ Depth (top): ____ Depth Interval: ____

Sample Containers/Preservatives

VOC	____
SVOC	____
Pesticides	____
PCBs	____
Explosives	____
Metals	____

Physical Analysis: ____
PID Reading: ____

Comments: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Signature of Samplers: [signature] Date Completed: 8/12/09

Project Information

Project Name:	RFAAP SSP 6 Sites	Date:	8/12/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Clear ~ 90°	Sampling Team:	MF/RW

Sample ID: 185B5A Sample Collection Time: 1305

Sampling Device: Geoprobe Depth (top): _____

Depth Interval: 0-1'

0-0.5 : 0 ppm

0.5-1 : 0 ppm

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	X
Explosives	X
~~Metals~~	X TAL inorganics

Comments: _____

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: 185B5B Sample Collection Time: 1320

Sampling Device: Geoprobe Depth (top): _____

Depth Interval: 6-8

Sample Containers/Preservatives

VOC	
SVOC	
Pesticides	
PCBs	
Explosives	
Metals	

Comments: DUP-3 taken here

Physical Analysis: _____

PID Reading: 0.0

Field QC / Photo ID

Duplicate Sample Taken Here: X Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC	
SVOC	
Pesticides	
PCBs	
Explosives	
Metals	

Comments: _____

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: MF TC Date Completed: 8/12/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/12/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Clear ~90°	Sampling Team:	MF/RW

Sample ID: 185B6A — Sample Collection Time: 1340

Sampling Device: Geoprobe — Depth (top): 0 — Depth Interval: 0-1

Sample Containers/Preservatives

VOC	X	0.5-1
SVOC	X	
Pesticides	X	
PCBs	X	
Explosives	X	
Metals	X	

Physical Analysis: —
PID Reading: 0-0.5 - 0; 0.5-1 - 0

Comments:

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No: —
MS/MSD Samples Taken Here: —

Sample ID: 185B6B — Sample Collection Time: 1355

Sampling Device: Geoprobe — Depth (top): — Depth Interval: 8-10'

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	X
Explosives	X
~~Metals~~ TAL Inorg.	X

Physical Analysis: —
PID Reading: 0.0

Comments:

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No: —
MS/MSD Samples Taken Here: —

Sample ID: — Sample Collection Time: —

Sampling Device: — Depth (top): — Depth Interval: —

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals

Physical Analysis: —
PID Reading: —

Comments:

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No: —
MS/MSD Samples Taken Here: —

Signature of Samplers: MF/RW — Date Completed: 8/12/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Sunny ~ 85°	Sampling Team:	MF/RW

Sample ID: 30SB1A — Sample Collection Time: ~~0800~~ NO surface sample

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 0-1

0-0.5 = 0
0.5-1 = 0

Sample Containers/Preservatives

VOC	X	Asbestos	X
SVOC	X	Physical Analysis:	____
Pesticides	X	PID Reading:	____
PCBs	X		
Explosives	X		
~~Metals~~	X	TAL inorganics	

Comments: no ~~SS~~ Surface samples

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: 30SB1B — Sample Collection Time: 0840

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 16-18'

Sample Containers/Preservatives

VOC	X	Asbestos	X
SVOC	X	Physical Analysis:	____
Pesticides	X	PID Reading:	0.0
PCBs	X		
Explosives	X		
~~Metals~~	X	TAL inorganics	

Comments: ____

Field QC / Photo ID

Duplicate Sample Taken Here: X DUP-4 Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: ____ — Sample Collection Time: ____

Sampling Device: ____ — Depth (top): ____ Depth Interval: ____

Sample Containers/Preservatives

VOC	____		
SVOC	____	Physical Analysis:	____
Pesticides	____	PID Reading:	____
PCBs	____		
Explosives	____		
Metals	____		

Comments: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Signature of Samplers: [signature] Date Completed: 8/13/09

Project Information

Project Name:	RFHAP SSP 6 sites	Date:	8/13/09
Facility Name:	RFHAP	Client:	RFHAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Sunny ~85°	Sampling Team:	MF/RW

Sample ID: 30551 Sample Collection Time: 0825

Sampling Device: Hand Auger Depth (top): ____

Depth Interval: 0-1

0-0.5 : 12.0 ppm

0.5-1 = 9.8 ppm

Sample Containers/Preservatives

VOC	X	Asbestos	X
SVOC	X		
Pesticides	X		
PCBs	X		
Explosives	X		
~~Metals~~ TAL Inorg.	X		

Physical Analysis: ____

PID Reading: ____

Comments: Hand augered down 8" to get past fill from slab

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Sample ID: ____ Sample Collection Time: ____

Sampling Device: ____ Depth (top): ____

Depth Interval: ____

Sample Containers/Preservatives

VOC ____

SVOC ____

Pesticides ____

PCBs ____

Explosives ____

Metals ____

Comments: ____

Physical Analysis: ____

PID Reading: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Sample ID: ____ Sample Collection Time: ____

Sampling Device: ____ Depth (top): ____

Depth Interval: ____

Sample Containers/Preservatives

VOC ____

SVOC ____

Pesticides ____

PCBs ____

Explosives ____

Metals ____

Comments: ____

Physical Analysis: ____

PID Reading: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Signature of Samplers: MF TL Date Completed: 8/13/09

Project Information

Project Name: RFAAP SSP 6 sites
Facility Name: RFAAP
URS Project No.: 11657490
Weather Conditions: Sunny ~ 85°

Date: 8/13/09
Client: RFAAP
Sampling Event: SSP
Sampling Team: MF/RW

Sample ID: 30552
Sample Collection Time: 0900

Sampling Device: Hand Auger
Depth (top): _____
Depth Interval: 0-1
0-0.5' 11.2 ppm
0.5-1ft : 7.6 ppm

Sample Containers/Preservatives

VOC	X	Asbestos	X
SVOC	X		
Pesticides	X		
PCBs	X		
Explosives	X		
~~Metals~~	X	TAL inorganics	

Physical Analysis: _____
PID Reading: _____

Comments: Augered down ~ 8 in to get past fill from SHAW

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Sample ID: _____
Sample Collection Time: _____

Sampling Device: _____
Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____

Physical Analysis: _____
PID Reading: _____

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Sample ID: _____
Sample Collection Time: _____

Sampling Device: _____
Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____

Physical Analysis: _____
PID Reading: _____

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Signature of Samplers: MFHO
Date Completed: 8/13/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Clear ~ 850	Sampling Team:	MF/RW

Sample ID: 30553 Sample Collection Time: 0930

Sampling Device: Shovel Depth (top): _____ Depth Interval: 0-1

Sample Containers/Preservatives

VOC X Asbestos X
SVOC X
Pesticides X
PCBs X
Explosives X
Metals TAL Inorg. X
Comments: _____

Physical Analysis: _____
PID Reading: _____
0-0.5 = 1.2 ppm
0.5-1 = 1.2 ppm

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: X

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____ Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____ Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Signature of Samplers: MTC Date Completed: 8/13/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Clear ~ 85°	Sampling Team:	MK/RW

Sample ID: 30SB2B — Sample Collection Time: 0935

Sampling Device: Geoprobe — Depth (top): 14 — Depth Interval: 14-18

Sample Containers/Preservatives

VOC	X	Physical Analysis:	
SVOC	X	PID Reading:	2.8
Pesticides	X		
PCBs	X		
Explosives	X		
Metals	X		

Comments: Asbestos

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____ Depth Interval: _____

Sample Containers/Preservatives

VOC		Physical Analysis:	
SVOC		PID Reading:	
Pesticides			
PCBs			
Explosives			
Metals			

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____ Depth Interval: _____

Sample Containers/Preservatives

VOC		Physical Analysis:	
SVOC		PID Reading:	
Pesticides			
PCBs			
Explosives			
Metals			

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: MTG — Date Completed: 8/13/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11057490	Sampling Event:	SSP
Weather Conditions:	Clear ~ 85°	Sampling Team:	MC/RW

Sample ID: 79551 Sample Collection Time: 1015

Sampling Device: Shovel Depth (top): _____ Depth Interval: 0 - 1

Sample Containers/Preservatives

VOC X Asbestos X

SVOC X

Pesticides X

PCBs X

Explosives X

Metals X TAL inorganics

Comments:

0 - 0.5 : 2.5 ppm

0.5 - 1 = 1.7 ppm

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____ Depth Interval: _____

Sample Containers/Preservatives

VOC _____

SVOC _____

Pesticides _____

PCBs _____

Explosives _____

Metals _____

Comments:

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____ Depth Interval: _____

Sample Containers/Preservatives

VOC _____

SVOC _____

Pesticides _____

PCBs _____

Explosives _____

Metals _____

Comments:

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: _____ Date Completed: 8/13/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	clear – 85°	Sampling Team:	MF/RW

Sample ID: 30 SB3B — Sample Collection Time: 1025

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 16-18'

Sample Containers/Preservatives

VOC X
SVOC X
Pesticides X
PCBs X
Explosives X
Metals X
Comments: asbestos

Physical Analysis: ____
PID Reading: 2.5

Field QC / Photo ID

Duplicate Sample Taken Here: X Dup-5 — Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: ____ — Sample Collection Time: ____

Sampling Device: ____ — Depth (top): ____ Depth Interval: ____

Sample Containers/Preservatives

VOC ____
SVOC ____
Pesticides ____
PCBs ____
Explosives ____
Metals ____
Comments: ____

Physical Analysis: ____
PID Reading: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ — Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: ____ — Sample Collection Time: ____

Sampling Device: ____ — Depth (top): ____ Depth Interval: ____

Sample Containers/Preservatives

VOC ____
SVOC ____
Pesticides ____
PCBs ____
Explosives ____
Metals ____
Comments: ____

Physical Analysis: ____
PID Reading: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ — Photo No: ____
MS/MSD Samples Taken Here: ____

Signature of Samplers: MTQ — Date Completed: 8/13/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Clear ~ 90°	Sampling Team:	MF/RW

Sample ID: 79552 Sample Collection Time: 1055

Sampling Device: Shovel Depth (top): _____

Depth Interval: 0-1 ft.

0 - 0.5 = 7.5

0.5 - 1.0 4.5

Sample Containers/Preservatives

VOC	X	Physical Analysis:	_____
SVOC	X	PID Reading:	_____
Pesticides	X		
PCBs	X		
Explosives	X		
~~Metals~~ THL Inorg.	X		

Comments: Asbestos

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC	_____	Physical Analysis:	_____
SVOC	_____	PID Reading:	_____
Pesticides	_____		
PCBs	_____		
Explosives	_____		
Metals	_____		

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC	_____	Physical Analysis:	_____
SVOC	_____	PID Reading:	_____
Pesticides	_____		
PCBs	_____		
Explosives	_____		
Metals	_____		

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: _____ Date Completed: 8/13/09

Project Information

Project Name: RFAAP SSP 6 sites
Facility Name: RFAAP
URS Project No.: 11657480
Weather Conditions: clear ~ 80°

Date: 8/13/09
Client: RFAAP
Sampling Event: SSP
Sampling Team: MF/RW

Sample ID: 79SB2A
Sampling Device: Geoprobe
Sample Collection Time: 1100
Depth (top):
Depth Interval: 0 - 1'

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals
Comments: physical analysis only

Physical Analysis: X
PID Reading:

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID: 79SB2B
Sampling Device: Geoprobe
Sample Collection Time: 1125
Depth (top):
Depth Interval: 16 - 18'

Sample Containers/Preservatives

VOC X
SVOC X
Pesticides X
PCBs X
Explosives X
Metals X
Comments: physical analysis taken here

asbestos X

Physical Analysis: X
PID Reading: 1.9

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID:
Sampling Device:
Sample Collection Time:
Depth (top):
Depth Interval:

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals
Comments:

Physical Analysis:
PID Reading:

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Signature of Samplers: MTO
Date Completed: 8/13/09

Project Information

Project Name:	RFAAP SSB 6 sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSB
Weather Conditions:	clear ~ 90°	Sampling Team:	MF/RM

Sample ID: 79553 Sample Collection Time: 1110

Sampling Device: Shovel Depth (top): _____

Depth Interval: _____

0 - 0.5 = 5.0

0.5 - 1.0 = 4.8

Sample Containers/Preservatives

VOC X

SVOC X

Pesticides X

PCBs X

Explosives X

Metals "TH Group" X

Comments: As beryllium

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC _____

SVOC _____

Pesticides _____

PCBs _____

Explosives _____

Metals _____

Comments: _____

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC _____

SVOC _____

Pesticides _____

PCBs _____

Explosives _____

Metals _____

Comments: _____

Physical Analysis: _____

PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: _____ Date Completed: _____

Project Information

Project Name: RFAAP SSP 6 sites
Facility Name: RFAAP
URS Project No.: 11657490
Weather Conditions: Sunny ~ 85°

Date: 8/10/09
Client: RFAAP
Sampling Event: SSP
Sampling Team: MF/RW

Sample ID: 60SS18
Sample Collection Time: 1315
Sampling Device: Shovel
Depth (top):
Depth Interval: 0 - 1ft.

Sample Containers/Preservatives

VOC	X	- .5' - 1'
SVOC	X	
Pesticides	X	
PCBs	X	
Explosives	X	
Metals		TAL inorganics

Comments:

Physical Analysis:
PID Reading:
0 - 0.5 = 29.8
0.5 - 1ft = 25.1

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID: 60SS2
Sample Collection Time: 1350
Sampling Device: shovel
Depth (top): 0
Depth Interval: 0-1'

Sample Containers/Preservatives

VOC	X	0.5 - 1
SVOC	X	
Pesticides	X	
PCBs	X	
Explosives	X	
Metals	X	TAL inorg.

Comments:

Physical Analysis:
PID Reading: 0-0.5 - 8
0.5 - 1 - 21.4ppm

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID: 60SS3
Sample Collection Time: 1410
Sampling Device: shovel
Depth (top): 0
Depth Interval: 0-1

Sample Containers/Preservatives

VOC	X	0.5 - 1
SVOC	X	
Pesticides	X	
PCBs	X	
Explosives	X	
Metals	X	TAL inorg.

Comments:

physical sample taken here: date: 8/11/09 time: 0825
Physical Analysis: X
PID Reading: 0-0.5 - 11.3 ppm
0.5 - 1 - 9.2ppm

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Signature of Samplers:
Date Completed: 8/10/09

Project Information

Project Name:	RFAAP SSP 6 Sites	Date:	8/10/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Cloudy ~ 90°	Sampling Team:	MF / RW

Sample ID: 60SE2 Sample Collection Time: 1540

Sampling Device: Hand Auger Depth (top): _____
Depth Interval: 0 - 1 ft.

Sample Containers/Preservatives

VOC	X	- 0.5 - 1 ft.
SVOC	X	
Pesticides	X	
PCBs	X	
Explosives	X	
~~Metals~~ TAL Inorganics	X	

Physical Analysis: _____
PID Reading: _____
0 - 0.5 ft = 4.8 ppm
0.5 - 1 ft = 6.1 ppm

Comments: _____

Field QC / Photo ID
Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC	
SVOC	
Pesticides	
PCBs	
Explosives	
Metals	

Physical Analysis: _____
PID Reading: _____

Comments: _____

Field QC / Photo ID
Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC	
SVOC	
Pesticides	
PCBs	
Explosives	
Metals	

Physical Analysis: _____
PID Reading: _____

Comments: _____

Field QC / Photo ID
Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Signature of Samplers: _____ Date Completed: 8/10/09

Project Information

Project Name: RFAAP SSP 6 sites
Facility Name: RFAAP
URS Project No.: 11653990
Weather Conditions: cloudy ~ 90°

Date: 8/10/09
Client: RFAAP
Sampling Event: SSP
Sampling Team: MF / RW

Sample ID: 60SE1
Sample Collection Time: 1555

Sampling Device: ~~60SE1~~ Hand Auger
Depth (top):
Depth Interval: 0 - 1 ft.

Sample Containers/Preservatives

VOC: X 0.5 - 1 ft.
SVOC: X
Pesticides: X
PCBs: X
Explosives: X
~~Metals~~: THL Inorganics
Comments:

Physical Analysis:
PID Reading:
0 - 0.5 ft. = 2.6
0.5 - 1 ft. = 2.5

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID:
Sample Collection Time:

Sampling Device:
Depth (top):
Depth Interval:

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals
Comments:

Physical Analysis:
PID Reading:

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID:
Sample Collection Time:

Sampling Device:
Depth (top):
Depth Interval:

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals
Comments:

Physical Analysis:
PID Reading:

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Signature of Samplers: MF RW
Date Completed: 8/10/09

Project Information

Project Name: RFAAP SSP 6 sites
Facility Name: RFAAP SSA 60
URS Project No.: 11657490
Weather Conditions: Cloudy ~ 90°

Date: 8/10/09
Client: RFAAP
Sampling Event: SSP
Sampling Team: MF / RW

Sample ID: 60555
Sampling Device: Shovel

Sample Collection Time: 1600
Depth (top): _____
Depth Interval: 0 - 1 ft.

Sample Containers/Preservatives

VOC X — 0.5 - 1 ft.
SVOC X
Pesticides X
PCBs X
Explosives X
Metals TAL Inorganics X
Comments: _____

Physical Analysis: _____
PID Reading: _____
0 - 0.5 = 4.0
0.5 - 1 = 4.8

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Sample ID: _____
Sampling Device: _____

Sample Collection Time: _____
Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Sample ID: _____
Sampling Device: _____

Sample Collection Time: _____
Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Signature of Samplers: MF RW

Date Completed: 8/10/09

Project Information

Project Name: RFAAP SSP 6 sites
Facility Name: RFAAP SSA 60
URS Project No.: 11657490
Weather Conditions: cloudy ~90°

Date: 8/10/09
Client: RFAAP
Sampling Event: SSP
Sampling Team: MF / RW

Sample ID: 60 SS4
Sample Collection Time: 1615

Sampling Device: Shovel
Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC: X – 0.5 - 1 ft
SVOC: X
Pesticides: X
PCBs: X
Explosives: X
~~Metals~~ TAL Inorganics: X
Comments: _____

Physical Analysis: _____
PID Reading: _____
0 - 0.5 ft = 1.5 ppm
0.5 ft - 1 ft = 1.4 ppm

Field QC / Photo ID

Duplicate Sample Taken Here: X
MS/MSD Samples Taken Here: _____
Photo No: _____

Sample ID: _____
Sample Collection Time: _____

Sampling Device: _____
Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC: _____
SVOC: _____
Pesticides: _____
PCBs: _____
Explosives: _____
Metals: _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Sample ID: _____
Sample Collection Time: _____

Sampling Device: _____
Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC: _____
SVOC: _____
Pesticides: _____
PCBs: _____
Explosives: _____
Metals: _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____
MS/MSD Samples Taken Here: _____
Photo No: _____

Signature of Samplers: MF

Date Completed: 8/10/09

Project Information

Project Name:	RFAAP SSP 6 Sites	Date:	8/11/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Sunny ~ 85°	Sampling Team:	MF/RW

Sample ID: 60TP2 Sample Collection Time: No sample

Sampling Device: Min. excavator Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____ Physical Analysis: _____
Pesticides _____ PID Reading: _____
PCBs _____
Explosives _____
Metals _____
Comments: Only got down abat 2' when refusal was hit, backfilled, will try geoprobe tomorrow (Geoprobe could not break through boulders)

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____ Physical Analysis: _____
Pesticides _____ PID Reading: _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____ Physical Analysis: _____
Pesticides _____ PID Reading: _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Signature of Samplers: _____ Date Completed: 8/11/09

Project Information

Project Name: RFAAP SSP 6 sites
Facility Name: RFAAP
URS Project No.: 11657490
Weather Conditions: Sunny ~ 85°

Date: 8/11/09
Client: RFAAP
Sampling Event: SSP
Sampling Team: MF / RW

Sample ID: 60TP1
Sample Collection Time: 1100

Sampling Device: Geoprobe macrocore
Depth (top):
Depth Interval: 14 - 16'

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	X
Explosives	X
~~Metals~~ TAL Inorganics	X

Physical Analysis:
PID Reading:

Comments: Tried excavator got to 8' before refusal on 8/10/09 Filled with clean backfill will try geoprobe tomorrow

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID:
Sample Collection Time:

Sampling Device:
Depth (top):
Depth Interval:

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals
Comments:

Physical Analysis:
PID Reading:

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Sample ID:
Sample Collection Time:

Sampling Device:
Depth (top):
Depth Interval:

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals
Comments:

Physical Analysis:
PID Reading:

Field QC / Photo ID

Duplicate Sample Taken Here:
MS/MSD Samples Taken Here:
Photo No:

Signature of Samplers:
Date Completed: 8/11/09

Project Information

Project Name:	RFAAP SSP 6 Sites	Date:	8/13/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Sunny ~90°	Sampling Team:	MF / RW

Sample ID: SOSS16 Sample Collection Time: 1320

Sampling Device: handauger Depth (top): 0

Depth Interval: 0-1

Sample Containers/Preservatives

VOC	X	Physical Analysis:	~~N/A~~
SVOC	X	PID Reading:	0.9
Pesticides	X		
PCBs	X		
Explosives	X		
~~Metals~~ TAL inorganics	X		

Comments: Sample location was at toe of hill adjacent to TP1

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC		Physical Analysis:	
SVOC		PID Reading:	
Pesticides			
PCBs			
Explosives			
Metals			

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____

Depth Interval: _____

Sample Containers/Preservatives

VOC		Physical Analysis:	
SVOC		PID Reading:	
Pesticides			
PCBs			
Explosives			
Metals			

Comments: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____

MS/MSD Samples Taken Here: _____

Signature of Samplers: MRL Date Completed: 8/13/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/11/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Showers ~ 90°	Sampling Team:	MF/RW

Sample ID: 775B1A Sample Collection Time: 1300

Sampling Device: Geoprobe Depth (top): _____ Depth Interval: 0-1 ft

Sample Containers/Preservatives

VOC	X	~~0-0.5 ft~~ 0.5 - 1 ft.
SVOC	X	
Pesticides	X	
PCBs	X	
Explosives	X	
~~Metals~~ TAL Inorg.	X	

Comments: *MS/MSD collected here

Physical Analysis: _____
PID Reading: _____
0-0.5 = 0.0 ppm
0.5-1 = 0.0 ppm

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: X

Sample ID: 775B1B Sample Collection Time: 1310

Sampling Device: ~~DPT~~ Geoprobe Depth (top): 4 Depth Interval: 4-6

Sample Containers/Preservatives

VOC	X	
SVOC	X	
Pesticides	X	
PCBs	X	
Explosives	X	
Metals	X	TAL INORG.

Comments: _____

Physical Analysis: _____
PID Reading: 0

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____ Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Signature of Samplers: MF Date Completed: 8/11/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/11/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	lt. rain ~90°	Sampling Team:	MF/RW

Sample ID: 77SB3A — Sample Collection Time: 1340

Sampling Device: 4' 2" Geoprobe — Depth (top): — Depth Interval: 0-1 ft.

Sample Containers/Preservatives

VOC	X	Dioxans/furans	X
SVOC	X		
Pesticides	X	Physical Analysis:	
PCBs	X	PID Reading:	0-0.5 - 0; 0.5-1 - 0
Explosives	X		
Metals	X		

Comments: TAL inorganics on ~~&~~ HS

* DUP-2 (Dioxans furans) collected here

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No:

MS/MSD Samples Taken Here:

Sample ID: 77SB3B — Sample Collection Time: 1400

Sampling Device: Geoprobe — Depth (top): — Depth Interval: 4-5'

Sample Containers/Preservatives

VOC	X		
SVOC	X	Physical Analysis:	
Pesticides	X	PID Reading:	0.0
PCBs	X		
Explosives	X		
Metals	X		

Comments: Hit refusal @ 5'

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No:

MS/MSD Samples Taken Here:

Sample ID: — Sample Collection Time:

Sampling Device: — Depth (top): — Depth Interval:

Sample Containers/Preservatives

VOC
SVOC
Pesticides
PCBs
Explosives
Metals

Physical Analysis:
PID Reading:

Comments:

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No:

MS/MSD Samples Taken Here:

Signature of Samplers: [signature] — Date Completed: 8/11/09

Project Information

Project Name:	RFAAP SSP 6 Sites	Date:	8/11/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	16057490	Sampling Event:	SSP
Weather Conditions:	Lt. rain ~ 90°	Sampling Team:	MF/RW

Sample ID: 175B2A — Sample Collection Time: 1415

Sampling Device: Geoprobe — Depth (top): 0 — Depth Interval: 0-1

Sample Containers/Preservatives

VOC: X — Dioxins/Furans - X
SVOC: X
Pesticides: X
PCBs: X
Explosives: X
Metals: X — Tal org.
Comments: physical & TOC

Physical Analysis:
PID Reading: 0-0.5-1.9, 0.5-1-2.9

Field QC / Photo ID

Duplicate Sample Taken Here: ____ — Photo No: ____
MS/MSD Samples Taken Here: X MS/MSD Dioxin/Furans

Sample ID: 175B2B — Sample Collection Time: 1430

Sampling Device: Geoprobe — Depth (top): 4 — Depth Interval: ~~4-5.5~~ 4-5.5

Sample Containers/Preservatives

VOC: X
SVOC: X
Pesticides: X
PCBs: X
Explosives: X
Metals: X — TAL ORG.
Comments: Physical + TOC

Physical Analysis:
PID Reading: 0.0

Field QC / Photo ID

Duplicate Sample Taken Here: ____ — Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: ____ — Sample Collection Time: ____

Sampling Device: ____ — Depth (top): ____ — Depth Interval: ____

Sample Containers/Preservatives

VOC: ____
SVOC: ____
Pesticides: ____
PCBs: ____
Explosives: ____
Metals: ____
Comments: ____

Physical Analysis: ____
PID Reading: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ — Photo No: ____
MS/MSD Samples Taken Here: ____

Signature of Samplers: MTG — Date Completed: 8/11/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/11/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	rain ~ 80°	Sampling Team:	MF/RW

Sample ID: 77536A Sample Collection Time: No Sample

Sampling Device: Geoprobe Depth (top): _____
Depth Interval: 6-11.

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____
0-0.5 = 0.0
0.5-1 = 0.0

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: 77536B Sample Collection Time: No Sample

Sampling Device: Geoprobe Depth (top): _____
Depth Interval: 6-8ft.

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: Hit refusal @ 6'
*will not take sample (no evidence of septic tank use or drain field)

Physical Analysis: _____
PID Reading: 0.0

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Signature of Samplers: MRW Date Completed: 8/11/09

Project Information

Project Name:	RFAAP SSP 6 sites	Date:	8/11/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	H1 rain ~ 90°	Sampling Team:	MF/RW

Sample ID: 77SB43 Sample Collection Time: no Sample

Sampling Device: Geoprobe Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: no Sample here

Physical Analysis: _____
PID Reading: _____
0.0 - 0.5 : 0.0 ppm
0.5 - 1.0 : 0.0 ppm

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: 77SB43B Sample Collection Time: 1530

Sampling Device: Geoprobe Depth (top): 6
Depth Interval: 6-8'

Sample Containers/Preservatives

VOC X
SVOC X
Pesticides X
PCBs X
Explosives X
Metals _____ TAL Inorganics
Comments: _____

Physical Analysis: _____
PID Reading: 0.0

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Sample ID: _____ Sample Collection Time: _____

Sampling Device: _____ Depth (top): _____
Depth Interval: _____

Sample Containers/Preservatives

VOC _____
SVOC _____
Pesticides _____
PCBs _____
Explosives _____
Metals _____
Comments: _____

Physical Analysis: _____
PID Reading: _____

Field QC / Photo ID

Duplicate Sample Taken Here: _____ Photo No: _____
MS/MSD Samples Taken Here: _____

Signature of Samplers: [signature] Date Completed: 8/11/09

Project Information

Project Name:	RFAAP SSP 6 Sites	Date:	8/11/09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490	Sampling Event:	SSP
Weather Conditions:	Overcast ~90°	Sampling Team:	MF/RW

Sample ID: 77SB 5A — Sample Collection Time: No sample

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 0 - 1ft.

Sample Containers/Preservatives

VOC ____
SVOC ____
Pesticides ____
PCBs ____
Explosives ____
Metals ____
Comments: ____

Physical Analysis: ____
PID Reading: 0.0

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: 77SB5B — Sample Collection Time: ____

Sampling Device: Geoprobe — Depth (top): ____ Depth Interval: 6-8ft.

Sample Containers/Preservatives

VOC ____
SVOC ____
Pesticides ____
PCBs ____
Explosives ____
Metals ____
Comments: no sample (no evidence)

Physical Analysis: ____
PID Reading: 0.0

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Sample ID: ____ — Sample Collection Time: ____

Sampling Device: ____ — Depth (top): ____ Depth Interval: ____

Sample Containers/Preservatives

VOC ____
SVOC ____
Pesticides ____
PCBs ____
Explosives ____
Metals ____
Comments: ____

Physical Analysis: ____
PID Reading: ____

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____
MS/MSD Samples Taken Here: ____

Signature of Samplers: [signature] — Date Completed: 8/11/09

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APPENDIX D.3.2

SOIL SAMPLING FORMS – NOVEMBER 2009

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Project Information

Project Name:	RFAAP SSP	Date:	11-11-09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490.40000	Sampling Event:	SSP
Weather Conditions:	LIGHT RAIN 40's	Sampling Team:	MF & DH

Sample ID: 79 SB 3B — Sample Collection Time: 1145

Sampling Device: GeoProbe — Depth (top): — Depth Interval: 16-18

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	
Explosives	X
Metals	X

Physical Analysis: — PID Reading: 0

Comments: + ASBESTOS

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No: —

MS/MSD Samples Taken Here: —

Sample ID: 79 SB 1B — Sample Collection Time: 1330

Sampling Device: GeoProbe — Depth (top): — Depth Interval: 16-18

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	
Explosives	X
Metals	X

Physical Analysis: — PID Reading: 0

Comments: + ASBESTOS

Field QC / Photo ID

Duplicate Sample Taken Here: — Photo No: —

MS/MSD Samples Taken Here: —

Sample ID: 79 SS 5 — Sample Collection Time: 1200

Sampling Device: HAND TROWEL (DISPOSABLE) — Depth (top): — Depth Interval: 0-1

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	
Explosives	X
Metals	X

Physical Analysis: — PID Reading: 0

Comments: + ASBESTOS

Field QC / Photo ID

Duplicate Sample Taken Here: YES — Photo No: —

MS/MSD Samples Taken Here: —

Signature of Samplers: Dom Kuft — Date Completed: 11-11-09

Project Information

Project Name:	RFAAP SSP	Date:	11-11-09
Facility Name:	RFAAP	Client:	RFAAP
URS Project No.:	11657490.40000	Sampling Event:	SSP
Weather Conditions:	OVERCAST 40'S LIGHT RAIN	Sampling Team:	MF + DH

Sample ID: 79SS4 Sample Collection Time: 1120

Sampling Device: HAND TROWEL (DISPOSABLE) Depth (top): ____

Depth Interval: 0-1

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	____
Explosives	X
Metals	X
Comments:	+ ASBESTOS

Physical Analysis: ____

PID Reading: 0

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Sample ID: 72SB2B Sample Collection Time: 1440

Sampling Device: GEOPROBE Depth (top): ____

Depth Interval: 8-10

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	____
Explosives	X
Metals	X
Comments:	____

Physical Analysis: ____

PID Reading: 0

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Sample ID: 72SB3B Sample Collection Time: 1500

Sampling Device: GEOPROBE Depth (top): ____

Depth Interval: 6-8

Sample Containers/Preservatives

VOC	X
SVOC	X
Pesticides	X
PCBs	____
Explosives	X
Metals	X
Comments:	____

Physical Analysis: ____

PID Reading: 0

Field QC / Photo ID

Duplicate Sample Taken Here: ____ Photo No: ____

MS/MSD Samples Taken Here: ____

Signature of Samplers: [signature] Date Completed: 11-11-09

APPENDIX D.3.3

GROUNDWATER SAMPLING FORMS – NOVEMBER 2009

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Field Groundwater Sampling Log

Project Information

Project Name: RADFORD
Facility Name:
URS Project No.:
Weather Conditions: HAZY 60°
Monitoring Well ID: SI-MW-2

Date: 11-9-09
Client: RFAAP
Sampling Event:
Sampling Team: MARK & DOANN
Depth to Water: 46.80 / END 46.86
Total Well Depth:

Purge Equipment

Dedicated Bladder Pump:	[ ]	Peristaltic Pump:	[ ]
Dedicated Submersible Pump:	[ ]	Dedicated Bailer:	[ ]
Submersible Pump:	[✓]	Disposable Bailer:	[ ]

Equipment Calibration

pH Meter Calibrated with Buffers: [ ]4 [ ]7 [ ]10
Conductivity Meter: _____µs standard solution
DO Meter: HORIBA - U22
Turbidity Meter: OAKON T100

Purge Data

Purge Rate/Volume Units:
milliliters per minute [ ]
gallons per minute [ ]

Time	Rate	Volume	Appearance	pH (SU)	Cond (ms) ✓	DO (mg/L)	Temp (°C)	ORP (mV)	Turbidity (ntu)
1219	300ml	INT	CLEAR	6.62	0.374	6.31	14.5	236	3.37
1221				6.65	0.373	6.14	14.5	216	3.11
1223				6.68	0.374	6.09	14.5	177	3.16
1225			6.68	~~6.66~~	0.377	6.06	15.4	150	5.87
1227				6.72	0.376	6.04	16.3	123	8.00
1229				6.74	0.377	6.02	16.3	118	7.01
1231				6.75	0.379	6.13	16.2	93	5.17
1233				6.75	0.380	6.11	16.4	55	7.75
1235				6.76	0.380	6.14	16.9	67	7.18
1237				6.77	0.380	6.10	17.0	82	5.31
1239				6.77	0.380	6.21	16.9	87	5.12
		3.5 Gallons							

Sampling Data

Monitoring Well ID: SI-MW-2
Sample Collection Time: 1240

Sampling Device:

Dedicated Bladder Pump:		Peristaltic Pump:	
Dedicated Submersible Pump:		Dedicated Bailer:	
Submersible Pump:	✓	Disposable Bailer:	

Sample Containers/Preservatives

VOCs	_____ (40 ml, gl. Vial, HCL pH<2, 4°C)	Metals (UF)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
SVOCs	_____ (1 liter, amber glass, 4°C)	Metals (F)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
Pesticides	_____ (1 liter, amber glass, 4°C)	Sulfide	_____ (250 ml, plastic, ZnAC+NaOH, pH>9, 4°C)
Herbicides	_____ (1 liter, amber glass, 4°C)	ASBESTOS	X (Glass, plastic)
PCBs	_____ (1 liter, amber glass, 4°C)		
PAHs	_____ (1 liter, amber glass, 4°C)		
Explosives	_____ (1 liter, amber glass, 4°C)		
Perchlorate	_____ (125 ml, plastic, 4°C)		
Dioxin/Furans	_____ (1 liter, amber glass, 4°C)		
Cyanide	_____ (250 ml, plastic, NaOH, pH>12, 4°C)		

Comments: DUP 1 TAKEN HERE

Field Filtering of Metals with 0.45 µ Disposable Filter [ ]Yes [ ]No
Final pH (SU): 6.78
Final Temperature (°C): 16.9
Final Conductivity (ms): 0.380
Final DO: 6.07
Final Turbidity: 4.90 ntu
Final ORP: 83
Date Completed: 11-9-09
Well Locked At: 1255
Signature of Samplers: Doan Hand

Field Groundwater Sampling Log

Project Information

Project Name:	RADFORD	Date:	11-9-09
Facility Name:		Client:	RFAAP
URS Project No.:		Sampling Event:	
Weather Conditions:	OVERCAST - M4664 - 60-70	Sampling Team:	MARK & DONN
Monitoring Well ID:	16-4	Depth to Water:	51.20 END 54.05
		Total Well Depth:	

Purge Equipment

Dedicated Bladder Pump:	[ ]	Peristaltic Pump:	[ ]
Dedicated Submersible Pump:	[ ]	Dedicated Bailer:	[ ]
Submersible Pump:	[✓]	Disposable Bailer:	[ ]

Equipment Calibration

pH Meter Calibrated with Buffers:	[ ]4 [ ]7 [ ]10	DO Meter:	HORIBA U-22
Conductivity Meter: _____µs standard solution		Turbidity Meter:	OAKTON T-100

Purge Data

Purge Rate/Volume Units:
milliliters per minute [ ]
gallons per minute [ ]

Time	Rate	Volume	Appearance	pH (SU)	Cond (ms)	DO (mg/L)	Temp (°C)	ORP (mV)	Turbidity (ntu)
1321	500ml	2 N7	CLOUDY	7.28	0.347	3.94	16.3	-22	88.2
1323				7.29	0.347	3.77	16.3	-7	64.1
1325				7.30	0.346	3.61	16.5	12	55.2
1327				7.32	0.348	3.53	16.3	130	41.5
1329				7.33	0.348	3.39	16.2	169	31.9
1331				7.34	0.349	3.39	16.2	186	29.6
1333				7.35	0.349	3.34	16.2	192	25.3
1335				7.35	0.349	3.31	16.3	188	22.3
1337				7.36	0.349	3.28	16.4	173	21.9
1339				7.37	0.349	3.27	16.4	201	20.8
1341				7.37	0.349	3.23	16.3	206	17.80
								205	

5.5 gal

Sampling Data

Monitoring Well ID:	16-4	Sample Collection Time:	1345

Sampling Device:

Dedicated Bladder Pump:		Peristaltic Pump:	
Dedicated Submersible Pump:		Dedicated Bailer:	
Submersible Pump:	✓	Disposable Bailer:	

Sample Containers/Preservatives

VOCs	_____ (40 ml, gl. Vial, HCL pH<2, 4°C)	Metals (UF)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
SVOCs	_____ (1 liter, amber glass, 4°C)	Metals (F)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
Pesticides	_____ (1 liter, amber glass, 4°C)	Sulfide	_____ (250 ml, plastic, ZnAC+NaOH, pH>9, 4°C)
Herbicides	_____ (1 liter, amber glass, 4°C)	ASBS705	✓ (2 Lite Plastic)
PCBs	_____ (1 liter, amber glass, 4°C)		
PAHs	_____ (1 liter, amber glass, 4°C)		
Explosives	_____ (1 liter, amber glass, 4°C)		
Perchlorate	_____ (125 ml, plastic, 4°C)		
Dioxin/Furans	_____ (1 liter, amber glass, 4°C)		
Cyanide	_____ (250 ml, plastic, NaOH, pH>12, 4°C)		

Comments:

Field Filtering of Metals with 0.45 µ Disposable Filter [ ]Yes [ ]No

Final pH (SU):	7.38	Final Conductivity (ms):	0.349	Final Turbidity:	17.75 ntu
Final Temperature (°C):	16.4	Final DO:	3.20	Final ORP:	205
				Date Completed:	11-9-09

Well Locked At: 1350 Signature of Samplers: Donn Hunt

Field Groundwater Sampling Log

Project Information

Project Name:	RADFORD	Date:	11-9-09
Facility Name:		Client:	
URS Project No.:		Sampling Event:	
Weather Conditions:	HAZY OVERCAST 70°	Sampling Team:	
Monitoring Well ID:	C-1	Depth to Water:	49.44 / 49.48
		Total Well Depth:	

Purge Equipment

Dedicated Bladder Pump:	[ ]	Peristaltic Pump:	[ ]
Dedicated Submersible Pump:	[ ]	Dedicated Bailer:	[ ]
Submersible Pump:	[✓]	Disposable Bailer:	[ ]

Equipment Calibration

pH Meter Calibrated with Buffers:	[ ]4 [ ]7 [ ]10	DO Meter:	HORIBA U-22
Conductivity Meter: _____µs standard solution		Turbidity Meter:	OAKTON T-100

Purge Data

Purge Rate/Volume Units:
milliliters per minute [ ]
gallons per minute [ ]

Time	Rate	Volume	Appearance	pH (SU)	Cond (ms)	DO (mg/L)	Temp (°C)	ORP (mV)	Turbidity (ntu)
1407	500ml	INT	CLEAR	6.52	0.741	1.32	14.0	295	19.16
1409	cut to 200			6.48	0.739	0.93	14.3	278	14.93
1411				6.44	0.719	0.53	14.1	101	14.31
1413				6.41	0.707	0.47	14.3	-63	9.76
1415				6.39	0.704	1.01	15.0	-164	7.04
1417				6.38	0.708	1.39	15.7	-176	5.96
1419				6.39	0.713	1.67	16.0	-148	4.20
1421				6.39	0.716	1.68	16.0	-124	2.80
1423				6.39	0.719	1.53	16.3	-157	2.87
1425				6.39	0.719	1.26	16.6	-135	2.76
1427				6.40	0.720	1.03	16.5	-110	2.07
		3 CV 1 pump							

DUAL DRAWDOWN BLADDER PUMP

Sampling Data

Monitoring Well ID:	C-1	Sample Collection Time:	1430

Sampling Device:

Dedicated Bladder Pump:		Peristaltic Pump:	
Dedicated Submersible Pump:		Dedicated Bailer:	
Submersible Pump:	✓	Disposable Bailer:	

Sample Containers/Preservatives

VOCs	_____ (40 ml, gl. Vial, HCL pH<2, 4°C)	Metals (UF)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
SVOCs	_____ (1 liter, amber glass, 4°C)	Metals (F)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
Pesticides	_____ (1 liter, amber glass, 4°C)	Sulfide	_____ (250 ml, plastic, ZnAC+NaOH, pH>9, 4°C)
Herbicides	_____ (1 liter, amber glass, 4°C)	ASBESTOS	✓ (2 LITER PLASTIC)
PCBs	_____ (1 liter, amber glass, 4°C)		
PAHs	_____ (1 liter, amber glass, 4°C)		
Explosives	_____ (1 liter, amber glass, 4°C)		
Perchlorate	_____ (125 ml, plastic, 4°C)		
Dioxin/Furans	_____ (1 liter, amber glass, 4°C)		
Cyanide	_____ (250 ml, plastic, NaOH, pH>12, 4°C)		

Comments:

Field Filtering of Metals with 0.45 µ Disposable Filter [ ]Yes [ ]No

Final pH (SU):	6.40	Final Conductivity (µs):	0.720	Final Turbidity:	2.03 ntu
Final Temperature (°C):	16.4	Final DO:	0.88	Final ORP:	-123
				Date Completed:	11-9-09

Well Locked At: 1440 Signature of Samplers: Don Hart

Field Groundwater Sampling Log

Project Information

Project Name:	RADFORD	Date:	11-9-09
Facility Name:		Client:	
URS Project No.:		Sampling Event:	
Weather Conditions:	OVERCAST 60°	Sampling Team:	MARK & DOANH
Monitoring Well ID:	SI-MW-1	Depth to Water:	32.60 / 34.60 PND
		Total Well Depth:	36.70

Purge Equipment

Dedicated Bladder Pump:	[ ]	Peristaltic Pump:	[ ]
Dedicated Submersible Pump:	[ ]	Dedicated Bailer:	[ ]
Submersible Pump:	[✓]	Disposable Bailer:	[ ]

Equipment Calibration

pH Meter Calibrated with Buffers:	[ ]4 [ ]7 [ ]10	DO Meter:	HORIBA U-22
Conductivity Meter:	_____µs standard solution	Turbidity Meter:	OAKTON T-100

Purge Data

Purge Rate/Volume Units:
milliliters per minute [ ]
gallons per minute [ ]

Time	Rate	Volume	Appearance	pH (SU)	Cond (ms)	DO (mg/L)	Temp (°C)	ORP (mV)	Turbidity (ntu)
1456	500ml	2 LITER	CLEAR	7.06	0.133	5.74	13.5	142	24.9
1458				6.99	0.133	5.48	13.8	147	25.1
1500				6.90	0.132	5.49	14.1	150	24.0
1502	PULSE			6.81	0.132	5.36	14.5	135	14.55
1504				6.72	0.133	5.46	15.2	-58	18.73
1506			CLOUDY GREY	6.70	0.135	5.55	16.3	0	42.2
1508				6.73	0.140	5.43	15.9	88	94.8
1510									
1512		PUMP	DRY - LET RECHARGE TO SAMPLE						
1514									
1516									

Sampling Data

Monitoring Well ID:	SI-MW-1	Sample Collection Time:	1530

Sampling Device:

Dedicated Bladder Pump:		Peristaltic Pump:	
Dedicated Submersible Pump:		Dedicated Bailer:	
Submersible Pump:	✓	Disposable Bailer:	

Sample Containers/Preservatives

VOCs	_____ (40 ml, gl. Vial, HCL pH<2, 4°C)	Metals (UF)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
SVOCs	_____ (1 liter, amber glass, 4°C)	Metals (F)	_____ (1 liter, plastic HNO_3, pH<2, 4°C)
Pesticides	_____ (1 liter, amber glass, 4°C)	Sulfide	_____ (250 ml, plastic, ZnAC+NaOH, pH>9, 4°C)
Herbicides	_____ (1 liter, amber glass, 4°C)	ASBESTOS	_____ (2 LITER PLASTIC)
PCBs	_____ (1 liter, amber glass, 4°C)		
PAHs	_____ (1 liter, amber glass, 4°C)		
Explosives	_____ (1 liter, amber glass, 4°C)		
Perchlorate	_____ (125 ml, plastic, 4°C)		
Dioxin/Furans	_____ (1 liter, amber glass, 4°C)		
Cyanide	_____ (250 ml, plastic, NaOH, pH>12, 4°C)		

Comments:

Field Filtering of Metals with 0.45 µ Disposable Filter [ ]Yes [ ]No

Final pH (SU):		Final Conductivity (µs):		Final Turbidity:	ntu
Final Temperature (°C):		Final DO:		Final ORP:	
				Date Completed:	11.9.09

Well Locked At: 1641545 Signature of Samplers: Doan Hoa

APPENDIX D.4

INVESTIGATION-DERIVED MATERIAL ANALYTICAL RESULTS

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-01**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Paint Filter Liquids Test	Pass	1	1	mL	1	USEPA-9095	08/19/09	GEH	0909725
pH	**7.0**	0.1	0.1	pH Units	1	USEPA-9045C	08/17/09	CLD	0909601

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-01**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00

TCLP Metals by EPA 1311/6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Arsenic	0.20	U	0.20	0.038	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Barium	**0.34**	**J**	0.35	0.0018	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Cadmium	0.020	U	0.020	0.0049	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Chromium	0.050	U	0.050	0.0054	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Copper	0.020	U	0.020	0.0085	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Lead	0.10	U	0.10	0.032	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Mercury	0.00020	U	0.00020	0.000043	mg/L	1	USEPA-7470A	08/20/09	DSC	0909724
Nickel	**0.011**	**J**	0.020	0.0042	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Selenium	0.20	U	0.20	0.098	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Silver	0.010	U	0.010	0.0025	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Zinc	**0.046**	**J**	0.25	0.0046	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-01**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00
Unit:	mg/L	Prepared:	08/19/09 By: JDM
Dilution Factor:	100	Analyzed:	08/19/09 By: JDM
QC Batch:	0908481	Analytical Batch:	9H20025

TCLP Volatile Organics by EPA Method 1311/8260B

CAS Number	Analyte	Analytical Result	RL	MDL
71-43-2	Benzene	**0.016J**	0.10	0.0088
56-23-5	Carbon Tetrachloride	0.10U	0.10	0.016
108-90-7	Chlorobenzene	**0.016J**	0.10	0.011
67-66-3	Chloroform	**0.014J**	0.10	0.0074
107-06-2	1,2-Dichloroethane	0.10U	0.10	0.0096
75-35-4	1,1-Dichloroethene	0.10U	0.10	0.017
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.027
127-18-4	Tetrachloroethene	0.10U	0.10	0.010
79-01-6	Trichloroethene	0.10U	0.10	0.013
75-01-4	Vinyl Chloride	0.10U	0.10	0.0062

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	101	*79-124*
1,2-Dichloroethane-d4	105	*75-128*
Toluene-d8	95	*87-113*
4-Bromofluorobenzene	94	*70-121*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-01**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00
Unit:	mg/L	Prepared:	08/21/09 By: DCG
Dilution Factor:	1	Analyzed:	08/24/09 By: DMC
QC Batch:	0909838	Analytical Batch:	9H27022

TCLP Semivolatile Organic Compounds by EPA Method 1311/8270C

CAS Number	Analyte	Analytical Result	RL	MDL
106-46-7	1,4-Dichlorobenzene	0.0050U	0.0050	0.000015
121-14-2	2,4-Dinitrotoluene	0.0050U	0.0050	0.00021
118-74-1	Hexachlorobenzene	0.0050U	0.0050	0.000012
87-68-3	Hexachlorobutadiene	0.0050U	0.0050	0.00012
67-72-1	Hexachloroethane	0.0050U	0.0050	0.000038
98-95-3	Nitrobenzene	0.0050U	0.0050	0.000026
110-86-1	Pyridine	0.050U	0.050	0.00038
87-86-5	Pentachlorophenol	0.0050U	0.0050	0.00019
88-06-2	2,4,6-Trichlorophenol	0.0050U	0.0050	0.000027
*95-95-4	2,4,5-Trichlorophenol	0.0050U	0.0050	0.00011
95-48-7	2-Methylphenol	0.0050U	0.0050	0.00014
108-39-4	3-Methylphenol	0.0050U	0.0050	0.000016
106-44-5	4-Methylphenol	0.0050U	0.0050	0.000016
58-89-9	gamma-BHC (Lindane)	0.0050U	0.0050	0.000057
72-20-8	Endrin	0.0050U	0.0050	0.00028
72-43-5	Methoxychlor	0.0050U	0.0050	0.000072
57-74-9	Technical Chlordane	0.0050U	0.0050	0.00012
76-44-8	Heptachlor	0.0050U	0.0050	0.000091
1024-57-3	Heptachlor Epoxide	0.0050U	0.0050	0.000076
8001-35-2	Toxaphene	0.50U	0.50	0.00029

Surrogates:	***% Recovery***	***Control Limits***
2-Fluorophenol	81	*30-120*
Phenol-d6	56	*20-109*
Nitrobenzene-d5	87	*20-140*
2-Fluorobiphenyl	90	*35-130*
2,4,6-Tribromophenol	76	*23-120*
o-Terphenyl	99	*34-130*

*See Statement of Data Qualifications

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-01**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00
Unit:	mg/L	Prepared:	08/20/09 By: DCG
Dilution Factor:	1	Analyzed:	08/25/09 By: JLB
QC Batch:	0909783	Analytical Batch:	9H25051

TCLP Chlorinated Herbicides by EPA Method 1311/8270C

CAS Number	Analyte	Analytical Result	RL	MDL
94-75-7	2,4-D	0.10U	0.10	0.0041
93-72-1	2,4,5-TP (Silvex)	0.10U	0.10	0.0038

Surrogates:	*% Recovery*	*Control Limits*
2,4,5-T	95	*50-150*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-02**	Sampled By:	M.Fisher; URS
Matrix:	Soil	Received:	08/14/09 09:00
Unit:	mg/kg dry wt.	Prepared:	08/20/09 By: BJH
Dilution Factor:	1	Analyzed:	08/27/09 By: FJA
QC Batch:	0909778	Analytical Batch:	9H28027
Percent Solids:	86		

Nitroaromatics & Nitramines by EPA Method 8330

CAS Number	Analyte	Analytical Result	RL	MDL
99-35-4	1,3,5-Trinitrobenzene	2.5U	2.5	0.12
99-65-0	1,3-Dinitrobenzene	2.5U	2.5	0.11
118-96-7	2,4,6-Trinitrotoluene	2.5U	2.5	0.16
121-14-2	2,4-Dinitrotoluene	2.5U	2.5	0.23
606-20-2	2,6-Dinitrotoluene	2.5U	2.5	0.23
35572-78-2	2-Amino-4,6-dinitrotoluene	2.5U	2.5	0.21
88-72-2	2-Nitrotoluene	2.5U	2.5	0.14
99-08-1	3-Nitrotoluene	2.5U	2.5	0.25
1946-51-0	4-Amino-2,6-dinitrotoluene	2.5U	2.5	0.16
99-99-0	4-Nitrotoluene	2.5U	2.5	0.27
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.5U	2.5	0.039
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	2.5U	2.5	0.046
98-95-3	Nitrobenzene	2.5U	2.5	0.045
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	2.5U	2.5	0.12

Surrogates:	*% Recovery*	*Control Limits*
4-Nitroaniline	92	*57-139*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-02**	Sampled By:	M.Fisher; URS
Matrix:	Soil	Received:	08/14/09 09:00
Unit:	mg/kg dry wt.	Prepared:	08/21/09 By: BJH
Dilution Factor:	1	Analyzed:	08/28/09 By: FJA
QC Batch:	0909779	Analytical Batch:	9H28064
Percent Solids:	86		

Nitroglycerine by EPA Method 8332

CAS Number	Analyte	Analytical Result	RL	MDL
55-63-0	Nitroglycerin	5.0U	5.0	0.29
78-11-5	Pentaerythritol Tetranitrate	5.0U	5.0	0.25

Surrogates:	*% Recovery*	*Control Limits*
1-Nitronaphthalene	96	*50-150*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Soil**	Sampled:	08/13/09 17:35
Lab Sample ID:	**0908275-02**	Sampled By:	M.Fisher; URS
Matrix:	Soil	Received:	08/14/09 09:00

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Percent Solids	**86**	0.1	0.1	%	1	USEPA-3550B	08/25/09	KNC	0909964

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-03**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Paint Filter Liquids Test	Pass	1	1	mL	1	USEPA-9095	08/19/09	GEH	0909725
pH	**5.2**	0.1	0.1	pH Units	1	USEPA-9045C	08/17/09	CLD	0909601

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-03**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00

TCLP Metals by EPA 1311/6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Arsenic	0.20	U	0.20	0.038	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Barium	**0.62**		0.35	0.0018	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Cadmium	0.020	U	0.020	0.0049	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Chromium	0.050	U	0.050	0.0054	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Copper	**0.012**	**J**	0.020	0.0085	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Lead	0.10	U	0.10	0.032	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Mercury	0.00020	U	0.00020	0.000043	mg/L	1	USEPA-7470A	08/20/09	DSC	0909724
Nickel	**0.0074**	**J**	0.020	0.0042	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Selenium	0.20	U	0.20	0.098	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Silver	**0.0035**	**J**	0.010	0.0025	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621
Zinc	**0.025**	**J**	0.25	0.0046	mg/L	1	USEPA-6010B	08/21/09	JMF	0909621

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-03**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00
Unit:	mg/L	Prepared:	08/19/09 By: JDM
Dilution Factor:	100	Analyzed:	08/19/09 By: JDM
QC Batch:	0908481	Analytical Batch:	9H20025

TCLP Volatile Organics by EPA Method 1311/8260B

CAS Number	Analyte	Analytical Result	RL	MDL
71-43-2	Benzene	0.10U	0.10	0.0088
56-23-5	Carbon Tetrachloride	0.10U	0.10	0.016
108-90-7	Chlorobenzene	0.10U	0.10	0.011
67-66-3	Chloroform	0.10U	0.10	0.0074
107-06-2	1,2-Dichloroethane	0.10U	0.10	0.0096
75-35-4	1,1-Dichloroethene	0.10U	0.10	0.017
78-93-3	2-Butanone (MEK)	5.0U	5.0	0.027
127-18-4	Tetrachloroethene	0.10U	0.10	0.010
79-01-6	Trichloroethene	0.10U	0.10	0.013
75-01-4	Vinyl Chloride	0.10U	0.10	0.0062

Surrogates:	***% Recovery***	***Control Limits***
Dibromofluoromethane	104	*79-124*
1,2-Dichloroethane-d4	105	*75-128*
Toluene-d8	98	*87-113*
4-Bromofluorobenzene	94	*70-121*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-03**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00
Unit:	mg/L	Prepared:	08/21/09 By: DCG
Dilution Factor:	1	Analyzed:	08/24/09 By: DMC
QC Batch:	0909838	Analytical Batch:	9H27022

TCLP Semivolatile Organic Compounds by EPA Method 1311/8270C

CAS Number	Analyte	Analytical Result	RL	MDL
106-46-7	1,4-Dichlorobenzene	0.0050U	0.0050	0.000015
121-14-2	2,4-Dinitrotoluene	0.0050U	0.0050	0.00021
118-74-1	Hexachlorobenzene	0.0050U	0.0050	0.000012
87-68-3	Hexachlorobutadiene	0.0050U	0.0050	0.00012
67-72-1	Hexachloroethane	0.0050U	0.0050	0.000038
98-95-3	Nitrobenzene	0.0050U	0.0050	0.000026
110-86-1	Pyridine	0.050U	0.050	0.00038
87-86-5	Pentachlorophenol	0.0050U	0.0050	0.00019
88-06-2	2,4,6-Trichlorophenol	0.0050U	0.0050	0.000027
*95-95-4	2,4,5-Trichlorophenol	0.0050U	0.0050	0.00011
95-48-7	2-Methylphenol	0.0050U	0.0050	0.00014
108-39-4	3-Methylphenol	0.0050U	0.0050	0.000016
106-44-5	4-Methylphenol	0.0050U	0.0050	0.000016
58-89-9	gamma-BHC (Lindane)	0.0050U	0.0050	0.000057
72-20-8	Endrin	0.0050U	0.0050	0.00028
72-43-5	Methoxychlor	0.0050U	0.0050	0.000072
57-74-9	Technical Chlordane	0.0050U	0.0050	0.00012
76-44-8	Heptachlor	0.0050U	0.0050	0.000091
1024-57-3	Heptachlor Epoxide	0.0050U	0.0050	0.000076
8001-35-2	Toxaphene	0.50U	0.50	0.00029

Surrogates:	***% Recovery***	***Control Limits***
2-Fluorophenol	85	*30-120*
Phenol-d6	59	*20-109*
Nitrobenzene-d5	87	*20-140*
2-Fluorobiphenyl	94	*35-130*
2,4,6-Tribromophenol	80	*23-120*
o-Terphenyl	103	*34-130*

*See Statement of Data Qualifications

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-03**	Sampled By:	M.Fisher; URS
Matrix:	Waste	Received:	08/14/09 09:00
Unit:	mg/L	Prepared:	08/20/09 By: DCG
Dilution Factor:	1	Analyzed:	08/25/09 By: JLB
QC Batch:	0909783	Analytical Batch:	9H25051

TCLP Chlorinated Herbicides by EPA Method 1311/8270C

CAS Number	Analyte	Analytical Result	RL	MDL
94-75-7	2,4-D	0.10U	0.10	0.0041
93-72-1	2,4,5-TP (Silvex)	0.10U	0.10	0.0038

Surrogates:	*% Recovery*	*Control Limits*
2,4,5-T	87	*50-150*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-04**	Sampled By:	M.Fisher; URS
Matrix:	Soil	Received:	08/14/09 09:00
Unit:	mg/kg dry wt.	Prepared:	08/20/09 By: BJH
Dilution Factor:	1	Analyzed:	08/27/09 By: FJA
QC Batch:	0909778	Analytical Batch:	9H28027
Percent Solids:	89		

Nitroaromatics & Nitramines by EPA Method 8330

CAS Number	Analyte	Analytical Result	RL	MDL
99-35-4	1,3,5-Trinitrobenzene	2.5U	2.5	0.12
99-65-0	1,3-Dinitrobenzene	2.5U	2.5	0.11
118-96-7	2,4,6-Trinitrotoluene	2.5U	2.5	0.16
121-14-2	2,4-Dinitrotoluene	2.5U	2.5	0.23
606-20-2	2,6-Dinitrotoluene	2.5U	2.5	0.23
35572-78-2	2-Amino-4,6-dinitrotoluene	2.5U	2.5	0.21
88-72-2	2-Nitrotoluene	2.5U	2.5	0.14
99-08-1	3-Nitrotoluene	2.5U	2.5	0.25
1946-51-0	4-Amino-2,6-dinitrotoluene	2.5U	2.5	0.16
99-99-0	4-Nitrotoluene	2.5U	2.5	0.27
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	2.5U	2.5	0.039
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	2.5U	2.5	0.046
98-95-3	Nitrobenzene	2.5U	2.5	0.045
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	2.5U	2.5	0.12

Surrogates:	***% Recovery***	***Control Limits***
4-Nitroaniline	86	*57-139*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-04**	Sampled By:	M.Fisher; URS
Matrix:	Soil	Received:	08/14/09 09:00
Unit:	mg/kg dry wt.	Prepared:	08/21/09 By: BJH
Dilution Factor:	1	Analyzed:	08/28/09 By: FJA
QC Batch:	0909779	Analytical Batch:	9H28064
Percent Solids:	89		

Nitroglycerine by EPA Method 8332

CAS Number	Analyte	Analytical Result	RL	MDL
55-63-0	Nitroglycerin	5.0U	5.0	0.29
78-11-5	Pentaerythritol Tetranitrate	5.0U	5.0	0.25

Surrogates:	*% Recovery*	*Control Limits*
1-Nitronaphthalene	97	*50-150*

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**60IDM-Soil**	Sampled:	08/13/09 17:30
Lab Sample ID:	**0908275-04**	Sampled By:	M.Fisher; URS
Matrix:	Soil	Received:	08/14/09 09:00

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Percent Solids	**89**	0.1	0.1	%	1	USEPA-3550B	08/25/09	KNC	0909964

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Water**	Sampled:	08/13/09 17:25
Lab Sample ID:	**0908275-05**	Sampled By:	M.Fisher; URS
Matrix:	TCLP	Received:	08/14/09 09:00

TCLP Metals by EPA 1311/6000/7000 Series Methods

Analyte	Analytical Result		RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Arsenic	0.20	U	0.20	0.038	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Barium	**0.023**	**J**	0.35	0.0018	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Cadmium	0.020	U	0.020	0.0049	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Chromium	0.050	U	0.050	0.0054	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Copper	**0.021**		0.020	0.0085	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Lead	0.10	U	0.10	0.032	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Mercury	0.00020	U	0.00020	0.000043	mg/L	1	USEPA-7470A	08/20/09	DSC	0909724
Nickel	**0.0069**	**J**	0.020	0.0042	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Selenium	0.20	U	0.20	0.098	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Silver	0.010	U	0.010	0.0025	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622
Zinc	**0.37**		0.25	0.0046	mg/L	1	USEPA-6010B	08/21/09	JMF	0909622

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ANALYTICAL REPORT

Client:	**URS Corporation**	Work Order:	**0908275**
Project:	RFAAP SSP at Six Sites	Description:	SS0809D,IDM
Client Sample ID:	**SSPIDM-Water**	Sampled:	08/13/09 17:25
Lab Sample ID:	**0908275-06**	Sampled By:	M.Fisher; URS
Matrix:	Water	Received:	08/14/09 09:00

Physical/Chemical Parameters by EPA/APHA/ASTM Methods

Analyte	Analytical Result	RL	MDL	Unit	Dilution Factor	Method	Date Analyzed	By	QC Batch
Chemical Oxygen Demand	**640**	50	12	mg/L	1	SM 5220 D 20th	08/26/09	CKD	0910060
pH	**5.2**	0.1	0.1	pH Units	1	USEPA-9040B	08/17/09	CLD	0909600

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APPENDIX D.5

GEOPHYSICAL REPORT – SSAs 30 AND 79

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Geophysical Investigation of SWMU-30 Radford Army Ammunition Plant (RAAP) Radford, Virginia

prepared for

URS Group, Inc.
5540 Falmouth Street, Suite 201
Richmond, VA 23230

by

ATS International, Inc.
107 Lester Street
Christiansburg, Virginia 24073
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ATS International Project No. P09-10

October 2nd, 2009

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Executive Summary

ATS International, Inc. (ATS) was retained by URS Group, Inc. (URS) to conduct a geophysical investigation in the vicinities of SWMU-30 and SWMU-79 on the Radford Army Ammunition Plant (RAAP) near Radford, Virginia. The purpose of the study was to use geophysical methods to identify the lateral and vertical extents of buried asbestos waste material known to exist in several trenches. The tasks involved in this study included:

1. Establishment of a survey grid approximately 200 feet wide by 550 long.
2. Collection, processing, and interpretation of electromagnetic induction (EM) data.
3. Collection, processing, and interpretation of electrical resistivity data.
4. Collection, processing, and interpretation of ground penetrating radar (GPR) data.
5. Preparation of this document detailing our methods and findings.

The purpose of the EM survey was to evaluate lateral changes in EM distribution that may indicate the presence of fill materials. Strong, localized contrasts in conductivity may indicate the presence of buried materials that differ from the natural materials. The resistivity imaging survey was conducted to collect cross-sectional resistivity data over areas of anomalous EM for the purpose of corroborating the EM data and delineating the vertical extents of fill materials. The purpose of the GPR survey was to corroborate the EM and resistivity data and to provide additional vertical imaging of high resolution.

Both the quadrature and in-phase components of the EM data revealed several distinct linear zones of high EM response across the study area. The additional linear EM anomalies are interpreted as the locations of additional former disposal trenches.

The resistivity lines placed through the anomalous EM zones display distinct low-resistivity zones in the shallow subsurface immediately coincident with the zones of anomalous EM response. These zones range from approximately 13 to 30 feet in width and approximately 10 to 17 feet in depth, which is consistent with historical reporting for the trenches.

Processed into map view, the GPR data did not reveal the laterally extensive anomalies in the expected vicinity of the trenches as did the EM and resistivity data. However, trough-like GPR anomalies were observed in several of the in cross-sections in vicinities which coincide with the locations of anomalies in the EM and resistivity data. The GPR data confirm that the EM and resistivity provide reliable estimations of the lateral extent of the trenches, but the resistivity is likely to provide a more reliable estimation of the depth of the waste. Based on the resistivity results the waste is estimated to be approximately 10 to 17 feet in thickness.

The EM and resistivity data clearly reveal the lateral and vertical extents of those former disposal trenches, as well as the extents of the additional trenches to the west of SWMU (SSA) 30 and SWMU (SSA) 79.

1. Introduction

ATS International, Inc. (ATS) was retained by URS Group, Inc. (URS) to conduct a geophysical investigation in the vicinities of SWMU-30 and SWMU-79 on the Radford Army Ammunition Plant (RAAP) near Radford, Virginia. The purpose of the study was to use geophysical methods to identify the lateral and vertical extents of buried asbestos waste material known to exist in several trenches. The trenches are reported to have been approximately 15 feet wide and 15 feet deep. The study area is located in the southeast section of the "Horseshoe Area" of the RAAP. The aerial photograph in Figure 1 depicts SWMU-30 and SWMU-79 in 1986 as open disposal trenches.

The tasks involved in this study included:

1) Establishment of a survey grid approximately 200 feet wide by 550 long.

2) Collection, processing, and interpretation of electromagnetic induction (EM) data.

3) Collection, processing, and interpretation of electrical resistivity data.

4) Collection, processing, and interpretation of ground penetrating radar (GPR) data.

5) Preparation of this document detailing our methods and findings.

The purpose of the EM survey was to evaluate lateral changes in EM distribution that may indicate the presence of fill materials. Strong, localized contrasts in conductivity may indicate the presence of buried materials that differ from the natural materials. The resistivity imaging survey was conducted to collect cross-sectional resistivity data over areas of anomalous EM for the purpose of corroborating the EM data and delineating the vertical extents of fill materials. The purpose of the GPR survey was to corroborate the EM and resistivity data and to provide additional vertical imaging of high resolution.

The remainder of this document is divided into sections discussing delineation of the study area (Section 2); principles, methods, and results of the EM Survey (Section 3); principles, methods, and results of the resistivity survey (Section 4); and principles, methods, and results of the GPR survey (Section 5). Section 6 provides a summary of results and conclusions drawn from the geophysical investigation. References cited in this report are provided in Section 7.

2. Study Area

The study area was defined by URS personnel prior to initiation of this study as a rectangular area measuring approximately 200 feet by 550 feet, with the long axis oriented in a northwest-southeast direction (Figure 2). Colored ground flags were placed along the outer margins of the

grid in the direction of the long axis in increments of 10 feet. This grid provided the framework for both the EM and GPR grid data collection.

3. EM Survey

3.1. Principles of EM

EM investigation utilizes a low frequency transmitter to induce electrical current into the subsurface. The induced current creates secondary electromagnetic fields which are measured by the EM device. The amplitude and phase of these secondary fields are related to the electrical properties of the subsurface material, and therefore a measurement of the secondary fields is a measure of how well the subsurface materials conduct electric current.

The EM device measures the quadrature and in-phase components of the electromagnetic fields generated by the instrument's transmitter. The quadrature component of the EM data reveals apparent terrain conductivity in units of milliSiemens per meter (mS/m), which is a weighted average of the conductivity through the depth of measurement beneath the instrument. High magnitude responses, either positive or negative, indicate high bulk conductivity in the materials under the instrument.

The in-phase component of the EM data is the ratio of the secondary to primary magnetic field, and is presented in parts per thousand (ppt). The in-phase component is more sensitive to the presence of highly conductive material, especially shallow metal objects, and is generally considered the metal-detection mode of the EM investigation. It is important to note that an EM response in the in-phase component does not conclusively indicate the presence of metallic objects, only that it is the mode that is most sensitive to metals. It is also important to note that the size, depth of burial, and degree of corrosion of a metal object are all factors which affect the in-phase response (Jordan and Constantini, 1995).

The conductivity of subsurface materials is a function of their physical properties, namely porosity, permeability and the nature of the fluid within the pores. Landfill materials tend to have an abundance of pore space that holds moisture, and the materials themselves tend to increase the ionic strength of the pore water. Both of these factors work to increase the electrical conductivity, and thus landfill materials are usually readily distinguished from the surrounding native soils.

3.2. EM Field Methods

The instrument used for this investigation was the Geonics EM-31 Short terrain conductivity meter. The unit consists of a portable control module attached to a transmitter coil and a receiver coil. The transmitter and receiver coils are spaced approximately 1.8 meters (6 feet) apart, which

allows for an effective depth of exploration of approximately four meters (13 feet) under ideal conditions.

EM surveys are usually conducted along traverses through the area of interest with measurements taken at fixed distances or at a fixed time interval along the traverse. By conducting sub-parallel traverses, substantial lateral coverage can be obtained. The data can then be contoured to evaluate the spatial distribution of the measured conductivity values.

For this study, traverses were conducted in parallel lines spaced approximately 10 feet apart, and oriented in a northeast-southwest direction (Figure 3). The EM data were collected with a continuous time-stamp log, with measurements taken at 1-second intervals, while a concurrent time-stamped global positioning system (GPS) track log was also collected. The time-stamped data from the GPS track log provide the spatial locations for each of the individual EM measurements, so that contours of the spatial distribution of the EM measurements across the grid can be generated.

3.3. EM Results

The contoured results of the quadrature component of the EM survey reveal background apparent conductivity values between approximately 0 to 20 milliSiemens per meter (mS/m) across much of study area (Figure 4). Several distinct linear zones of higher conductivity values (20 to 135 mS/m) extend through the entire study area from southeast to northwest. The easternmost of these linear anomalies is coincident with the trench location as observed in the aerial photograph in Figure 1. As such, this linear anomaly is interpreted as the location of that former trench. The additional elongated anomalous zones are interpreted as additional disposal trenches not depicted in the aerial photograph in Figure 1. These zones are illustrated in Figure 4 by a dashed white line.

A zone of high conductivity values trending northeast in the northernmost portion of the study area is the result of the metal fence present in that area.

The contours of the in-phase component of the EM data are consistent with the quadrature component, revealing similar anomalies across the study area (Figure 5).

The quadrature and in-phase components of the EM data reveal several linear anomalies extending across the full length of the study area. The location and extent of the easternmost of these anomalies is coincident with the location of the asbestos disposal trench as seen in the 1986 aerial photograph, and as such, that anomaly is interpreted as the location of that former trench. The EM data also suggest the presence of two to three additional trenches to the west of that observed in the aerial photograph.

4. Resistivity Imaging

To evaluate the vertical extent of potential fill material at the site, resistivity imaging techniques were employed. Resistivity imaging provides cross-sectional images of the resistance to electric current. Electrical resistivity is a fundamental parameter of the material that describes how easily the material can transmit electrical current. High values of resistivity imply that the material is very resistant to the flow of electricity; low values of resistivity imply that the material transmits electrical current very easily.

The primary factors affecting the resistivity of earth materials are porosity, water saturation, clay content, and ionic strength of the pore water. In general, the minerals making up soils and rock do not readily conduct electric current and thus most of the current flow takes place through the material's pore water. The relatively high levels of pore water in soils and other unconsolidated materials tend to give low resistivity values for the shallow subsurface. Where the levels of pore water in soils and other unconsolidated materials are low, resistivity values tend to be high in the shallow subsurface.

4.1. Principles of Resistivity

Experiments by George Ohm in the early 19th century revealed the empirical relationship between the current flowing through a material and the potential required to drive that current. This relationship is described by:

$$V = IR$$

where V is voltage in volts, I is the current in amperes, and R is the proportionality constant. Rearranging the equation to:

$$\frac{V}{I} = R$$

gives resistance with the units of volts divided by amperes, or ohms.

The resistance of a material is dependent not only on the property of the material but also the geometry of the material. Specifically, a longer travel path for the current or smaller cross-sectional area would cause the resistance to increase. The geometry-independent property used to quantify the flow of electric current through a material is resistivity, given by:

$$\rho = \frac{RA}{L}$$

where ρ is the resistivity, R is the resistance, A is the cross-sectional area through which the current flows, and L is the length of the current flow path. With all length units expressed as meters, the units associated with resistivity are ohm-meters.

Resistivity surveys are conducted by inducing an electric current into the ground between two electrodes, and measuring the potential at other electrodes. Numerous configurations of electrode placement are commonly employed, each with unique data characteristics. The configuration utilized for this study was the dipole-dipole array. For the dipole-dipole array, a current is applied to two adjacent electrodes positioned a predetermined distance apart (distance *a*). The voltage across two other electrodes is measured simultaneously with the applied current. The two sets of electrodes are always spaced distance *a* apart and the distance between the current and voltage electrodes is always a multiple of *a* ($n \bullet a$). To obtain apparent resistivity values, the voltage and current measurements are input into the following formula for dipole-dipole surveys:

$$\rho = 2\pi(n+1)\cdot(n+2)\cdot a\cdot\frac{V}{I}$$

4.2. Field Methods

Seven resistivity lines were positioned across the study area based on the results of the EM survey. Lines 1 through 6 were oriented southwest-northeast perpendicular to the interpreted trenches, and Line 7 was oriented northwest-southeast along the axis of the easternmost former trench as interpreted from the Quadrature component of the EM data (Figure 6).

Lines 1 through 6 employed a spacing of 2 meters (6.56 feet) between electrodes, using a total of 28 electrodes. Line 7 employed a spacing of 3 meters (10 feet) between electrodes, with a total of 56 electrodes. The electrodes were assigned a unique identifier consisting of the line number followed by a dash and the electrode number. For example, the first electrode on Line 1 is 1-1, the first electrode on Line 2 is 2-1, etc. Wire stake flags were placed in the ground at the location of every fifth electrode and labeled with the electrode number for future reference. Locations of the resistivity lines were plotted with GPS and referenced to the study area grid.

Field data were collected using a SuperSting R8 IP® multi-electrode resistivity system manufactured by Advanced Geosciences Inc. Data were collected using the dipole-dipole array with a current of up to 200 milliamps. For each electrode configuration in the array, measurements were repeated a minimum of two times or until the error between measurements was less than or equal to five percent.

Measurements were initiated at one end of the resistivity line and incrementally moved through the electrodes until readings had been taken at every position along the line. The value of *n* was then increased to add additional resistivity readings at greater depths in the subsurface.

4.3. Inversion Modeling

The resistivity measurements on a section are called apparent resistivities. They may differ from the true resistivities in the subsurface because the measured data may be affected by passage through non-homogeneous materials and the distance of travel through the media. Apparent resistivity measurements must be processed to model the distribution of resistivities for the site-specific geology. Therefore, linear inversion techniques were applied to the data using

RES2DINV inversion modeling software (Geotomo Software, 2006). Linear inversion modeling fits the measured data in the resistivity section to an earth model that may represent the actual resistivities in the section. The inversion modeling is completed by calculating apparent resistivity from the earth model for comparison to the measured data. If the comparison is within reasonable limits, the earth model can be accepted as an approximation of subsurface conditions. Details of the inversion process may be found in Lines and Treitel (1984), Loke and Barker (1995), and Loke and Barker (1996). The inverted resistivity section is the image used for interpretation of geologic conditions.

4.4. Resistivity Results

Each of the resistivity lines reveal distinct zones of low resistivity in the immediate vicinities where they cross the various linear EM anomalies, as depicted in Figure 6. As such, these resistivity anomalies are interpreted as the former trenches. The vertical thickness of these low-resistivity zones ranges from approximately 10 to 17 feet. However, it should be noted that buried waste materials often lower the resistivities of the natural materials beneath, such that the apparent vertical thickness of buried waste may be greater that the actual thickness.

5. Ground Penetrating Radar

5.1. Principles of GPR

Ground penetrating radar (GPR) operates by transmitting pulses of high frequency radio waves (microwave electromagnetic energy) into the ground through a transducer or antenna. The main parameter which controls the subsurface response is the dielectric constant of the material. The transmitted energy is reflected when a radar pulse strikes a boundary where there is an abrupt change in dielectric constant (Davis and Annan, 1989). A second antenna receives the reflected waves and stores them in the digital control unit. Subsurface objects are expressed as hyperbolic reflections similar to an inverted “U” shape.

The depth of penetration is determined primarily by the electrical conductivity of the materials and the frequency of the GPR transmitter. The depth of investigation tends to be greater in low conductivity materials such as concrete, dry sand, or granitic rocks. Clays, shale, and other high conductivity materials attenuate or absorb GPR signals, greatly decreasing the depth of penetration. In general, low frequency signals penetrate deeper but have a poorer resolution than high frequency signals. Areas containing large amounts of metallic material reflect the majority of the GPR signal, preventing signal penetration beneath those materials.

5.2. GPR Field Methods

For this study, a 250 MHz GPR instrument was used. To corroborate the EM and resistivity data, GPR data were collected over a majority of the study area where accessible to the GPR instrument. Data were collected in a grid measuring 60 feet by 510 feet, in traverses spaced 10 feet apart. Traverses were collected in a northeast-southwest orientation so as to cross the former trenches in a perpendicular direction (Figure 10).

Several of the GPR cross-sections reveal trough-like anomalies in the vicinities of the former trenches as depicted in the resistivity data. The three most prominent examples of these are illustrated in Figure 12. The sections presented are from GPR traverses 6, 25 and 28, which coincide with resistivity lines 1, 3 and 4. The trough-like features observed in the GPR cross-sections are delineated in Figure 11 by a dotted black line. In order to correlate the GPR data to the resistivity data, the delineations of these features were superimposed onto the resistivity sections. The lateral locations of these anomalies immediately coincide with the trough-like low resistivity anomalies. However, the maximum discernible depth of these anomalies in the GPR data is approximately five feet. This is likely again the result of attenuation of the GPR signal.

6. Conclusions

Both the quadrature and in-phase components of the EM data revealed several distinct linear zones of high EM response across the study area. One of these anomalies occurs in the immediate vicinity of the former disposal trench as observed in the 1986 aerial photograph. The additional linear EM anomalies occur in a repeating fashion just west of the trench depicted in the aerial photograph, and bear near-identical geophysical signatures. As such, the additional linear EM anomalies are interpreted as the locations of additional former disposal trenches.

The resistivity lines placed through the anomalous EM zones display distinct low-resistivity zones in the shallow subsurface immediately coincident with the zones of anomalous EM response. These zones range from approximately 13 to 30 feet in width and approximately 10 to 17 feet in depth, which is consistent with historical reporting for the trenches.

The GPR data were greatly attenuated by the presence of clayey soils. Processed into map view, the GPR data did not reveal the laterally extensive anomalies in the expected vicinity of the trenches as did the EM and resistivity data. However, trough-like GPR anomalies were observed in several of the in cross-sections in vicinities which coincide with the locations of anomalies in the EM and resistivity data. The maximum discernible depth of these anomalies in the GPR data is approximately five feet, much shallower than both the historical knowledge of the trenches and that which is observed in the resistivity imaging. The GPR data confirm that the EM and resistivity provide reliable estimations of the lateral extent of the trenches, but the resistivity is likely to provide a more reliable estimation of the depth of the waste. Based on the resistivity results the waste is estimated to be approximately 10 to 17 feet in thickness.

The EM and resistivity data, when interpreted together and combined with aerial photography of the site when the disposal trenches SWMU (SSA) 30 and SWMU (SSA) 79 were open, clearly reveal the lateral and vertical extents of those former disposal trenches, as well as the extents of the additional trenches to the west of SWMU (SSA) 30 and SWMU (SSA) 79. The lateral extent of the interpreted buried materials is delineated in Figure 12 by a solid red line.

7. References

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Loke, M.H., and R.D. Barker, 1996. *Rapid least-squares inversion of apparent resistivity pseudosections by a quasi-Newton method*, Geophysical Prospecting, Vol. 44, No. 1, Pages 131-152.

Figures

Approximate Scale:
1 inch = 60 feet

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	
File Name: *SWMU 30 pt.ppt*	
Date: *7/24/09*	Draftsman: *CMP*
ATS Project Number: *P09-10*	

Figure 1. Figure provided by URS as "Figure 2-8 Aerial - 1986" illustrating the locations of "SSA 30 and 79 - Asbestos Trenches"

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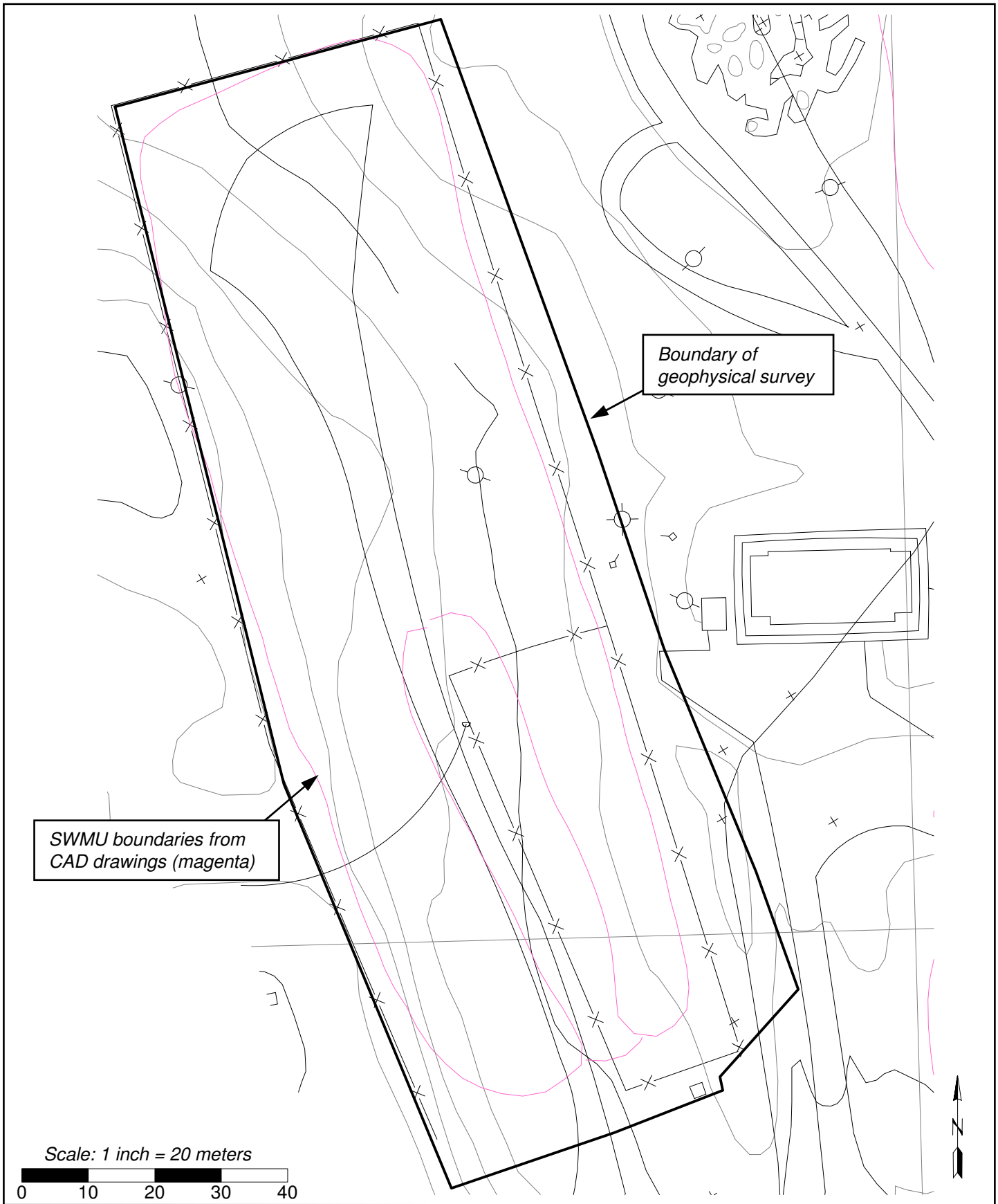

Report Title:
Geophysical Survey for SWMU 30, RFAAP, Radford, VA

File Name: *SWMU 30 pt.ppt*

Date: *7/24/09* | Draftsman: *CMP*

ATS Project Number: *P09-10*

Figure 2. Site map illustrating the SWMU boundaries as depicted on CAD drawings (magenta) and the boundaries of the geophysical survey as determined by URS (black).

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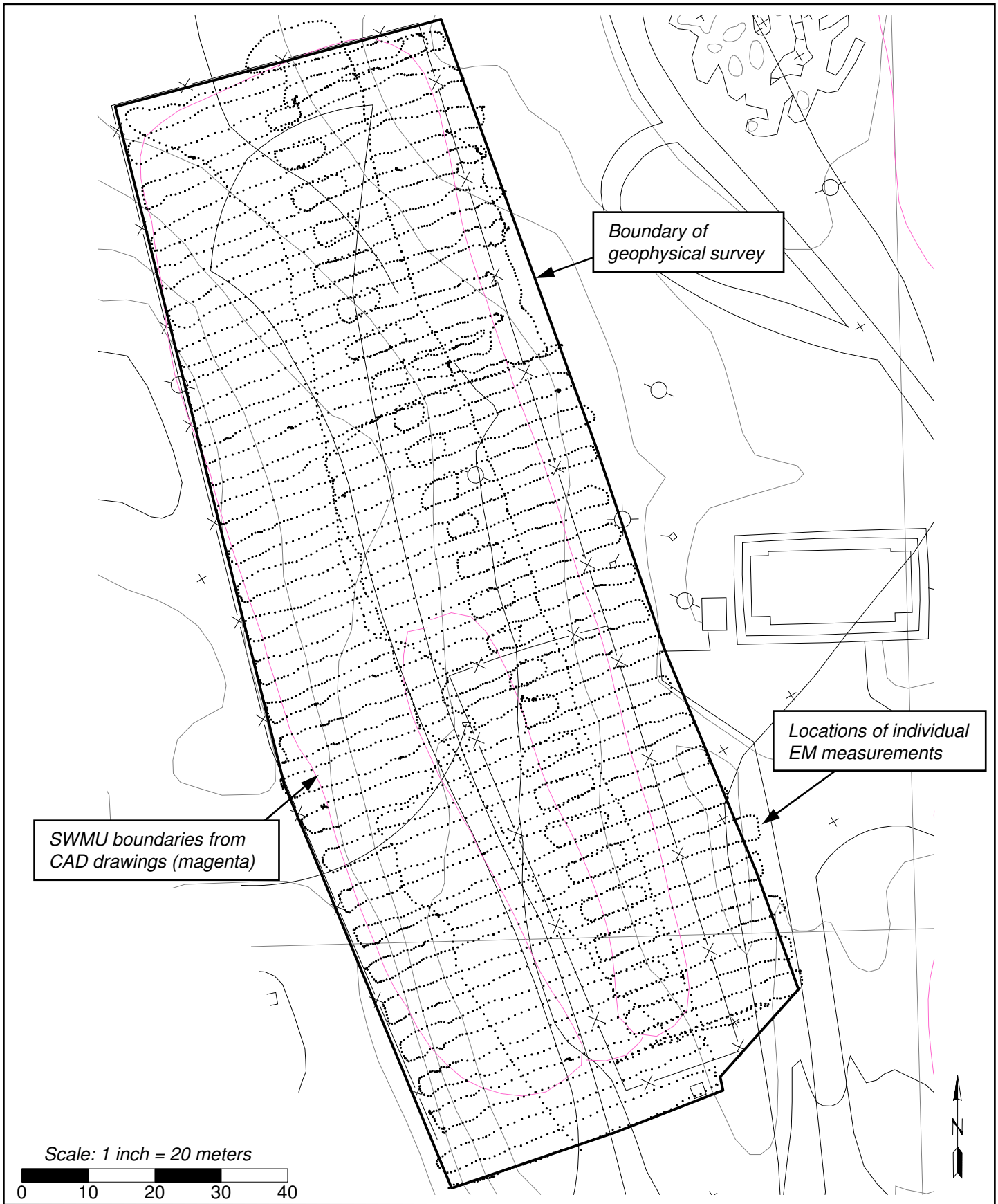

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	
File Name: *SWMU 30 pt.ppt*	
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Figure 3. Locations of individual EM measurements as recorded by pack-mounted GPS (black dots).

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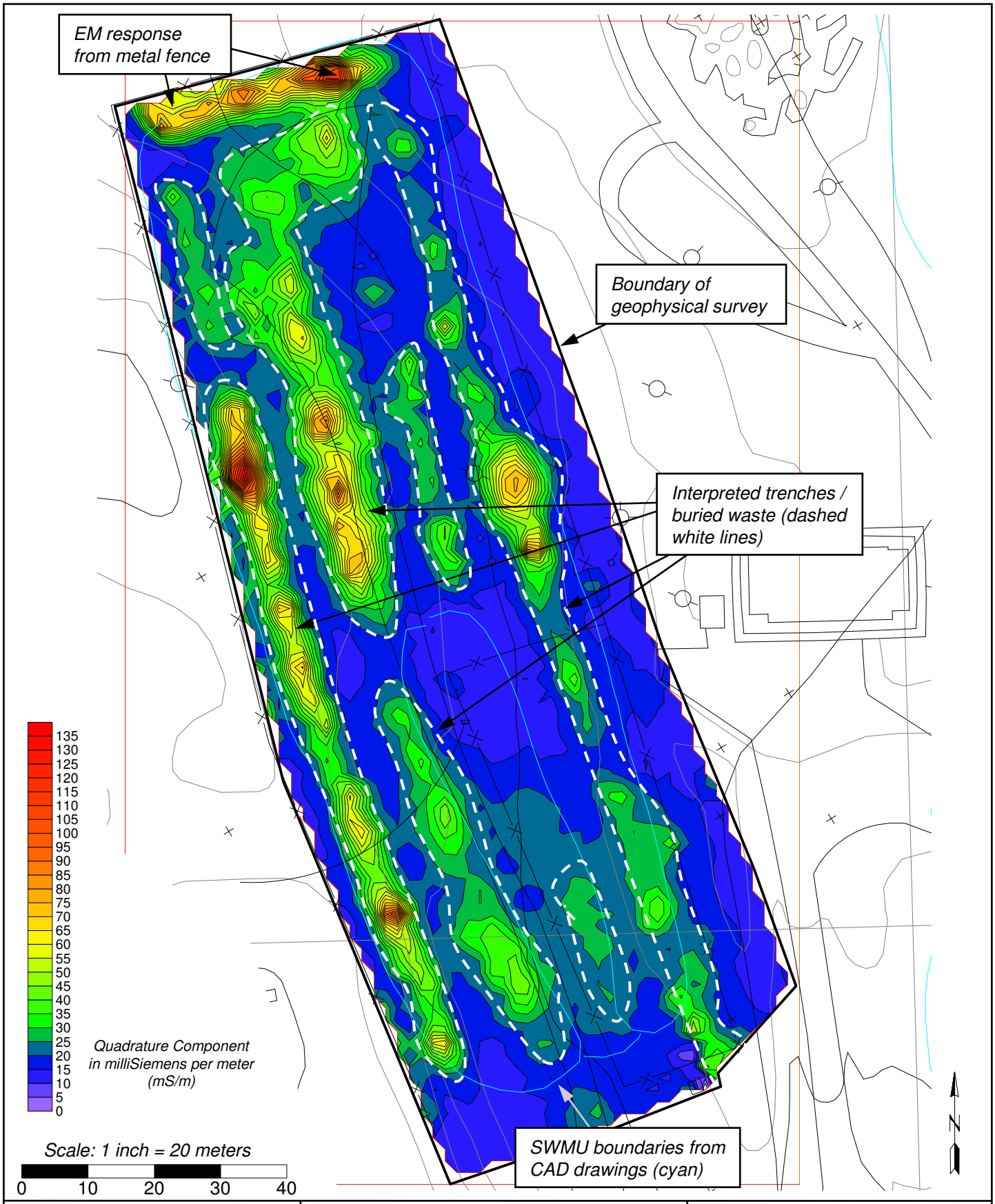

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File Name: *SWMU 30 pt.ppt*	
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Figure 4. Quadrature component of the EM data illustrating interpreted waste trenches (dashed white lines).

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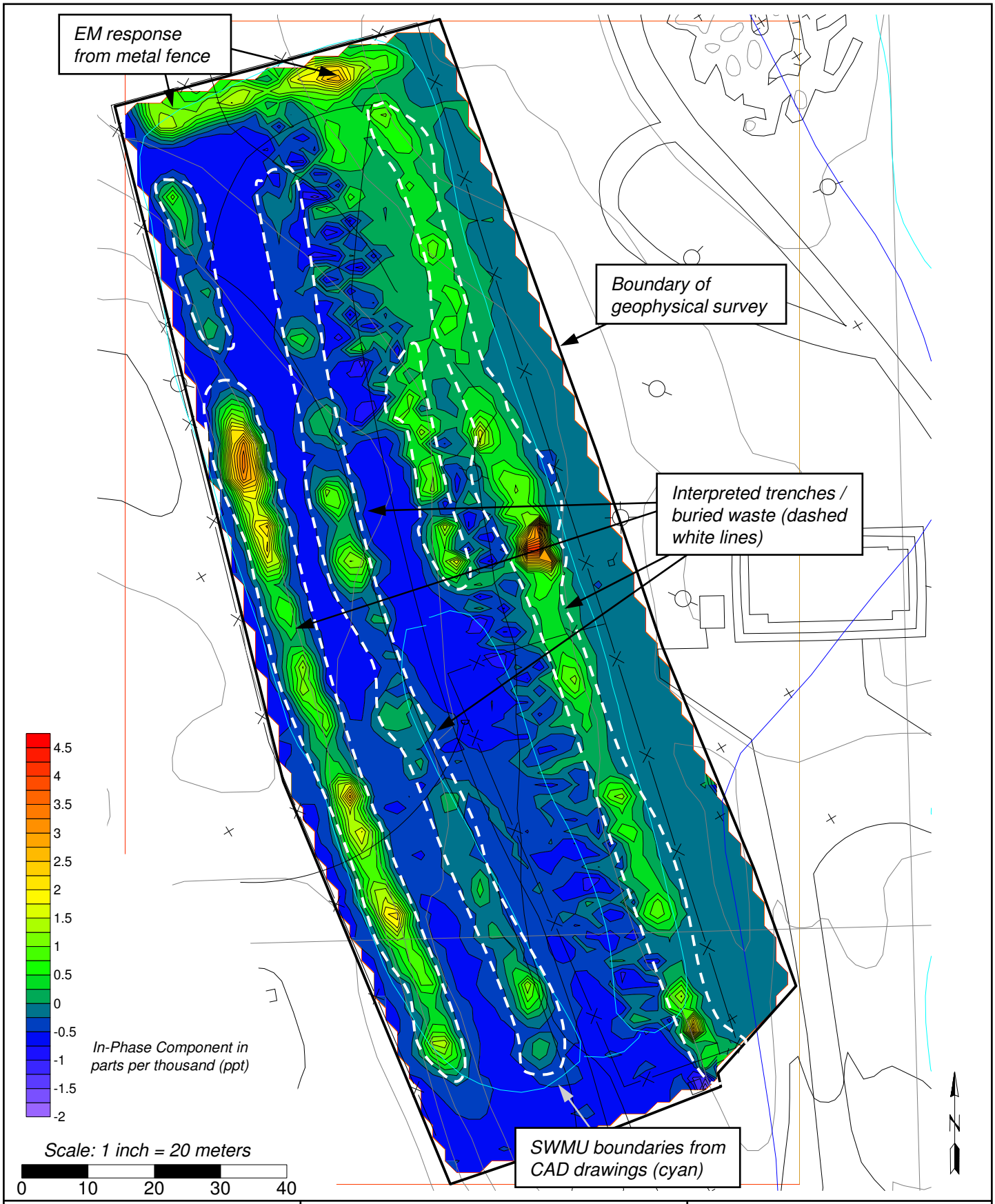

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	
File Name: *SWMU 30 pt.ppt*	
Date: *7/24/09*	Draftsman: *CMP*
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Figure 5. In-phase component of the EM data illustrating interpreted waste trenches (dashed white lines).

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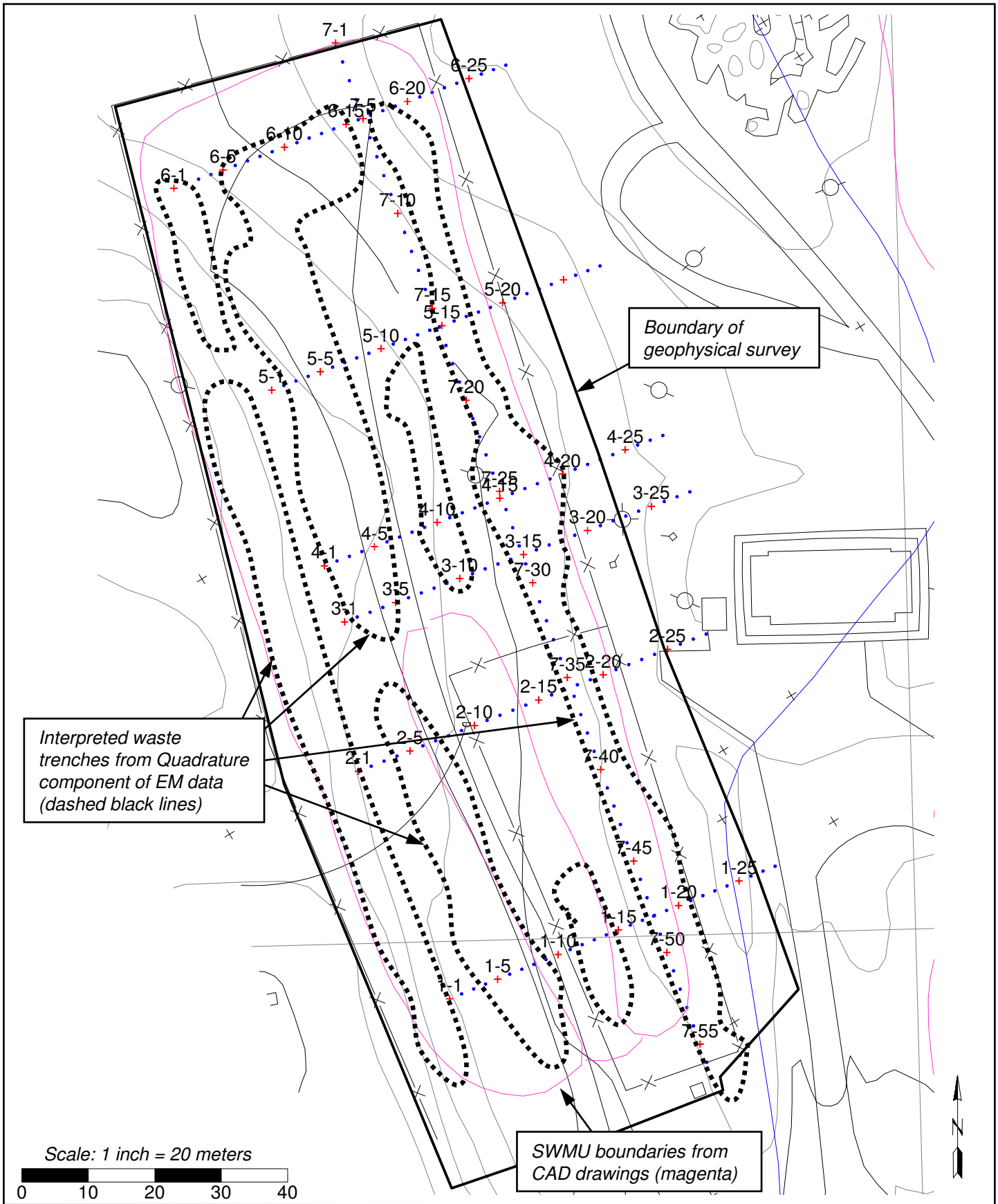

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	*Figure 6. Locations of electrodes for the seven resistivity lines.*
File Name: *SWMU 30 pt.ppt*	
Date: *7/24/09* Draftsman: *CMP*	
ATS Project Number: *P09-10*	

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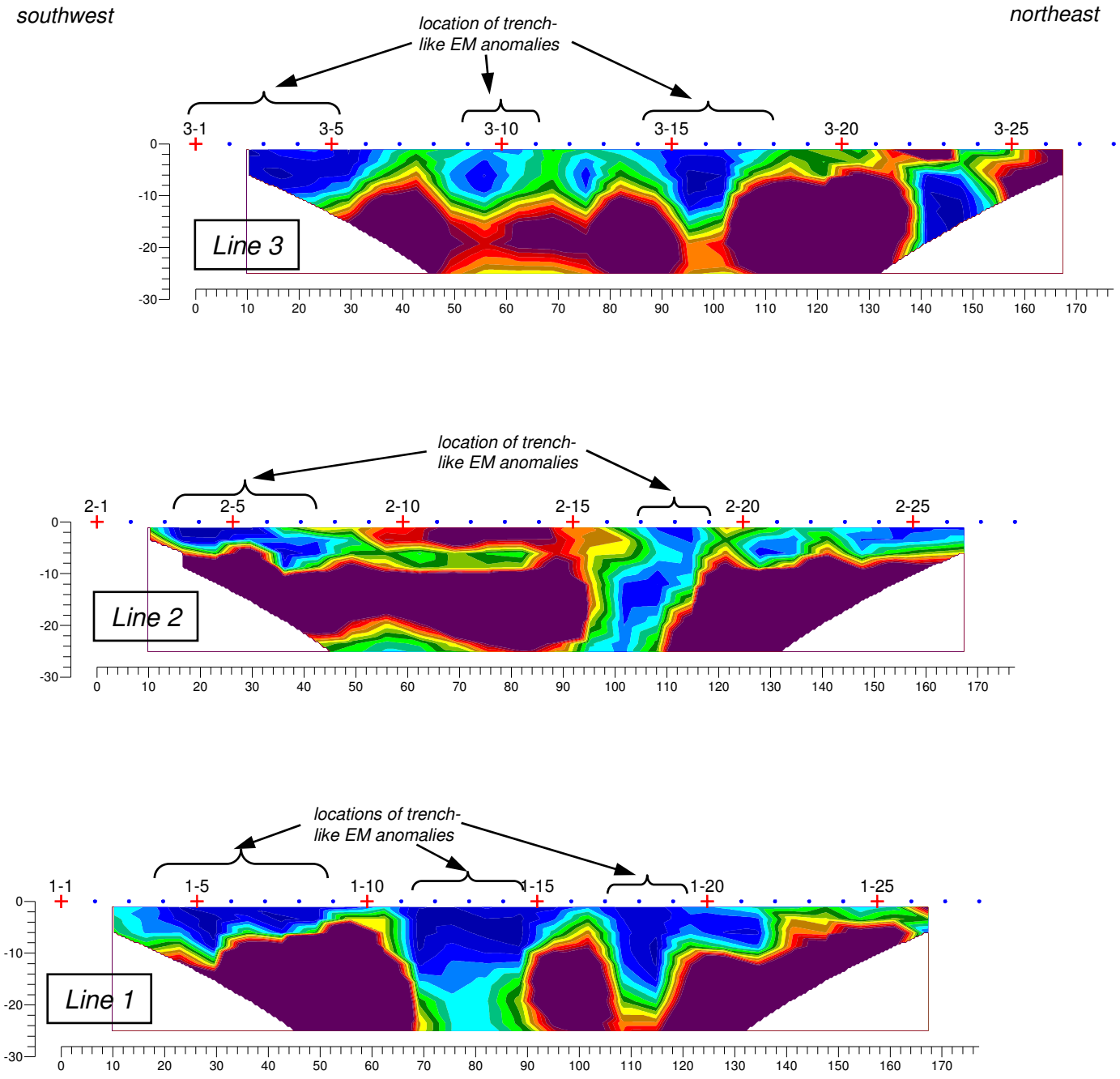

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	*Figure 7. Results and interpretations of resistivity lines 1 through 3.*
File Name: *SWMU 30 pt.ppt*	
Date: *7/24/09* Draftsman: *CMP*	
ATS Project Number: *P09-10*	

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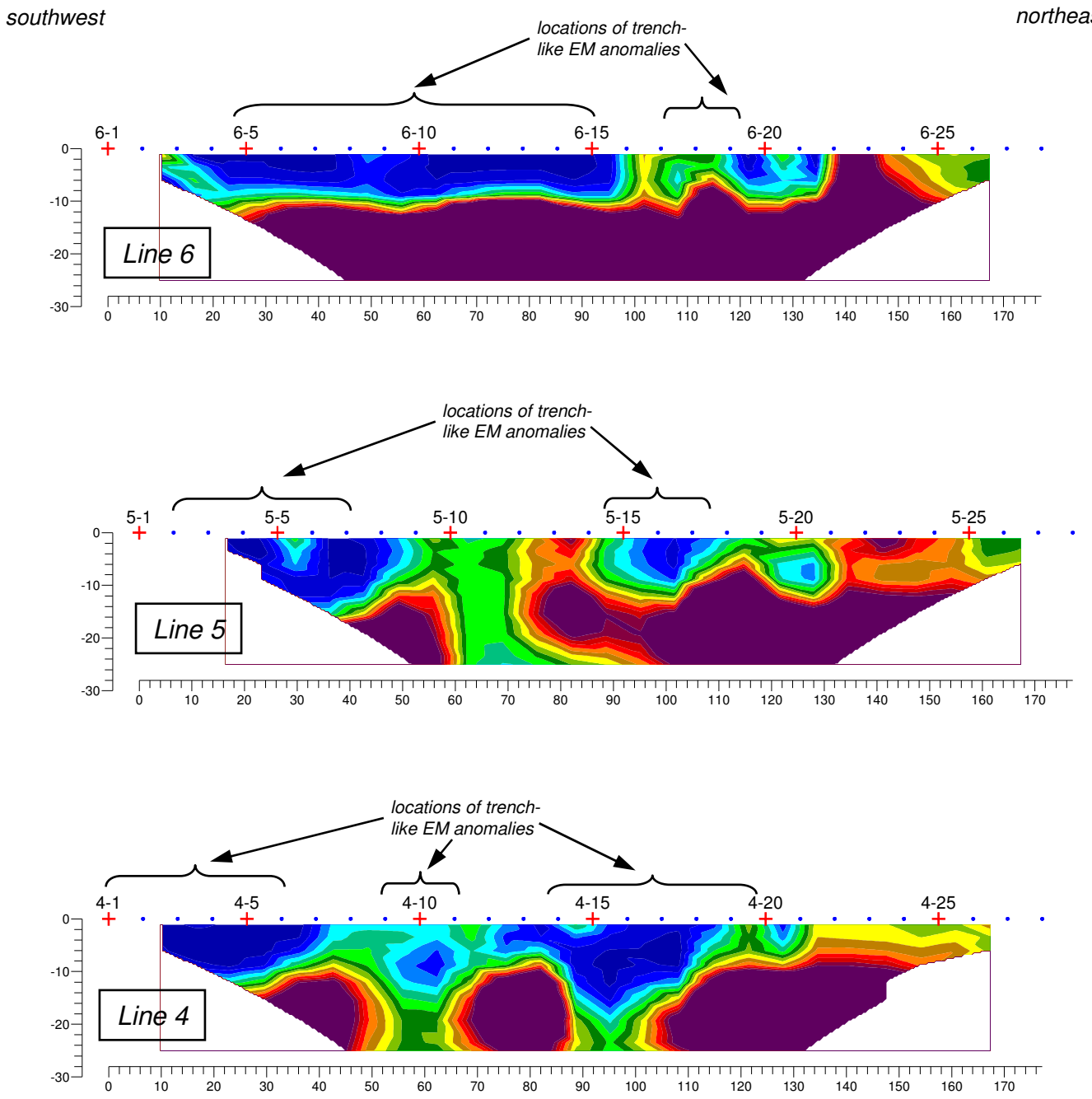

Axes are in feet
Scale: 1 inch = 30 feet

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	*Figure 8. Results and interpretations of resistivity lines 4 through 6.*
File Name: *SWMU 30 pt.ppt*	
Date: *7/24/09* Draftsman: *CMP*	
ATS Project Number: *P09-10*	

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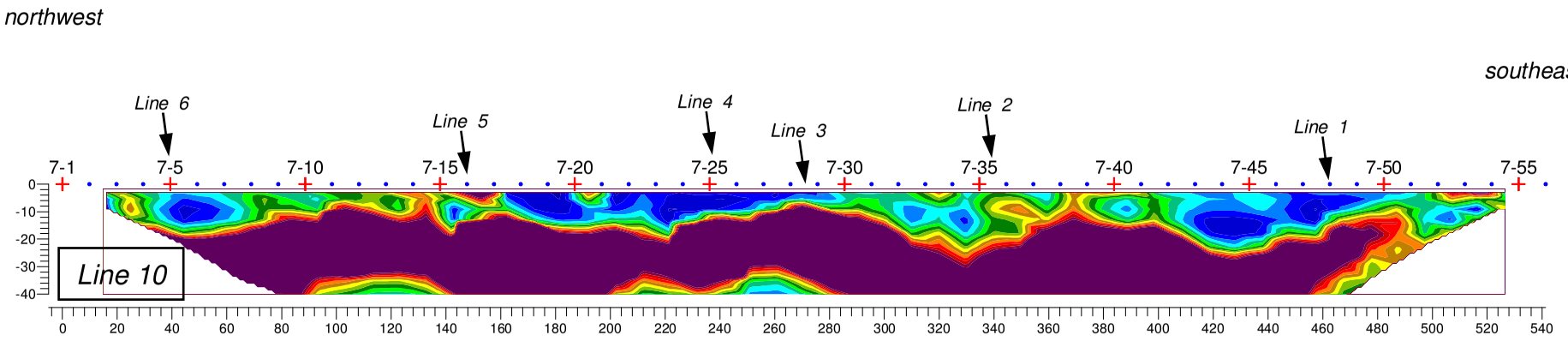

Resistivity Scale (ohm-meters)

0 75 150 225 300 375 450 525

Axes are in feet
Scale: 1 inch = 60 feet

Report Title: *Geophysical Survey for SWMU 30, RAAP, Radford, VA*	
File Name: *SWMU 30 ls.ppt*	
Date: *9/22/09*	Draftsman: *CMP*
ATS Project Number: *P09-10*	

Figure 9. Results and interpretations of resistivity line 10.

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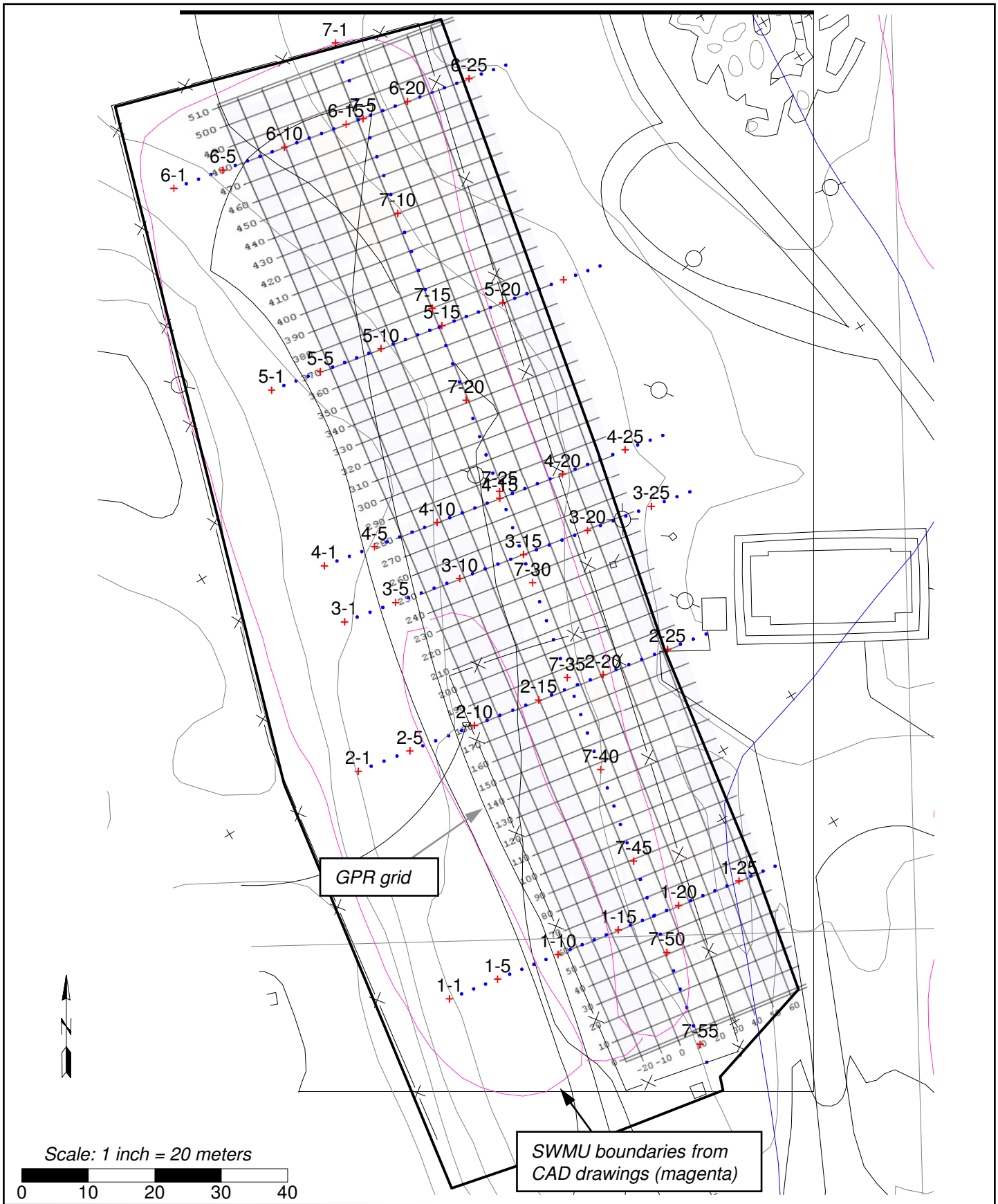

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	
File Name: *SWMU 30 pt.ppt*	
Date: *7/24/09*	Draftsman: *CMP*
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Figure 10. Layout of the GPR grid.

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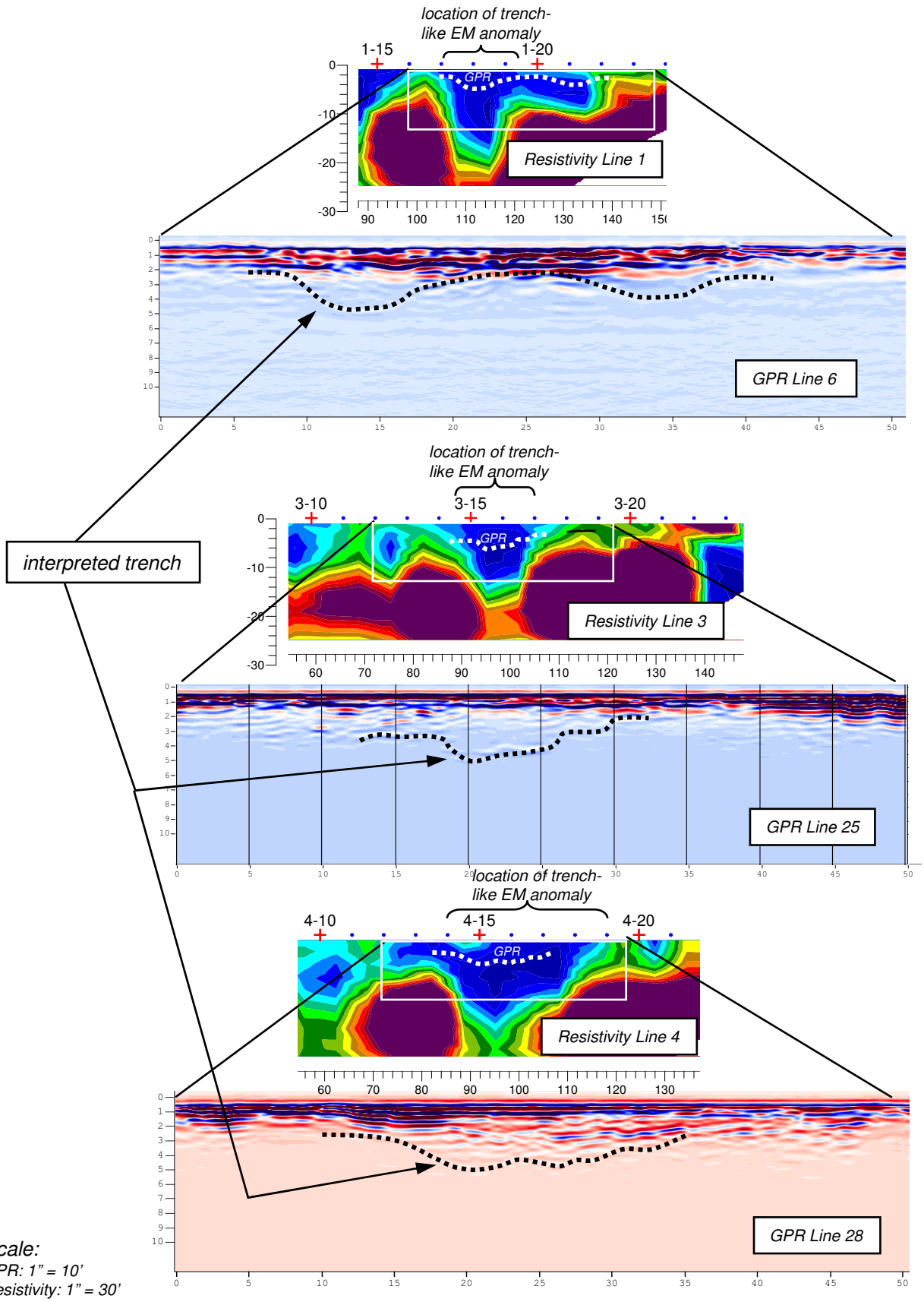

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	
File Name: *SWMU 30 pt.ppt*	
Date: *7/24/09*	Draftsman: *CMP*
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Figure 11. Correlations between GPR and resistivity data for GPR cross-sections 6, 25 and 28 (resistivity lines 1, 3 and 4) .

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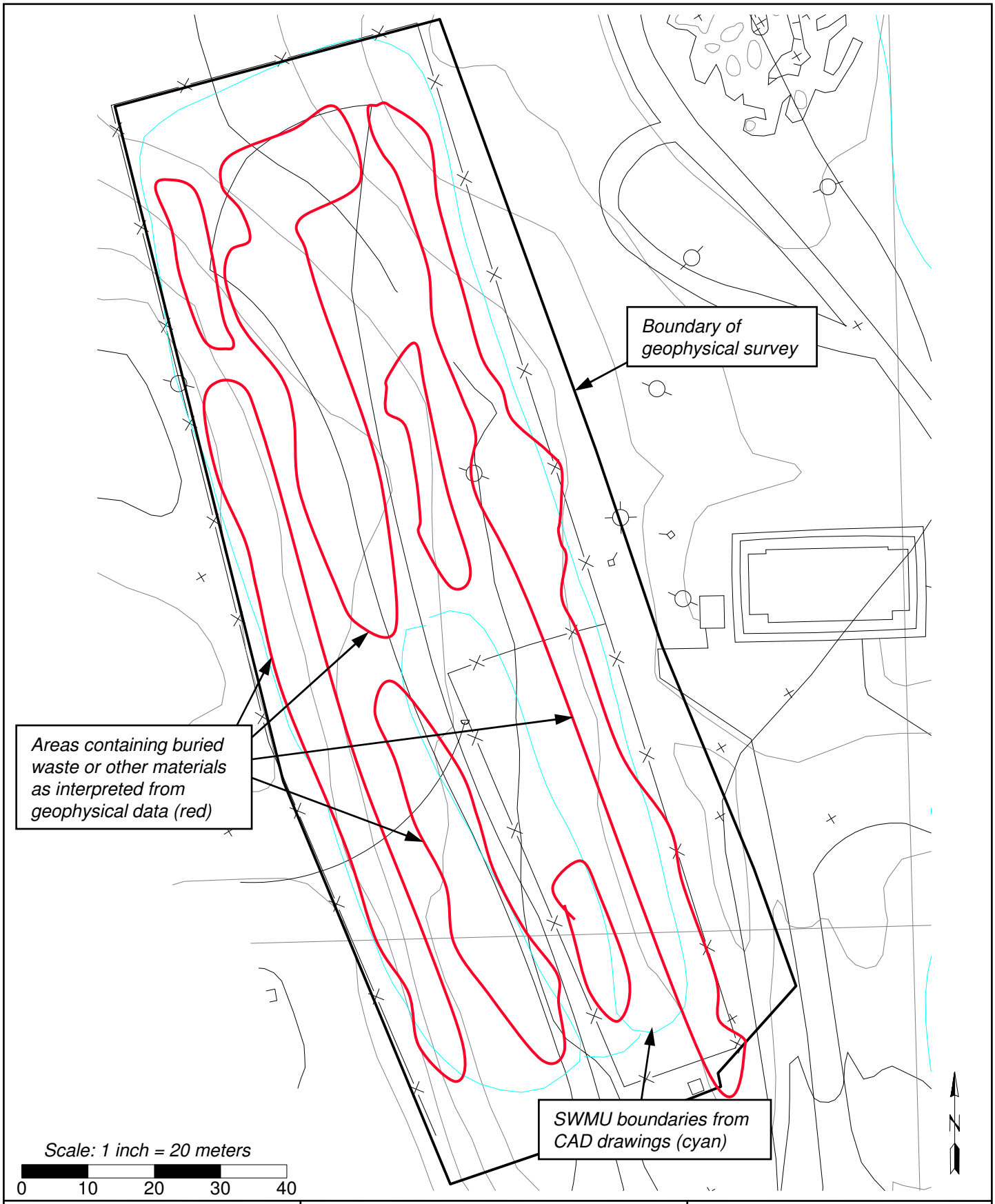

Report Title: *Geophysical Survey for SWMU 30, RFAAP, Radford, VA*	
File Name: *SWMU 30 pt.ppt*	
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Figure 12. Extent of areas containing buried waste or other fill materials as interpreted from the EM data (red).

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APPENDIX D.6

SSP SAMPLE COORDINATES

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Table D.6-1
SSP Sample Location Coordinates
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID	Easting	Northing
SSA 18		
18SB2	10884347.884	3597145.607
18SB3	10884387.192	3597194.028
18SB4	10884375.891	3597115.784
18SB5	10884469.269	3597195.826
18SB6	10884388.676	3597224.896
SSA 72		
72SB1	10884352.263	3596873.013
72SB2	10884371.713	3596956.970
72SB3	10884379.764	3597030.761
SSAs 30 and 79		
30SB1	10892900.984	3601018.486
30SB2	10892806.333	3601113.489
30SB3	10892845.726	3601240.697
30SS1	10892880.765	3600991.153
30SS2	10892858.443	3601054.738
30SS3	10892813.916	3601174.027
79SB1	10892697.143	3600995.552
79SB2	10892790.114	3601309.207
79SB3	10892651.192	3601216.677
79SS1	10892799.734	3601247.747
79SS2	10892769.269	3601333.234
79SS3	10892748.370	3601410.238
79SS4	10892746.015	3601005.197
79SS5	10892710.474	3601231.240
C1	10892885.009	3601324.428
51MW2	10892890.808	3600922.326
SSA 60		
60SE1	10889280.726	3594690.704
60SE2	10889324.529	3594684.570
60SS1	10888977.912	3594666.824
60SS2	10889028.356	3594577.010
60SS3	10889147.530	3594661.831
60SS4	10889249.629	3594726.476
60SS5	10889275.011	3594649.932
60SS6	10889003.057	3594738.958
60TP1	10888964.456	3594685.555
60TP2	10889066.501	3594562.819
SSA 77		
77SB1	10886885.557	3594052.534
77SB2	10886885.875	3594075.491
77SB3	10886908.789	3594075.979
77SB4	10886888.483	3594103.902
77SB5	10886857.485	3594105.141
77SB6	10886909.562	3594098.555

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APPENDIX E

HUMAN HEALTH RISK ASSESSMENT

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APPENDIX E.1

SSA 18
IRON "MARGIN OF EXPOSURE" EVALUATION

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Table 1
Iron "Margin of Exposure" Evaluation
SSA 18
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
37,500	7	10 mg/day	0.5	0.7
Surface Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
32,000	6	10 mg/day	0.4	0.7

* See Table 2 for equations used to calculated daily intake estimates.
** Default weight of 15 kg used for child
MDC = Maximum Detected Concentration

Table 2
Iron "Margin of Exposure" Evaluation
SSA 18
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation
Ingestion-Total Soil	Resident	Child	SSA 18	AT-NC	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1991	
				BW	Body Weight	15	kg	USEPA, 1991	
				CF1	Conversion Factor 1	1.00E-06	kg/mg	unit conversion	Chronic
				CS	Chemical Concentration in Soil	Chemical Specific	mg/kg	MDC or EPC	Daily = $\frac{CS*IRS*EF*ED*FI*CF1}{BW*AT}$
				ED	Exposure Duration	6	years	USEPA, 1991	Intake
				EF	Exposure Frequency	350	days/year	USEPA, 1991	(mg/day)
				FI	Fraction Ingested	1	(unitless)	default	
				IRS	Ingestion Rate of Soil	200	mg/day	USEPA, 1991	

Notes:

MDC = Maximum Detected Concentration

EPC = Exposure Point Concentration

kg = kilogram

mg/kg = milligram per kilogram

mg/day = milligram per day

kg/mg = kilogram per milligram

USEPA, 1991. Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual, Supplemental Guidance, "Standard Default Exposure Factors". OSWER 9285.6-03.

APPENDIX E.2

SSA 72
IRON "MARGIN OF EXPOSURE" EVALUATION

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Table 1
Iron "Margin of Exposure" Evaluation
SSA 72
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
38,000	7	10 mg/day	0.5	0.7
Surface Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
37,200	7	10 mg/day	0.5	0.7

* See Table 2 for equations used to calculated daily intake estimates.
** Default weight of 15 kg used for child
MDC = Maximum Detected Concentration

Table 2
Iron "Margin of Exposure" Evaluation
SSA 72
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation
Ingestion-Total Soil	Resident	Child	SSA 72	AT-NC	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1991	
				BW	Body Weight	15	kg	USEPA, 1991	
				CF1	Conversion Factor 1	1.00E-06	kg/mg	unit conversion	Chronic Daily Intake (mg/day) = $\frac{CS*IRS*EF*ED*FI*CF1}{BW*AT}$
				CS	Chemical Concentration in Soil	Chemical Specific	mg/kg	MDC or EPC	
				ED	Exposure Duration	6	years	USEPA, 1991	
				EF	Exposure Frequency	350	days/year	USEPA, 1991	
				FI	Fraction Ingested	1	(unitless)	default	
				IRS	Ingestion Rate of Soil	200	mg/day	USEPA, 1991	

Notes:

MDC = Maximum Detected Concentration

EPC = Exposure Point Concentration

kg = kilogram

mg/kg = milligram per kilogram

mg/day = milligram per day

kg/mg = kilogram per milligram

USEPA, 1991. Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual, Supplemental Guidance, "Standard Default Exposure Factors". OSWER 9285.6-03.

APPENDIX E.3

SSAs 30 AND 79
IRON "MARGIN OF EXPOSURE" EVALUATION

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Table 1
Iron "Margin of Exposure" Evaluation
SSAs 30 and 79
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
43,000	8	10 mg/day	0.6	0.7
Surface Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
35,000	7	10 mg/day	0.4	0.7

* See Table 2 for equations used to calculated daily intake estimates.
** Default weight of 15 kg used for child
MDC = Maximum Detected Concentration

Table 2
Iron "Margin of Exposure" Evaluation
SSAs 30 and 79
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation
Ingestion-Total Soil	Resident	Child	SSAs 30 and 79	AT-NC	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1991	
				BW	Body Weight	15	kg	USEPA, 1991	
				CF1	Conversion Factor 1	1.00E-06	kg/mg	unit conversion	Chronic
				CS	Chemical Concentration in Soil	Chemical Specific	mg/kg	MDC or EPC	Daily = $\frac{CS*IRS*EF*ED*FI*CF1}{BW*AT}$
				ED	Exposure Duration	6	years	USEPA, 1991	Intake
				EF	Exposure Frequency	350	days/year	USEPA, 1991	(mg/day)
				FI	Fraction Ingested	1	(unitless)	default	
				IRS	Ingestion Rate of Soil	200	mg/day	USEPA, 1991	

Notes:

MDC = Maximum Detected Concentration

EPC = Exposure Point Concentration

kg = kilogram

mg/kg = milligram per kilogram

mg/day = milligram per day

kg/mg = kilogram per milligram

USEPA, 1991. Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual, Supplemental Guidance, "Standard Default Exposure Factors". OSWER 9285.6-03.

APPENDIX E.4

SSA 60
IRON "MARGIN OF EXPOSURE" EVALUATION

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Table 1
Iron "Margin of Exposure" Evaluation
SSA 60
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
39,000	7	10 mg/day	0.5	0.7
Surface Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
30,000	6	10 mg/day	0.4	0.7

* See Table 2 for equations used to calculated daily intake estimates.
** Default weight of 15 kg used for child
MDC = Maximum Detected Concentration

Table 2
Iron "Margin of Exposure" Evaluation
SSA 60
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation
Ingestion-Total Soil	Resident	Child	SSA 60	AT-NC	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1991	
				BW	Body Weight	15	kg	USEPA, 1991	
				CF1	Conversion Factor 1	1.00E-06	kg/mg	unit conversion	Chronic Daily Intake (mg/day) = $\frac{CS*IRS*EF*ED*FI*CF1}{BW*AT}$
				CS	Chemical Concentration in Soil	Chemical Specific	mg/kg	MDC or EPC	
				ED	Exposure Duration	6	years	USEPA, 1991	
				EF	Exposure Frequency	350	days/year	USEPA, 1991	
				FI	Fraction Ingested	1	(unitless)	default	
				IRS	Ingestion Rate of Soil	200	mg/day	USEPA, 1991	

Notes:

MDC = Maximum Detected Concentration

EPC = Exposure Point Concentration

kg = kilogram

mg/kg = milligram per kilogram

mg/day = milligram per day

kg/mg = kilogram per milligram

USEPA, 1991. Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual, Supplemental Guidance, "Standard Default Exposure Factors". OSWER 9285.6-03.

APPENDIX E.5

SSA 77
IRON "MARGIN OF EXPOSURE" EVALUATION

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Table 1
Iron "Margin of Exposure" Evaluation
SSA 77
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Total Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
41,000	8	10 mg/day	0.5	0.7
Surface Soil - Child Resident				
Iron MDC (mg/kg)	Child Daily Intake Estimate* (mg/day)	RDA for Child 6 mths to 4 years Old	Child Daily Intake** (mg/kg-day)	Provisional RfD (mg/kg-day)
39,000	7	10 mg/day	0.5	0.7

* See Table 2 for equations used to calculated daily intake estimates.
** Default weight of 15 kg used for child
MDC = Maximum Detected Concentration

Table 2
Iron "Margin of Exposure" Evaluation
SSA 77
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation
Ingestion-Total Soil	Resident	Child	SSA 77	AT-NC	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1991	
				BW	Body Weight	15	kg	USEPA, 1991	
				CF1	Conversion Factor 1	1.00E-06	kg/mg	unit conversion	Chronic Daily Intake (mg/day) = $\frac{CS*IRS*EF*ED*FI*CF1}{BW*AT}$
				CS	Chemical Concentration in Soil	Chemical Specific	mg/kg	MDC or EPC	
				ED	Exposure Duration	6	years	USEPA, 1991	
				EF	Exposure Frequency	350	days/year	USEPA, 1991	
				FI	Fraction Ingested	1	(unitless)	default	
				IRS	Ingestion Rate of Soil	200	mg/day	USEPA, 1991	

Notes:

MDC = Maximum Detected Concentration

EPC = Exposure Point Concentration

kg = kilogram

mg/kg = milligram per kilogram

mg/day = milligram per day

kg/mg = kilogram per milligram

USEPA, 1991. Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual, Supplemental Guidance, "Standard Default Exposure Factors". OSWER 9285.6-03.

APPENDIX F

ECOLOGICAL RISK ASSESSMENT

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APPENDIX F.1

SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT PROCESS

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APPENDIX F.1
SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT PROCESS
SSP REPORT FOR SSAs 18, 72, 30, 79, 60, AND 77

TABLE OF CONTENTS

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LIST OF ABBREVIATIONS AND ACRONYMS

% ..... Percent
ADD..... Average Daily Dose
AF ..... Area Use Factor
BAF..... Bioaccumulation Factor
BTAG..... Biological Technical Assistance Group
BW ..... Body Weight
C_{TRV}..... NOAEL- or LOAEL-based TRV concentration
COPC ..... Chemical of Potential Concern
COPEC..... Chemical of Potential Ecological Concern
DF ..... Dietary Fraction
DW:WW ..... Dry weight to wet weight
ECO-SSL ..... Ecological Soil Screening Level
EF..... Extrapolation Factor
EPC ..... Exposure Point Concentration
HQ..... Hazard Quotient
IR ..... Ingestion Rate
kg ..... Kilogram
LD_{50}..... Lethal Dose to 50% of the test population
LOAEL ..... Lowest Observable Adverse Effects Level
MDC ..... Maximum Detected Concentration
mg ..... Milligram
mg/kg ..... Milligrams Per Kilogram
NOAEL..... No Observable Adverse Effects Level
ORNL..... Oak Ridge National Laboratory
PAH ..... Polynuclear Aromatic Hydrocarbon
SLERA..... Screening Level Ecological Risk Assessment
TOC ..... Total Organic Carbon
TRV ..... Toxicity Reference Value
UF ..... Uncertainty Factor
UF_{plant} ..... Plant Uptake Factor
USACHPPM..... U.S. Army Center for Health Promotion and Preventive Medicine
USEPA..... U.S. Environmental Protection Agency

1.0 INTRODUCTION

The purpose of this appendix is to present and describe development of exposure assessment models for the receptors presented in the Screening Level Ecological Risk Assessments (SLERAs) for SSA 18, SSAs 30 and 79, SSA 60, and SSA 77. The following sections provide a summary of parameters used in the models and a detailed description of the direct contact and dose rate modeling approachs used in the SLERAs. The complete SLERAs for SSA 18, SSAs 30 and 79, SSA 60, and SSA 77 are presented in Appendices F.2, F.3, F.4, and F.5, respectively.

2.0 MODEL PARAMETERS

The direct contact and dose rate models include parameters relating to receptor-specific exposure, chemical of potential concern (COPC) toxicity, and bioaccumulation rates. The following sections describe the estimation of these parameters and major assumptions of parameterization.

2.1 TOXICITY REFERENCE VALUES

MDCs for detected chemicals in soil are used as the preliminary exposure estimate to evaluate a conservative risk scenario for the direct contact pathway to soil invertebrates. Other potentially complete exposure pathways to soil invertebrate and microbial communities include direct ingestion of soil and biota. Due to insufficient information to quantify these pathways, likely secondary to the direct contact/absorption pathway, their omission should not substantially alter the risk characterization.

To evaluate the preliminary exposure estimates, the Toxicity Reference Values (TRVs) that were protective of terrestrial plants and soil invertebrate/microbial communities, were selected from a review of toxicological benchmarks for soil. TRVs for direct contact of soil to invertebrates/microbes and soil to plants were determined from the following guidance:

- USEPA Ecological Soil Screening Level (ECO-SSL): soil invertebrate and plant;
- Oak Ridge National Laboratory (ORNL): plant, microbial community, earthworm values (Efroymson *et al*. 1997a, Efroymson *et al*. 1997b, Efroymson *et al*. 1997c); and
- USEPA Region III Biological Technical Assistance Group (BTAG) soil screening values (USEPA 1995), BTAG freshwater screening benchmarks (USEPA 2006a), and BTAG freshwater sediment screening levels (USEPA 2006b)

Selected screening levels and sources are reported on Tables F.2-5 (SSA 18), F.3-5 (SSAs 30 and 79), F.4-5 (SSA 60), and F.5-5 (SSA 77) for terrestrial plants and Tables F.2-7 (SSA 18), F.3-7 (SSAs 30 and 79), F.4-7 (SSA 60), and F.5-7 (SSA 77) for soil invertebrates and microbial communities.

2.2 RECEPTOR-SPECIFIC EXPOSURE PARAMETERS

Wildlife receptors selected to characterize exposure include:

- Herbivorous mammals: Meadow Vole (*Microtus pennsylvanicus*);
- Invertivorous mammals: Short-tailed Shrew (*Blarina brevicauda*);
- Invertivorous birds: American Robin (*Turdus migratorius*);
- Carnivorous birds: Red-tailed Hawk (*Buteo jamaicensis*); and
- Carnivorous mammals: Red Fox (*Vulpes vulpes*).

Exposure parameters used to derive TRV-based substrate concentrations for each receptor include body weight (kg), food ingestion rate (kg dry weight/day), dietary fraction, incidental substrate ingestion rate (kg dry weight/day), and area use factor. Both preliminary and refinement level exposure parameters are presented in Tables F.2-9 (SSA 18), F.3-9 (SSAs 30 and 79), F.4-9 (SSA 60), and F.5-9 (SSA 77).

2.3 LITERATURE-BASED NOAEL AND LOAEL VALUES

The dose-response relationships for chemicals of potential concern are expressed as NOAELs and LOAELs for wildlife receptors, which are defined as a daily ingested amount (mg/kg body weight-day) that is associated with a specified effect. This process involves the determination of a "test species dose" for a critical endpoint from a particular experimental combination of exposure concentration, exposure duration, test species, and chemical. Endpoints may be based on growth, reproductive, developmental, and survival effects. Such effects are important because they may affect the abundance or reproductive success of receptor populations. The test-species dose from the selected study is then modified using extrapolation and uncertainty factors (EFs and UFs).

For this evaluation, EFs and UFs are used to modify laboratory study results, based on the methodology of Sample et al. (1996). This process involves the determination of a "test species dose" for a critical endpoint from a particular experimental combination of exposure concentration, exposure duration, test species, and chemical. The test-species dose from the selected study is then modified to account for the various extrapolations and uncertainties inherent in applying results from a controlled setting to an ecologically relevant setting, as in:

$$\text{NOAEL or LOAEL} = \frac{\text{Test-Species Dose}}{\text{Duration UF} \times \text{Endpoint UF}} \times \text{Body-Weight EF}$$

EFs and UFs are based on: (1) the duration of exposure, (2) the endpoint measured, and (3) differences in body weights among test and receptor species (Calabrese and Baldwin 1993, Ford et al. 1992, Opresko et al. 1994, Sample et al. 1996, USEPA 1996, Wentsel et al. 1994). EFs and UFs derivation and use is described in the following subsections. The use of surrogate chemical data is also discussed. NOAEL and LOAELs for COPCs are summarized in Tables F.2-10 (SSA 18), F.3-10 (SSAs 30 and 79), F.4-10 (SSA 60), and F.5-10 (SSA 77).

2.3.1 The Test-Species Dose

Critical toxicological values are identified from carefully qualified primary and secondary literature references. The selection of particular studies and endpoints used for the derivation of NOAELs and LOAELs is based on the evaluation of the applicable studies and the dose-response data contained therein. In cases where preferred toxicological endpoints are not available, other toxicity values are used, but additional uncertainty factors may be incorporated. All toxicological values chosen for NOAEL and LOAEL derivation are presented on a mg chemical per kg body weight per day (mg/kg BW-day) basis. These units allow comparisons among organisms of different body sizes (Sample et al. 1996).

2.3.2 Duration Uncertainty Factors

Exposure durations of interest include (1) chronic, (2) subchronic, and (3) acute. Chronic studies occur over the lifetime or a majority of the lifespan of the test organism, generally longer than one year for mammals and 10 weeks for birds. Additionally, studies in which the test organism is dosed during a critical life stage (e.g., gestation) are included with chronic duration studies. Subchronic studies include exposures of two weeks to one year in duration that do not occur during a critical life stage. Acute studies typically have exposures of less than two weeks. NOAELs and LOAELs are usually reported from chronic and subchronic studies, with acute studies often reporting LD_{50} levels (LD_{50}; doses corresponding to the overt expression of a serious adverse effect such as mortality in 50% of test animals). Test-species doses from chronic studies are used preferentially over data from acute and subchronic studies. In cases where chronic data are not available as test-species doses, studies involving less-than-chronic exposures are used to in NOAEL and LOAEL derivation with the addition of a duration uncertainty factor.

For this study, duration uncertainty factors are applied according to USACHPPM 2000:

- Subchronic NOAEL to Chronic NOAEL: 10
- Subchronic LOAEL to Chronic NOAEL: 20
- Subchronic LOAEL to Chronic LOAEL: 4
- Acute NOAEL to Chronic NOAEL: 30
- Acute LOAEL to Chronic NOAEL: 50
- Acute LOAEL to Chronic LOAEL: 10

2.3.3 Endpoint Uncertainty Factors

Additional UFs are used to account for uncertainties in extrapolation between effect- and no-effect levels. Specifically, a NOAEL test-species dose may be estimated from a LOAEL (or LD_{50}) value, or a LOAEL may be estimated from a LD_{50}.

Extrapolation from a LOAEL or LD_{50t} to a NOAEL: Consistent with USACHPPM 2000, a UF of 10 is used with chronic LOAEL values to estimate the chronic NOAEL, which is considered conservative (Sample et al. 1996, USEPA 1996). When a LOAEL value is not available, a LD_{50} is used, although chronic NOAELs may range from 1/10 to 1/10,000 of the corresponding acute LD_{50} value (Opresko et al. 1994). For this report, an uncertainty factor of 100 is used to estimate a NOAEL value from a LD_{50} value (USACHPPM 2000).

Extrapolation from an LD_{50} to a LOAEL: Consistent with USACHPPM 2000, an UF of 20 is used conservatively to estimate a LOAEL value from a LD_{50} value (USACHPPM 2000).

2.3.4 Body-Weight Extrapolation Factor

This extrapolation is accomplished using a body weight-scaling factor to account for differences in body size (Sample et al. 1996). Numerous studies have shown that many physiological functions such as metabolic rates and responses to chemicals are a function of body size for mammals. Smaller mammals have higher metabolic rates and are usually more resistant to chemicals because of more rapid rates of detoxification. It has been shown that the best measure of body size is one based on body surface-area, which can be expressed in terms of body weight raised to a fractional power (Opresko et al. 1994, Sample et al. 1996, USEPA 1980). Dosimetric differences between the mammalian test species and wildlife receptors are accounted for using:

$$\mathrm{NOAEL}_w = \mathrm{NOAEL}_t \times \left(\frac{\mathrm{BW}_t}{\mathrm{BW}_w} \right)^{0.25}$$

where:

$NOAEL_w$	= NOAEL for the mammalian wildlife receptor (mg/kg BW-day)
$NOAEL_t$	= NOAEL for the mammalian test species (mg/kg BW-day)
BW_t	= Test species body weight (kg)
BW_w	= Wildlife receptor body weight (kg)

Scaling factors may not be appropriate for avian interspecies extrapolations. Information has shown that adjustment factors based on body size for interspecies extrapolation among avian species range from 0.63 to 1.55 (Sample et al. 1996). Therefore, a body-weight extrapolation factor is not used to derive avian NOAELs and LOAELs.

Mammalian wildlife receptor body weights are presented on Tables F.2-9 (SSA 18), F.3-9 (SSAs 30 and 79), F.4-9 (SSA 60), and F.5-9 (SSA 77) and laboratory test species body weights are presented on Tables F.2-10 (SSA 18), F.3-10 (SSAs 30 and 79), F.4-10 (SSA 60), and F.5-10 (SSA 77).

2.4 BIOACCUMULATION FACTORS

Bioaccumulation factors (BAFs) provide quantitative indicators of the tendency for a chemical to partition into terrestrial organisms, relative to the concentrations present in terrestrial exposure media. Exposure-point concentrations of chemicals in terrestrial prey (soil invertebrates and small mammals) and terrestrial plants are estimated using BAFs derived from the literature. The derivation of BAFs is described for organic and inorganic chemicals in the following subsections.

2.4.1 Terrestrial Plants

Exposure-point concentrations of chemicals in terrestrial plants are estimated using soil-to-plant bioaccumulation factors (uptake factors for plants, UF_{plant}) derived from the literature. UF_{plant} values are used to estimate wet-weight chemical concentrations in terrestrial plants using the same equation for invertebrates and a dry weight to wet weight conversion factor assuming plants are 80% water (Salisbury and Ross 1992). The uptake factors for plants are presented on Tables F.2-11 (SSA 18), F.3-11 (SSAs 30 and 79), F.4-11 (SSA 60), and F.5-11 (SSA 77).

Organic Chemicals: Organic chemicals may enter the plant by partitioning from contaminated soil to the roots and then translocating throughout the plant via the xylem tissue. Most bioaccumulative, lipophilic organic chemicals partition to the epidermis of the root or adhere to soil particles and are not drawn into the inner root or xylem (Paterson et al. 1990). Uptake factors for estimating concentrations of organic chemicals in plant tissues are derived from the following equation:

$$UF_{plant} = 10^{[1.588-(0.578\times \log K_{ow})]}$$

where:

UF_{plant} = Plant uptake factor (kg soil, dry weight / kg plant, dry weight)

$\log K_{ow}$ = Logarithm of the octanol:water partition coefficient

This relationship is based on a linear regression of bioaccumulation factors for 29 organic chemicals (Travis and Arms 1988). The correlation coefficient for the regression is 0.73, indicating that a majority of the variability in bioaccumulation is explained by the log K_{ow}. UF_{plant} values are derived for organic chemicals using this equation.

Inorganic Chemicals: Concentrations of inorganic chemicals in plant tissues are estimated based on generalized soil-to-plant transfer coefficients reported in a literature review. The soil-to-plant transfer factors for inorganic chemicals are equivalent to UF_{plant} values for organic chemicals and represent the ratio of the dry weight concentrations in plant tissue to the dry weight concentration of the element in root-zone soils. Bechtel-Jacobs 1998 C_p regression equation: $C_p = e^{(slope*\ln(Cs) - intercept)}$

2.4.2 Terrestrial Prey

Organic Chemicals: BAFs for estimating concentrations of organic chemicals in prey tissues are derived from linear regression equations presented in Travis and Arms (1998) and Beyer and Stafford (1993). The dry weight to wet weight (DW:WW) conversion factor is 0.2 for soil invertebrates (kg soil invertebrate dry weight per soil invertebrate wet weight; assumes invertebrates are 80% water), based on data reported in USEPA (1993). No DW:WW conversion factor was applied for small mammals. The BAF values used in to estimate concentrations of organic chemicals in soil invertebrates and small mammals are shown in Tables F.2-12 and F.2-13 (SSA 18), F.3-12 and F.3-13 (SSAs 30 and 79), F.4-12 and F.4-13 (SSA 60), and F.5-12 and F.5-13 (SSA 77).

Inorganic Chemicals: Inorganic bioaccumulation factors for terrestrial prey (Tables F.2-13, F.3-13, F.4-13, and F.5-13) are wet-weight-based and are used to predict concentrations in invertebrates and small mammals according to:

$$BAF_{si} = C_{si} / C_{soil}$$

where:

BAF_{si} = Soil invertebrate uptake factor for inorganic chemicals

C_{si} = Chemical concentration predicted in soil invertebrates (mg chemical / kg soil invertebrate, dry weight)

C_{soil} = Concentration of inorganic chemical in soil (mg chemical / kg soil, dry weight)

3.0 DIRECT CONTACT APPROACH

3.1 PRELIMINARY DIRECT CONTACT TOXICITY EVALUATION

Risk is assessed by comparing the preliminary exposure estimate (maximum detected concetration - MDC) of each detected chemical to the established TRV (detailed in Section 2.1). The preliminary risk is characterized in terms of a hazard quotient (HQ), which is expressed as:

HQ = MDC/TRV

where:

HQ = Hazard Quotient for the contaminant (unitless)
MDC = Maximum Detected Concentration for contaminant (mg/kg)
TRV = Screening Level for contaminant (mg/kg)

3.2 REFINED DIRECT CONTACT TOXICITY EVALUATION

For the refined evaluation, risk is assessed by comparing the exposure point concentration (EPC) of each detected chemical to the TRV. Due to the number of samples at the sites, a 95%UCL was not calculated; therefore, a refinement of the direct contact pathway was not conducted.

An HQ of less than 1 indicates no or negligible risk. The potential for risk increases as the HQ increases above unity. However, this result should be considered in the context of other characteristics of the exposure area.

Results of the direct contact toxicity evaluation for SSA 18 are presented in Tables F.2-6 (terrestrial plants) and F.2-8 (soil and microbial communities), SSAs 30 and 79 results are presented in Tables F.3-6 (terrestrial plants) and F.3-8 (soil and microbial communities), SSA 60 results are presented in Tables F.4-6 (terrestrial plants) and F.4-8 (soil and microbial communities), and SSA 77 results are presented in Tables F.5-6 (terrestrial plants) and F.5-8 (soil and microbial communities).

4.0 DOSE RATE MODELING APPROACH

A simplified food web model is utilized to calculate TRVs for each chemical and wildlife receptor. TRVs quantify COPC concentrations in exposure media that may result in no observable adverse effects or low observable adverse effects. The NOAEL corresponds to the greatest exposure associated with no observed adverse effects on growth, reproduction, or survival. The LOAEL corresponds to the smallest exposure associated with observed adverse effects on growth, reproduction or survival. TRVs developed by dose rate models are used to evaluate ecological effects associated with COPEC concentrations in exposure media.

4.1 PRELIMINARY DOSE RATE MODEL

Preliminary risk characterization for wildlife receptors uses the conservative preliminary exposure estimate and ecological effects evaluation to characterize risk to potential terrestrial receptors.

The simplified food web model considers the ingestion of prey, the incidental ingestion of media, and the primary routes of exposure to wildlife receptors. Chemical concentrations in prey are expressed as a function of chemical concentrations in exposure media using BAFs for terrestrial prey items. Other important parameters in the model include receptor body weight and an estimate of receptor use. As shown in the equation below, literature-derived NOAEL and LOAEL values are input into the model as the ADD variable to calculate the concentration in exposure media (C_{TRV}) that would result in a dose equivalent to a NOAEL or LOAEL.

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \ (BAF_{food} \cdot DF) + IR_s)AF}$$

where:

C_{TRV} = NOAEL or LOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg COPC/kg body weight-day)

BW = Minimum Body Weight of the receptor (kg)

IR_{food} = Maximum Ingestion Rate of food (kg food ingested per day, dry weight)

BAF_{food} = BAF of most contaminated dietary component used, specific to prey type and COPC (ratio of mg of COPC/kg fauna, wet weight to mg COPC/ kg substrate, dry weight)

DF = Dietary Fraction (most contaminated dietary component assumed to be 100% of diet)

IR_s = Maximum Incidental Ingestion Rate of soil (kg substrate ingested per day, dry weight)

AF = 100% Area Use Factor

Preliminary receptor parameters for SSA 18, SSAs 30 and 79, SSA 60, and SSA 77 are presented on Tables F.2-9, F.3-9, F.4-9, and F.5-9 respectively. The resulting risk is characterized in terms of an HQ and is presented for wildlife receptors in Appendix F.2 and summarized in Table F.2-24 for SSA 18, in Appendix F.3 and summarized in Table F.3-24 for SSAs 30 and 79, in Appendix F.4 and summarized in Table F.4-24 for SSA 60, and in Appendix F.5 and summarized in Table F.5-24 for SSA 77.

4.2 REFINED EXPOSURE ESTIMATE AND RISK CHARACTERIZATION

The refined exposure and risk characterization, Step 3a of the ecological risk assessment guidance (ERAGS), reviews and refines the conservative assumptions used in the risk calculation (USEPA 1997). In Step 3a, conservative assumptions used in the preliminary exposure and risk characterization are replaced with more environmentally realistic assumptions to evaluate risk posed by COPECs identified in the preliminary risk characterization. The addition of Step 3a focuses the outcome of the ecological screening, streamlines the review process and functions as the initial basis for ecological risk management decision-making at each site.

4.3 REFINED DOSE RATE MODEL

This step replaces the conservative assumptions used in the preliminary exposure estimate and ecological effects evaluation with more environmentally realistic assumptions including the use of average body weight, average food and substrate ingestion rates, and the use of realistic area use factor, resulting in a more realistic estimate of potential risk. Due to the number of samples at the sites, a 95% UCL was not calculated for the sites and the MDC was used as the EPC for the refinement.

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + IR_s)AF}$$

where:

C_{TRV} = NOAEL or LOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg COPC/kg body weight-day)

BW = Average Body Weight of the receptor (kg)

IR_{food} = Average Ingestion Rate of food (kg food ingested per day, dry weight)

BAF_{food} = BAF of dietary component used, specific to prey type and COPC (ratio of mg of COPC/kg fauna, wet weight to mg COPC/ kg substrate, dry weight)

DF = Dietary Fraction

IR_s = Average Incidental Ingestion Rate of soil (kg substrate ingested per day, dry weight)

$AF_{refined}$ = Refined Area Use Factor (detailed below)

In the refined model, a realistic area use factor ($AF_{refined}$) was used to calculate the ratio of the site area to the average home range of the receptor:

$AF_{refined}$ = Study Area/Home Range Area

Other receptor parameters in the refined model remain conservative. The conservative assumptions are summarized as follows:

- Receptors assimilate 100% of COPECs detected in the food and soil; and
- Receptors forage in the site area 100% of the time.

Refined receptor parameters for SSA 18, SSAs 30 and 79, SSA 60, and SSA 77 are presented on Tables F.2-9, F.3-9, F.4-9, and F.5-9, respectively. The resulting risk is characterized in terms of an HQ and is presented for wildlife receptors in Appendix F.2 and summarized in Table F.2-24 for SSA 18, in Appendix F.3 and summarized in Table F.3-24 for SSAs 30 and 79, in Appendix F.4 and summarized in Table F.4-24 for SSA 60, and in Appendix F.5 and summarized in Table F.5-24 for SSA 77.

4.4 EXAMPLE C_{TRV} EQUATION CALCULATION – PRELIMINARY AND REFINED

The following example C_{TRV} equation details the arsenic NOAEL-based screening level (SL) calculated for the short-tailed shrew at SSAs 30 and 79 (Tables F.3-16 and F.3-17) and resulting HQs:

Preliminary

- ADD = 0.15 mg/kg bw-day (NOAEL)
- BW = 0.0125 kg (minimum body weight)
- IR_{food} = 0.003 kg dw/day (maximum ingestion rate)
- BAF_{food} = 1.1 (for the most contaminated dietary component in this case plant)
- DF = 1 (100% most contaminated dietary component in this case 100% plants)
- IR_{soil} = 0.00039 kg dw/day (maximum soil ingestion rate)
- AF = 1 (default used)

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \ (BAF_{food} \cdot DF) + IR_s)AF} = \frac{0.15 \cdot 0.0125}{(0.003\,(1.1 \cdot 1) + 0.00039) \cdot 1} = \textbf{5.1E-01 mg/kg}$$

NOAEL HQ = MDC (mg/kg)/NOAEL-based SL (mg/kg) = $\frac{3.3}{5.1E-01}$ = **6.5E+00**

Refined

- ADD = 0.15 mg/kg bw-day
- BW = 0.015 kg
- IR_{food} = 0.002 kg dw/day
- BAF_{plant} = 0.038
- BAF_{inv} = 0.17
- DF_{plant} = 0.14
- DF_{inv} = 0.86
- IR_{soil} = 0.00026 kg dw/day
- $AF_{refined}$ = 1

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF_{food}) + IR_s)AF}$$

$$= \frac{0.15 \cdot 0.015}{(0.002\,(0.038 \cdot 0.14 + 0.17 \cdot 0.86) + 0.00026) \cdot 0.31} = \textbf{4.0+00 mg/kg}$$

NOAEL HQ = MDC (mg/kg)/NOAEL-based SL (mg/kg) = $\frac{3.3}{4.0E+00}$ = **8.3E-01**

Tables F.2-24, F.3-24, F.4-24, and F.5-24 provide a summary of preliminary and refined HQs developed for terrestrial receptors at SSA 18, SSAs 30 and 79, SSA 60, and SSA 77, respectively.

5.0 SUMMARY

Receptor-specific exposure parameters are obtained from life history studies found in the literature. Important receptor-specific exposure parameters input into the model include: body weight, food ingestion rate, diet composition, incidental substrate ingestion rate, and area use factor.

The dose-response relationships for chemicals of potential interest are expressed as NOAELs and LOAELs for wildlife receptors, which are defined as a daily ingested amount (mg COPC/kg body weight-day) that is associated with a specified growth, reproductive, developmental, or survival effect. Extrapolation and uncertainty factors are applied to literature-based toxicological endpoints to account for differences in a controlled laboratory setting and an ecologically relevant setting. Extrapolation and uncertainty factors are based on: (1) the duration of exposure, (2) the endpoint measured, and (3) differences in body weights among test and receptor species.

Bioaccumulation accumulation factors provide quantitative indicators of the tendency for a chemical to partition into organisms, relative to the concentrations present in exposure media. Exposure-point concentrations of chemicals in terrestrial prey (soil invertebrates and small mammals) are estimated using several BAFs derived from the literature.

COPC concentrations in prey and media, receptor-specific exposure parameters, literature-based NOAEL and LOAEL values, and bioaccumulation factors are used in the model to calculate the concentration in exposure media (C_{TRV}) that would result in a dose equivalent to a NOAEL or LOAEL. The dose rate modeling approach is used to evaluate the potential mobility of COPCs through varying trophic associations.

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APPENDIX F.2

SSA 18 SLERA

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Table F.2-1
SSA 18 SLERA Occurence/Distribution - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Units	Location of Maximum Concentration	Total Samples Analyzed	Detection Frequency	Concentration Used for Screening
TAL Metals								
Aluminum	7429-90-5	14,000	24,000	mg/kg	18SB3A	6	6/6	24,000
Antimony	7440-36-0	0.13	0.46	mg/kg	18SB3A	6	6/6	0.46
Arsenic	7440-38-2	1.5	2.6	mg/kg	18SB1A	6	6/6	2.6
Barium	7440-39-3	110	150	mg/kg	18SB1A	6	6/6	150
Beryllium	7440-41-7	0.79	1.2	mg/kg	18SB6A	6	6/6	1.2
Cadmium	7440-43-9	0.64	1.3	mg/kg	18SB2A	6	6/6	1.3
Calcium	7440-70-2	1,200	24,000	mg/kg	18SB1A	6	6/6	24,000
Chromium	7440-47-3	26	38	mg/kg	18SB4A	6	6/6	38
Cobalt	7440-48-4	11	15	mg/kg	18SB4A	6	6/6	15
Copper	7440-50-8	11	19	mg/kg	18SB4A	6	6/6	19
Iron	7439-89-6	18,000	32,000	mg/kg	18SB6A	6	6/6	32,000
Lead	7439-92-1	14	26	mg/kg	18SB2A	6	6/6	26
Magnesium	7439-95-4	1,900	15,000	mg/kg	18SB4A	6	6/6	15,000
Manganese	7439-96-5	600	980	mg/kg	18SB5A	6	6/6	980
Mercury	7439-97-6	0.017	0.039	mg/kg	18SB3A	6	6/6	0.039
Nickel	7440-02-0	9.3	16	mg/kg	18SB2A	6	6/6	16
Potassium	7440-09-7	1,200	2,500	mg/kg	18SB4A	6	6/6	2,500
Selenium	7782-49-2	0.18	0.36	mg/kg	18SB1A	6	6/6	0.36
Silver	7440-22-4	0.043	0.069	mg/kg	18SB4A	6	6/6	0.069
Sodium	7440-23-5	20	96	mg/kg	18SB1A	6	6/6	96
Thallium	7440-28-0	0.17	0.28	mg/kg	18SB4A	6	6/6	0.28
Vanadium	7440-62-2	32	56	mg/kg	18SB2A	6	6/6	56
Zinc	7440-66-6	54	71	mg/kg	18SB4A	6	6/6	71
Pesticides								
Endrin	72-20-8	0.00053	0.00053	mg/kg	18SB5A	6	1/6	0.00053
PCBs								
Aroclor 1260	11096-82-5	0.0083	0.0084	mg/kg	18SB1A	6	2/6	0.0084
VOCs								
Chloroform	67-66-3	0.0011	0.0011	mg/kg	18SB4A	6	1/6	0.0011
Methylene Chloride	75-09-2	0.0027	0.0043	mg/kg	18SB3A	6	6/6	0.0043
SVOCs								
2-Methylnaphthalene	91-57-6	0.00076	0.00076	mg/kg	18SB5A	6	1/6	0.00076
Acenaphthylene	208-96-8	0.0035	0.0035	mg/kg	18SB1A	6	1/6	0.0035
Benzo(a)anthracene	56-55-3	0.0024	0.0066	mg/kg	18SB1A	6	6/6	0.0066
Benzo(a)pyrene	50-32-8	0.002	0.0069	mg/kg	18SB1A	6	5/6	0.0069
Benzo(b)fluoranthene	205-99-2	0.0045	0.0085	mg/kg	18SB1A	6	4/6	0.0085
Benzo(g,h,i)perylene	191-24-2	0.0023	0.0046	mg/kg	18SB1A	6	3/6	0.0046
Benzo(k)fluoranthene	207-08-9	0.002	0.0035	mg/kg	18SB1A	6	4/6	0.0035
Bis(2-ethylhexyl) Phthalate	117-81-7	0.011	0.11	mg/kg	18SB5A	6	6/6	0.11
Butyl Benzyl Phthalate	85-68-7	0.0063	0.026	mg/kg	18SB5A	6	3/6	0.026
Chrysene	218-01-9	0.0049	0.0066	mg/kg	18SB1A	6	3/6	0.0066
Di-n-butyl Phthalate	84-74-2	0.053	0.19	mg/kg	18SB6A	6	3/6	0.19
Fluoranthene	206-44-0	0.0012	0.01	mg/kg	18SB3A	6	6/6	0.01
Phenanthrene	85-01-8	0.002	0.0049	mg/kg	18SB4A	6	4/6	0.0049
Pyrene	129-00-0	0.0016	0.0094	mg/kg	18SB3A	6	6/6	0.0094
Cyanide								
Cyanide, Total	57-12-5	0.1	1.8	mg/kg	18SB1A	6	5/6	1.8
Total Organic Carbon (TOC)								
Carbon, Total Organic	--	0.28	0.28	%	18SB2A	1	1/1	0.28

Notes:
CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

Table F.2-2
SSA 18 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Cyanide																		
Cyanide, Total	57-12-5	mg/kg	1	6	0.08	0.08	NV	--	NS	0.9	D	N	--	--	NS	--	--	NS
Pesticides																		
4,4'-DDD	72-54-8	mg/kg	6	6	0.00034	0.00036	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDE	72-55-9	mg/kg	6	6	0.00028	0.0003	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDT	50-29-3	mg/kg	6	6	0.00029	0.00032	0.1	G	N	0.1	C	N	0.093	A	N	0.021	A	N
Aldrin	309-00-2	mg/kg	6	6	0.0014	0.0015	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
alpha-BHC	319-84-6	mg/kg	6	6	0.00025	0.00027	100	G	N	NV	--	NS	--	--	NS	--	--	NS
alpha-Chlordane	5103-71-9	mg/kg	6	6	0.00045	0.00049	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
beta-BHC	319-85-7	mg/kg	6	6	0.00032	0.00035	100	G	N	NV	--	NS	--	--	NS	--	--	NS
delta-BHC	319-86-8	mg/kg	6	6	0.0003	0.00032	100	G	N	NV	--	NS	--	--	NS	--	--	NS
Dieldrin	60-57-1	mg/kg	6	6	0.00029	0.00031	0.1	G	N	0.1	C	N	0.022	A	N	0.0049	A	N
Endosulfan I	959-98-8	mg/kg	6	6	0.00029	0.00031	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan II	33213-65-9	mg/kg	6	6	0.00031	0.00033	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan Sulfate	1031-07-8	mg/kg	6	6	0.00038	0.0004	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endrin	72-20-8	mg/kg	5	6	0.00032	0.00034	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Aldehyde	7421-93-4	mg/kg	6	6	0.001	0.0011	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Ketone	53494-70-5	mg/kg	6	6	0.00041	0.00044	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-BHC (Lindane)	58-89-9	mg/kg	6	6	0.00029	0.00031	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-Chlordane	5103-74-2	mg/kg	6	6	0.00032	0.00035	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor	76-44-8	mg/kg	6	6	0.00049	0.00053	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor Epoxide	1024-57-3	mg/kg	6	6	0.00024	0.00026	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Methoxychlor	72-43-5	mg/kg	6	6	0.00041	0.00045	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Toxaphene	8001-35-2	mg/kg	6	6	0.0033	0.0035	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
PCBs																		
Aroclor 1016	12674-11-2	ug/kg	6	6	4.8	5.1	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1221	11104-28-2	ug/kg	6	6	8.8	9.5	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1232	11141-16-5	ug/kg	6	6	5.1	5.5	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1242	53469-21-9	ug/kg	6	6	5.2	5.6	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1248	12672-29-6	ug/kg	6	6	7.4	7.9	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1254	11097-69-1	ug/kg	6	6	6.7	7.2	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1260	11096-82-5	ug/kg	4	6	5.9	6.1	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1262	37324-23-5	ug/kg	6	6	5.9	6.3	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1268	11100-14-4	ug/kg	6	6	7.4	7.9	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
TCL VOCs																		
1,1,1-Trichloroethane	71-55-6	ug/kg	6	6	0.89	1.2	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	6	6	0.83	1.1	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	6	6	0.56	0.72	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,1,2-Trichloroethane	79-00-5	ug/kg	6	6	0.98	1.3	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethane	75-34-3	ug/kg	6	6	0.33	0.43	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethene	75-35-4	ug/kg	6	6	0.76	0.98	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,3-Trichlorobenzene	87-61-6	ug/kg	6	6	0.42	0.54	--	--	NS	--	--	NS	--	--	NS	--	--	NS
1,2,4-Trichlorobenzene	120-82-1	ug/kg	6	6	0.76	0.98	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	6	6	2.2	2.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2-Dibromoethane	106-93-4	ug/kg	6	6	0.88	1.1	NV	--	NS	5,000	C	N	--	--	NS	--	--	NS
1,2-Dichlorobenzene	95-50-1	ug/kg	6	6	0.28	0.36	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dichloroethane	107-06-2	ug/kg	6	6	0.39	0.5	870,000	G	N	NV	--	NS	--	--	NS	--	--	NS
1,2-Dichloropropane	78-87-5	ug/kg	6	6	0.39	0.51	300	G	N	300	C	N	--	--	NS	--	--	NS
1,3-Dichlorobenzene	541-73-1	ug/kg	6	6	0.41	0.53	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,4-Dichlorobenzene	106-46-7	ug/kg	6	6	0.5	0.65	100	G	N	20,000	B	N	--	--	NS	--	--	NS
2-Butanone	78-93-3	ug/kg	6	6	2.4	3.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Hexanone	591-78-6	ug/kg	6	6	1.1	1.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	6	6	0.19	0.25	100,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Acetone	67-64-1	ug/kg	6	6	3.3	4.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzene	71-43-2	ug/kg	6	6	0.22	0.29	100	G	N	100	C	N	--	--	NS	--	--	NS
Bromochloromethane	74-97-5	ug/kg	6	6	0.47	0.61	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Bromodichloromethane	75-27-4	ug/kg	6	6	0.93	1.2	450,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Bromoform	75-25-2	ug/kg	6	6	0.49	0.64	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bromomethane	74-83-9	ug/kg	6	6	1	1.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Disulfide	75-15-0	ug/kg	6	6	0.36	0.47	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Tetrachloride	56-23-5	ug/kg	6	6	0.72	0.93	300	G	N	300	C	N	--	--	NS	--	--	NS
Chlorobenzene	108-90-7	ug/kg	6	6	0.84	1.1	100	G	N	40,000	B	N	--	--	NS	--	--	NS

Table F.2-2
SSA 18 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Chloroethane	75-00-3	ug/kg	6	6	0.84	1.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Chloroform	67-66-3	ug/kg	5	6	0.24	0.32	300	G	N	300	C	N	--	--	NS	--	--	NS
Chloromethane	74-87-3	ug/kg	6	6	0.44	0.58	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
cis-1,2-Dichloroethene	156-59-2	ug/kg	6	6	0.3	0.39	300	G	N	300	C	N	--	--	NS	--	--	NS
cis-1,3-Dichloropropene	10061-01-5	ug/kg	6	6	0.45	0.58	300	G	N	300	C	N	--	--	NS	--	--	NS
Cyclohexane	110-82-7	ug/kg	6	6	0.88	1.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibromochloromethane	124-48-1	ug/kg	6	6	0.5	0.64	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dichlorodifluoromethane	75-71-8	ug/kg	6	6	0.38	0.49	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Ethylbenzene	100-41-4	ug/kg	6	6	0.16	0.21	100	G	N	100	C	N	--	--	NS	--	--	NS
Isopropylbenzene	98-82-8	ug/kg	6	6	0.21	0.27	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl Acetate	79-20-9	ug/kg	6	6	2.6	3.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl tert-Butyl Ether	1634-04-4	ug/kg	6	6	0.52	0.67	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methylcyclohexane	108-87-2	ug/kg	6	6	0.93	1.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Styrene	100-42-5	ug/kg	6	6	0.83	1.1	300,000	F	N	100	C	N	--	--	NS	--	--	NS
Tetrachloroethene	127-18-4	ug/kg	6	6	0.8	1	300	G	N	300	C	N	--	--	NS	--	--	NS
Toluene	108-88-3	ug/kg	6	6	0.64	0.83	200,000	F	N	100	C	N	--	--	NS	--	--	NS
trans-1,2-Dichloroethene	156-60-5	ug/kg	6	6	0.87	1.1	300	G	N	300	C	N	--	--	NS	--	--	NS
trans-1,3-Dichloropropene	10061-02-6	ug/kg	6	6	0.32	0.42	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichloroethene	79-01-6	ug/kg	6	6	0.46	0.6	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichlorofluoromethane	75-69-4	ug/kg	6	6	0.33	0.43	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Vinyl Chloride	75-01-4	ug/kg	6	6	0.27	0.36	300	G	N	300	C	N	--	--	NS	--	--	NS
Xylenes (Total)	1330-20-7	ug/kg	6	6	1.1	1.4	100	G	N	NV	--	NS	--	--	NS	--	--	NS
TCL SVOCs																		
1,1'-Biphenyl	92-52-4	ug/kg	6	6	0.94	1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	6	6	2.4	2.5	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	6	6	11	11	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4,5-Trichlorophenol	95-95-4	ug/kg	6	6	2.8	3	4,000	F	N	9,000	B	N	--	--	NS	--	--	NS
2,4,6-Trichlorophenol	88-06-2	ug/kg	6	6	2.3	2.5	100	G	N	10,000	B	N	--	--	NS	--	--	NS
2,4-Dichlorophenol	120-83-2	ug/kg	6	6	3.8	4.1	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dimethylphenol	105-67-9	ug/kg	6	6	1.7	1.8	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dinitrophenol	51-28-5	ug/kg	6	6	120	130	20,000	F	N	100	C	**Y**	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	ug/kg	6	6	21	23	5,300	I	N	19,800	I	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	ug/kg	6	6	2.6	2.8	4,500	I	N	6,900	I	N	--	--	NS	--	--	NS
2-Chloronaphthalene	91-58-7	ug/kg	6	6	2.5	2.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Chlorophenol	95-57-8	ug/kg	6	6	4.3	4.6	7,000	F	N	10,000	B	N	--	--	NS	--	--	NS
2-Methylnaphthalene	91-57-6	ug/kg	5	6	0.52	0.55	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Methylphenol	95-48-7	ug/kg	6	6	5.4	5.8	100	G	N	100	C	N	--	--	NS	--	--	NS
2-Nitroaniline	88-74-4	ug/kg	6	6	8	8.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Nitrophenol	88-75-5	ug/kg	6	6	7.5	8.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	6	6	32	34	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3-Nitroaniline	99-09-2	ug/kg	6	6	8	8.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	6	6	23	25	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	6	6	1.7	1.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloro-3-methylphenol	59-50-7	ug/kg	6	6	3.7	4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloroaniline	106-47-8	ug/kg	6	6	8	8.6	20,000	F	N	NV	--	NS	--	--	NS	--	--	NS
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	6	6	3.8	4.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methylphenol	106-44-5	ug/kg	6	6	5	5.4	100	G	N	100	C	N	--	--	NS	--	--	NS
4-Nitroaniline	100-01-6	ug/kg	6	6	1.8	2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Nitrophenol	100-02-7	ug/kg	6	6	150	160	100	G	**Y**	7,000	B	N	--	--	NS	--	--	NS
Acenaphthene	83-32-9	ug/kg	6	6	0.88	0.95	100	G	N	100	C	N	--	--	NS	--	--	NS
Acenaphthylene	208-96-8	ug/kg	5	6	1.9	2	100	G	N	100	C	N	--	--	NS	--	--	NS
Acetophenone	98-86-2	ug/kg	6	6	4.2	4.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Anthracene	120-12-7	ug/kg	6	6	2.9	3.1	100	G	N	100	C	N	--	--	NS	--	--	NS
Atrazine	1912-24-9	ug/kg	6	6	5.1	5.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzaldehyde	100-52-7	ug/kg	6	6	7	7.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzo(a)pyrene	50-32-8	ug/kg	1	6	1.7	1.7	100	G	N	NV	--	NS	--	--	NS	--	--	NS
Benzo(b)fluoranthene	205-99-2	ug/kg	2	6	3.5	3.5	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(g,h,i)perylene	191-24-2	ug/kg	3	6	1.1	1.1	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(k)fluoranthene	207-08-9	ug/kg	2	6	1.5	1.5	100	G	N	100	C	N	--	--	NS	--	--	NS
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	6	6	1.4	1.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	6	6	2.1	2.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS

Table F.2-2
SSA 18 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	6	6	7.5	8.1	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Butyl Benzyl Phthalate	85-68-7	ug/kg	3	6	5.7	5.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Caprolactam	105-60-2	ug/kg	6	6	14	15	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbazole	86-74-8	ug/kg	6	6	95	100	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Chrysene	218-01-9	ug/kg	3	6	3.9	4.2	100	G	N	100	C	N	--	--	NS	--	--	NS
Di-n-butyl Phthalate	84-74-2	ug/kg	3	6	29	30	200,000	F	N	NV	--	NS	--	--	NS	--	--	NS
Di-n-octyl Phthalate	117-84-0	ug/kg	6	6	6	6.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	6	6	8.7	9.4	100	G	N	100	C	N	--	--	NS	--	--	NS
Dibenzofuran	132-64-9	ug/kg	6	6	9.9	11	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Diethylphthalate	84-66-2	ug/kg	6	6	3.9	4.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dimethylphthalate	131-11-3	ug/kg	6	6	0.98	1.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Fluorene	86-73-7	ug/kg	6	6	7.8	8.4	100	G	N	100	C	N	--	--	NS	--	--	NS
Hexachlorobenzene	118-74-1	ug/kg	6	6	4.8	5.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorobutadiene	87-68-3	ug/kg	6	6	3.9	4.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorocyclopentadiene	77-47-4	ug/kg	6	6	2.3	2.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachloroethane	67-72-1	ug/kg	6	6	2.8	3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	6	6	4.2	4.5	100	G	N	100	C	N	--	--	NS	--	--	NS
Isophorone	78-59-1	ug/kg	6	6	7	7.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	6	6	6.4	6.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-diphenylamine	86-30-6	ug/kg	6	6	11	12	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Naphthalene	91-20-3	ug/kg	6	6	2.4	2.5	100	G	N	100	C	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	ug/kg	6	6	5.8	6.3	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Pentachlorophenol	87-86-5	ug/kg	6	6	50	54	5,000	A	N	31,000	A	N	2,100	A	N	2,800	A	N
Phenanthrene	85-01-8	ug/kg	2	6	1.2	1.2	100	G	N	100	C	N	--	--	NS	--	--	NS
Phenol	108-95-2	ug/kg	6	6	51	55	100	G	N	30,000	B	N	--	--	NS	--	--	NS
Explosives																		
1,3,5-Trinitrobenzene	99-35-4	mg/kg	6	6	0.12	0.12	8.6	I	N	18.1	I	N	--	--	NS	--	--	NS
1,3-Dinitrobenzene	99-65-0	mg/kg	6	6	0.11	0.11	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	mg/kg	6	6	0.23	0.23	5.3	I	N	19.8	I	N	--	--	NS	--	--	NS
2,4,6-Trinitrotoluene	118-96-7	mg/kg	6	6	0.16	0.16	2.4	H	N	1.2	H	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	mg/kg	6	6	0.23	0.23	4.5	I	N	6.9	I	N	--	--	NS	--	--	NS
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	6	6	0.21	0.21	80	J	N	--	--	NS	--	--	NS	--	--	NS
2-Nitrotoluene	88-72-2	mg/kg	6	6	0.14	0.14	--	--	NS	--	--	NS	--	--	NS	--	--	NS
3-Nitrotoluene	99-08-1	mg/kg	6	6	0.25	0.25	--	--	NS	--	--	NS	--	--	NS	--	--	NS
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	6	6	0.16	0.16	80	J	N	--	--	NS	--	--	NS	--	--	NS
4-Nitrotoluene	99-99-0	mg/kg	6	6	0.27	0.27	--	--	NS	--	--	NS	--	--	NS	--	--	NS
HMX	2691-41-0	mg/kg	6	6	0.12	0.12	--	--	NS	6.3	I	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	mg/kg	6	6	0.045	0.045	--	--	NS	--	--	NS	--	--	NS	--	--	NS
RDX	121-82-4	mg/kg	6	6	0.039	0.039	100	K	N	98.6	I	N	--	--	NS	--	--	NS
Tetryl	479-45-8	mg/kg	6	6	0.046	0.046	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Nitroglycerin/PETN																		
Nitroglycerin	55-63-0	mg/kg	6	6	0.29	0.58	--	--	NS	--	--	NS	--	--	NS	--	--	NS
PETN	78-11-5	mg/kg	6	6	0.25	0.51	--	--	NS	--	--	NS	--	--	NS	--	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
SL = Screening Level
Eco SSL = Ecological Soil Screening Level

Sources:
A = USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
B = ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
C = BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
D = CCME 2006
E = ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
F = ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
G = BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
H = Best, E.P.H., H.E. Tatem, K.N. Geter, M.L. Wells and B.K. Lane. 2004. Toxicity and Metabolites of 2,4,6 Trinitrotoluene (TNT) in Plants and Worms from Exposure to Aged Soil.
I = Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil.
J = Pennington, Judith C. 1988. Plant Uptake of 2,4,6-Trinitrotoluene, 4-Amino-2,6-Dinitrotoluene, and 2-Amino-4,6-Dinitrotoluene Using 14C-Labeled and Unlabeled Compounds.
K = Simini, M., R.S. Wentsel, R.T. Checkai, C.T. Phillips, N.A. Chester, M.A. Major, and J.C. Amos. 1995. Evaluation of Soil Toxicity at Joliet Army Ammunition Plant.

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

Table F.2-3
SSA 18 - Summary of Total PCBs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	18SB1A 8/12/2009 0-1		18SB2A 8/12/2009 0-1		18SB3A 8/12/2009 0-1		18SB4A 8/12/2009 0-1		18SB5A 8/12/2009 0-1		18SB6A 8/12/2009 0-1	
		Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
PCBs (ug/kg)													
Aroclor 1254	11097-69-1	<38	U	<39	U	<39	U	<40	U	<37	U	<39	U
Aroclor 1260	11096-82-5	8.4	J	<80	U	<79	U	<82	U	8.3	J	<79	U
Total PCBs	--	8.4		ND		ND		ND		8.3		ND	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
ft bgs = Feet Below Ground Surface
PBC = Polychlorinated Biphenyl
See Table 4-4 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
ND = Not Detected

Table F.2-4
SSA 18 - Summary of Low and High Molecular Weight PAHs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	18SB1A 8/12/2009 0-1		18SB2A 8/12/2009 0-1		18SB3A 8/12/2009 0-1		18SB4A 8/12/2009 0-1		18SB5A 8/12/2009 0-1		18SB6A 8/12/2009 0-1	
		Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
TCL PAHs (ug/kg)													
Acenaphthene	83-32-9	<20	U	<20	U	<20	U	<21	U	<19	U	<20	U
Acenaphthylene	208-96-8	3.5	J	<20	U	<20	U	<21	U	<19	U	<20	U
Anthracene	120-12-7	<20	U	<20	U	<20	U	<21	U	<19	U	<20	U
Fluorene	86-73-7	<38	U	<39	U	<39	U	<40	U	<37	U	<39	U
Naphthalene	91-20-3	<20	U	<20	U	<20	U	<21	U	<19	U	<20	U
Phenanthrene	85-01-8	<20	U	2	J	2.8	J	4.9	J	2.3	J	<20	U
Low Molecular Weight PAHs	--	3.5		2		2.8		4.9		2.3		ND	
Benzo(a)anthracene	56-55-3	6.6	J	3.2	J	3.5	J	4.1	J	3.4	J	2.4	J
Benzo(a)pyrene	50-32-8	6.9	J	3.2	J	2	J	3.7	J	2.6	J	<20	U
Benzo(b)fluoranthene	205-99-2	8.5	J	<20	U	5.5	J	6.5	J	4.5	J	<20	U
Benzo(g,h,i)perylene	191-24-2	4.6	J	<80	U	<79	U	3.3	J	2.3	J	<79	U
Benzo(k)fluoranthene	207-08-9	3.5	J	2	J	2.8	J	2.8	J	<19	U	<20	U
Chrysene	218-01-9	6.6	J	<20	U	5.5	J	4.9	J	<19	U	<20	U
Dibenz(a,h)anthracene	53-70-3	<78	U	<80	U	<79	U	<82	U	<76	U	<79	U
Fluoranthene	206-44-0	4.6	J	2.8	J	10	J	8.1	J	3	J	1.2	J
Indeno(1,2,3-cd)pyrene	193-39-5	<78	U	<80	U	<79	U	<82	U	<76	U	<79	U
Pyrene	129-00-0	8.1	J	2.8	J	9.4	J	8.5	J	5.7	J	1.6	J
High Molecular Weight PAHs	--	49.4		14		38.7		41.9		21.5		5.2	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
ND = Not Detected
TCL = Target Compound List
PAH = Polynuclear Aromatic Hydrocarbon
See Table 4-4 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Table F.2-5
SSA 18 - Plant Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	50	ORNL-Plants
Antimony	7440-36-0	5	ORNL-Plants
Arsenic	7440-38-2	18	ECO SSL
Barium	7440-39-3	500	ORNL-Plants
Beryllium	7440-41-7	10	ORNL-Plants
Cadmium	7440-43-9	32	ECO SSL
Chromium	7440-47-3	1	ORNL-Plants
Cobalt	7440-48-4	13	ECO SSL
Copper	7440-50-8	70	ECO SSL
Iron	7439-89-6	NV	--
Lead	7439-92-1	120	ECO SSL
Manganese	7439-96-5	220	ECO SSL
Mercury	7439-97-6	0.3	ORNL-Plants
Nickel	7440-02-0	38	ECO SSL
Selenium	7782-49-2	0.52	ECO SSL
Silver	7440-22-4	560	ECO SSL
Thallium	7440-28-0	1	ORNL-Plants
Vanadium	7440-62-2	2	ORNL-Plants
Zinc	7440-66-6	160	ECO SSL
Cyanide			
Cyanide, Total	57-12-5	NV	--
Pesticides			
Endrin	72-20-8	0.1	BTAG - Flora
PCBs			
Aroclor 1260	11096-82-5	NV	--
VOCs			
Chloroform	67-66-3	0.3	BTAG - Flora
Methylene Chloride	75-09-2	0.3	BTAG - Flora
SVOCs			
2-Methylnaphthalene	91-57-6	NV	--
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Di-n-butyl Phthalate	84-74-2	200	ORNL-Plants
Low Molecular Weight PAHs	--	NV	--
High Molecular Weight PAHs	--	NV	--

Notes:
CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
NV = No Value Available
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.2-6
SSA 18 - Plant Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	24,000	50	**4.8E+02**	40,041	N
Antimony	7440-36-0	0.46	5	9.2E-02	--	NBE
Arsenic	7440-38-2	2.6	18	1.4E-01	15.8	N
Barium	7440-39-3	150	500	3.0E-01	209	N
Beryllium	7440-41-7	1.2	10	1.2E-01	1.02	N
Cadmium	7440-43-9	1.3	32	4.1E-02	0.69	N
Chromium	7440-47-3	38	1	**3.8E+01**	65.3	N
Cobalt	7440-48-4	15	13	**1.2E+00**	72.3	N
Copper	7440-50-8	19	70	2.7E-01	53.5	N
Iron	7439-89-6	32,000	NV	NC	50,962	N
Lead	7439-92-1	26	120	2.2E-01	26.8	N
Manganese	7439-96-5	980	220	**4.5E+00**	2,543	N
Mercury	7439-97-6	0.039	0.3	1.3E-01	0.13	N
Nickel	7440-02-0	16	38	4.2E-01	62.8	N
Selenium	7782-49-2	0.36	0.52	6.9E-01	--	NBE
Silver	7440-22-4	0.069	560	1.2E-04	--	NBE
Thallium	7440-28-0	0.28	1	2.8E-01	2.11	N
Vanadium	7440-62-2	56	2	**2.8E+01**	108	N
Zinc	7440-66-6	71	160	4.4E-01	202	N
Cyanide						
Cyanide, Total	57-12-5	1.8	NV	NC	NV	NA
Pesticides						
Endrin	72-20-8	0.00053	0.1	5.3E-03	NV	NA
PCBs						
Aroclor 1260	11096-82-5	0.0084	NV	NC	NV	NA
Total PCBs	--	0.0084	NV	NC	NV	NA
VOCs						
Chloroform	67-66-3	0.0011	0.3	3.7E-03	NV	NA
Methylene Chloride	75-09-2	0.0043	0.3	1.4E-02	NV	NA
SVOCs						
2-Methylnaphthalene	91-57-6	0.00076	NV	NC	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.11	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.026	NV	NC	NV	NA
Di-n-butyl Phthalate	84-74-2	0.19	200	9.5E-04	NV	NA
Total Low Molecular Weight PAHs	--	0.0049	NV	NC	NV	NA
Total High Molecular Weight PAHs	--	0.0494	NV	NC	NV	NA

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
NV = No Value Available
NC = Not Calculated
Hazard Quotient = Soil Concentration/Screening Level
SL = Screening Level
NBE = No Background Estimate Available
NA = Not Applicable
See Table F.2-3 for Total PCBs
See Table F.2-4 for Total Low and High Molecular Weight PAHs

Table F.2-7
SSA 18 - Invertebrate and Microbial Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	NV	--
Antimony	7440-36-0	78	ECO SSL
Arsenic	7440-38-2	60	ORNL-Earthworm
Barium	7440-39-3	330	ECO SSL
Beryllium	7440-41-7	40	ECO SSL
Cadmium	7440-43-9	140	ECO SSL
Chromium	7440-47-3	0.4	ORNL-Earthworm
Cobalt	7440-48-4	200	BTAG - Fauna
Copper	7440-50-8	80	ECO SSL
Iron	7439-89-6	200	ORNL - Microbial
Lead	7439-92-1	1,700	ECO SSL
Manganese	7439-96-5	450	ECO SSL
Mercury	7439-97-6	0.1	ORNL-Earthworm
Nickel	7440-02-0	280	ECO SSL
Selenium	7782-49-2	4.1	ECO SSL
Silver	7440-22-4	50	ORNL - Microbial
Thallium	7440-28-0	NV	--
Vanadium	7440-62-2	20	ORNL - Microbial
Zinc	7440-66-6	120	Eco SSL
Cyanide			
Cyanide, Total	57-12-5	0.9	CCME-2006
Pesticides			
Endrin	72-20-8	0.1	BTAG - Fauna
PCBs			
Aroclor 1260	11096-82-5	NV	--
VOCs			
Chloroform	67-66-3	0.3	BTAG - Fauna
Methylene Chloride	75-09-2	0.3	BTAG - Fauna
SVOCs			
2-Methylnaphthalene	91-57-6	NV	--
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Di-n-butyl Phthalate	84-74-2	NV	--
Low Molecular Weight PAHs	--	29	ECO SSL
High Molecular Weight PAHs	--	18	ECO SSL

Notes:
CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
NV = No Value Available

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.2-8
SSA 18 - Invertebrate and Microbial Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	24,000	NV	NC	40,041	N
Antimony	7440-36-0	0.46	78	5.9E-03	--	NBE
Arsenic	7440-38-2	2.6	60	4.3E-02	15.8	N
Barium	7440-39-3	150	330	4.5E-01	209	N
Beryllium	7440-41-7	1.2	40	3.0E-02	1.02	N
Cadmium	7440-43-9	1.3	140	9.3E-03	0.69	N
Chromium	7440-47-3	38	0.4	**9.5E+01**	65.3	N
Cobalt	7440-48-4	15	200	7.5E-02	72.3	N
Copper	7440-50-8	19	80	2.4E-01	53.5	N
Iron	7439-89-6	32,000	200	**1.6E+02**	50,962	N
Lead	7439-92-1	26	1,700	1.5E-02	26.8	N
Manganese	7439-96-5	980	450	**2.2E+00**	2,543	N
Mercury	7439-97-6	0.04	0.1	3.9E-01	0.13	N
Nickel	7440-02-0	16	280	5.7E-02	62.8	N
Selenium	7782-49-2	0.36	4	8.8E-02	--	NBE
Silver	7440-22-4	0.069	50	1.4E-03	--	NBE
Thallium	7440-28-0	0.28	NV	NC	2.11	N
Vanadium	7440-62-2	56	20	**2.8E+00**	108	N
Zinc	7440-66-6	71	120	5.9E-01	202	N
Cyanide						
Cyanide, Total	57-12-5	1.8	0.9	**2.0E+00**	NV	NA
Pesticides						
Endrin	72-20-8	0.00053	0.1	5.3E-03	NV	NA
PCBs						
Aroclor 1260	11096-82-5	0.0084	NV	NC	NV	NA
Total PCBs	--	0.0084	NV	NC	NV	NA
VOCs						
Chloroform	67-66-3	0.0011	0.3	3.7E-03	NV	NA
Methylene Chloride	75-09-2	0.0043	0.3	1.4E-02	NV	NA
SVOCs						
2-Methylnaphthalene	91-57-6	0.00076	NV	NC	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.11	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.026	NV	NC	NV	NA
Di-n-butyl Phthalate	84-74-2	0.19	NV	NC	NV	NA
Total Low Molecular Weight PAHs	--	0.0049	29	1.7E-04	NV	NA
Total High Molecular Weight PAHs	--	0.0494	18	2.7E-03	NV	NA

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
NV = No Value Available
NC = Not Calculated
Hazard Quotient = Soil Concentration/Screening Level
SL = Screening Level
NBE = No Background Estimate Available
NA = Not Applicable

See Table F.2-3 for Total PCBs
See Table F.2-4 for Total Low and High Molecular Weight PAHs

Table F.2-9
SSA 18 - Wildlife Profiles
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment					Refined Assessment					
Representative Species			Composition of Diet[1] (%)				Minimum Body Weight[1]	Maximum Body Weight[1]	Maximum Food Ingestion Rate[2]	Maximum Substrate Ingestion Rate[3]		Average Body Weight[1]	Average Food Ingestion Rate[2]	Average Substrate Ingestion Rate[3]	Home Range (ha)	Proportion of Year Species Active	AUFs
Food-web Classification	Common Name	Scientific Name	Plants (incl. fungi)	Inverte-brates	Small mammals	Fish	kg	kg	kg dw/day	% of dry intake	kg dry wt./day	kg	kg dw/day	kg dry wt./day			Study Area (0.12) hectares
Birds																	
soil-probing invertivore	American robin	*Turdus migratorius*	62%	38%			0.0635	0.103	0.020	5%	0.001	0.077	0.016	0.0008	0.480	1	0.25
large carnivore	Red-tailed hawk	*Buteo jamaicensis*			100%		0.957	1.235	0.063	0%	0	1.134	0.059	0	250	1	0.0005
Mammals																	
small herbivore	Meadow vole	*Microtus pennsylvanicus*	100%				0.017	0.0524	0.010	2.4%	0.00024	0.037	0.008	0.00019	0.037	1	1
medium carnivore	Red fox	*Vulpes vulpes*	17%	4%	79%		2.950	7.04	0.342	2.8%	0.0096	4.530	0.238	0.0067	96	1	0.0013
small invertivore	Short-tailed shrew	*Blarina brevicauda*	14%	86%			0.0125	0.0225	0.003	13%	0.00039	0.015	0.002	0.00026	0.390	1	0.31

Notes:
kg = Kilogram
kg dw/day = Kilogram Dry-weight per Day
L/day = Liter per Day
ha = Hectares
AUF = Area Use Factor

[1]Wildlife Exposure Factors Handbook. U.S. Environmental Protection Agency (EPA). 1993. Office of Research and Development. 2 Volumes. EPA/600/R93/187a&b. December.
[2] Estimated food intake rate (kg [dw]/day) calculated as follows:
FI ((kg/day) = 0.0687 $Wt.^{0.882}$ for mammals (red fox and short-tailed shrew)
FI ((g/day) = 0.577 $Wt.^{0.727}$ for herbivores (meadow vole)
FI ((g/day) = 0.301 $Wt.^{0.751}$ for non-passerine birds (red-tailed hawk)
FI ((g/day) = 0.398 $Wt.^{0.850}$ for passerine birds (american robin)
[3]Estimating Exposure to Terrestrial Wildlife to Contaminants. Sample and Sutter. 1994. ES/ER/TM-125.
The soil ingestion rate for the american robin set equal to 38% of the american woodcock value (0.34*10.4%=4%), based on a robin diet of 38% invertbrates.

Table F.2-10
SSA 18 - Wildlife TRVs
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	AVIAN TEST SPECIES				MAMMALIAN TEST SPECIES					AVIAN RECEPTORS				MAMMALIAN RECEPTORS					
											American Robin		Red-tailed Hawk		Meadow Vole		Red Fox		Short-tailed Shrew	
		Chronic LOAEL	Chronic NOAEL	Test Animal	Source	Chronic LOAEL	Chronic NOAEL	Test Animal	Test Animal Body Weight (kg)	Source	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL
		(mg/kg-bw/d)				(mg/kg-bw/d)					(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)	
Arsenic	7440-38-2	1.28E+01	5.14E+00	mallard duck	ORNL 1996	1.26	0.126	mouse	0.03	ORNL 1996	1.28E+01	5.14E+00	1.28E+01	5.14E+00	1.20E+00	1.20E-01	3.59E-01	3.59E-02	1.50E+00	1.50E-01
Cadmium	7440-43-9	2.00E+01	1.45E+00	mallard duck	ORNL 1996	10	1	rat	0.3	ORNL 1996	2.00E+01	1.45E+00	2.00E+01	1.45E+00	1.69E+01	1.69E+00	5.07E+00	5.07E-01	2.11E+01	2.11E+00
Chromium	7440-47-3	5.00E+00	1.00E+00	black duck	ORNL 1996	32.8	3.28	rat	0.35	ORNL 1996	5.00E+00	1.00E+00	5.00E+00	1.00E+00	5.75E+01	5.75E+00	1.73E+01	1.73E+00	7.21E+01	7.21E+00
Copper	7440-50-8	6.17E+01	4.70E+01	1 day old chicks	ORNL 1996	15.4	11.7	mink	1	ORNL 1996	6.17E+01	4.70E+01	6.17E+01	4.70E+01	3.51E+01	2.67E+01	1.06E+01	8.02E+00	4.40E+01	3.34E+01
Lead	7439-92-1	1.13E+01	1.13E+00	Japanese quail	ORNL 1996	80	8	rat	0.35	ORNL 1996	1.13E+01	1.13E+00	1.13E+01	1.13E+00	1.40E+02	1.40E+01	4.22E+01	4.22E+00	1.76E+02	1.76E+01
Mercury	7439-97-6	9.00E-01	4.50E-01	Japanese Quail	ORNL 1996	132	13.2	mink	1	ORNL 1996	9.00E-01	4.50E-01	9.00E-01	4.50E-01	3.01E+02	3.01E+01	9.05E+01	9.05E+00	3.77E+02	3.77E+01
Nickel	7440-02-0	1.07E+02	7.74E+01	mallard duckling	ORNL 1996	80	40	rat	0.35	ORNL 1996	1.07E+02	7.74E+01	1.07E+02	7.74E+01	1.40E+02	7.01E+01	4.22E+01	2.11E+01	1.76E+02	8.79E+01
Selenium	7782-49-2	8.00E-01	4.00E-01	mallard duck	ORNL 1996	0.33	0.2	rat	0.35	ORNL 1996	8.00E-01	4.00E-01	8.00E-01	4.00E-01	5.79E-01	3.51E-01	1.74E-01	1.05E-01	7.25E-01	4.40E-01
Silver	7440-22-4	1.24E+02	1.66E+01	turkey	Matuk et al. 1981	222	22.2	rat	0.35	Matuk et al. 1981	1.24E+02	1.66E+01	1.24E+02	1.66E+01	3.89E+02	3.89E+01	1.17E+02	1.17E+01	4.88E+02	4.88E+01
Zinc	7440-66-6	1.31E+02	1.45E+01	white leghorn hen	ORNL 1996	320	160	rat	0.35	ORNL 1996	1.31E+02	1.45E+01	1.31E+02	1.45E+01	5.61E+02	2.81E+02	1.69E+02	8.44E+01	7.03E+02	3.52E+02
PAHs																				
Acenaphthylene	208-96-8	--	--	--	USACE 1998	500	100	rat	0.35	USACE 1998	NV	NV	NV	NV	8.77E+02	1.75E+02	2.64E+02	5.27E+01	1.10E+03	2.20E+02
Benzo(a)anthracene	56-55-3	--	--	--	USACE 1998	2	0.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	2.91E+00	2.91E-01	8.74E-01	8.74E-02	3.64E+00	3.64E-01
Benzo(a)pyrene	50-32-8	2.50E+00	5.00E-01	duck	ORNL 1996	10	1	mouse	0.03	ORNL 1996	2.50E+00	5.00E-01	2.50E+00	5.00E-01	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(b)fluoranthene	205-99-2	--	--	--	ORNL 1996	10	1	mouse	0.03	ORNL 1996	NV	NV	NV	NV	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(g,h,i)perylene	191-24-2	--	--	--	USACE 1998	2.5	0.5	mouse	0.03	USACE 1998	NV	NV	NV	NV	2.37E+00	4.74E-01	7.13E-01	1.43E-01	2.97E+00	5.95E-01
Benzo(k)fluoranthene	207-08-9	--	--	--	USACE 1998	72	7.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.05E+02	1.05E+01	3.15E+01	3.15E+00	1.31E+02	1.31E+01
Chrysene	218-01-9	--	--	--	USACE 1998	99	9.9	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.44E+02	1.44E+01	4.32E+01	4.32E+00	1.80E+02	1.80E+01
Fluoranthene	206-44-0	--	--	--	USACE 1998	100	20	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.45E+02	2.91E+01	4.37E+01	8.74E+00	1.82E+02	3.64E+01
Phenanthrene	85-01-8	5.65E+00	1.13E+00	red-winged blackbird	USACE 1998	35	7	mouse	0.03	USACE 1998	5.65E+00	1.13E+00	5.65E+00	1.13E+00	3.32E+01	6.64E+00	9.98E+00	2.00E+00	4.16E+01	8.32E+00
Pyrene	129-00-0	--	--	--	USACE 1998	40	8	mouse	0.03	USACE 1998	NV	NV	NV	NV	3.80E+01	7.59E+00	1.14E+01	2.28E+00	4.76E+01	9.51E+00
Pesticides																				
Endrin	72-20-8	1.70E-01	2.80E-02	mallard duck	ORNL 1996	0.92	0.092	mouse	0.03	ORNL 1996	1.70E-01	2.80E-02	1.70E-01	2.80E-02	8.73E-01	8.73E-02	2.62E-01	2.62E-02	1.09E+00	1.09E-01
PCBs																				
Aroclor 1260	11096-82-5	1.80E+00	1.80E-01	ring-necked pheasant	Aroclor 1254 Value	3.43	1.37	mink	1	Aroclor 1016 Value	1.80E+00	1.80E-01	1.80E+00	1.80E-01	7.82E+00	3.12E+00	2.35E+00	9.39E-01	9.80E+00	3.91E+00

Notes:
CAS = Chemical Abstract Service
TRV = Toxic Reference Value
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw/d = Body Weight Per Day
kg = kilogram
PAH = Polynuclear Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
USACE = U.S. Army Corps of Engineers
ORNL = Oak Ridge National Laboratory
NOAEL and LOAEL values were derived from acute values by applying an uncertainty factor of 150.
LD_{50} = Lethal Dose for 50% of test organisms

Sources:

Matuk et al. 1981. Matuk, Y., M. Gosh and C. McCulloch. 1981. Distribution of silver in the eyes and plasma proteins of the albino rat. Can. J. Ophthalmol. 16: 145-150. (Cited in ATSDR, 1990)
ORNL 1996. Sample, B.E., D.M. Opresko and G.W. Suter II. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. ES/ER/TM-86/R3. Oak Ridge National Laboratory, Oak Ridge, Tennessee.
USACE 1998. U.S. Army Corps of Engineers (USACE). 1998. Final Ecological Risk Assessment, RCRA Facility Investigation, for Sunflower Army Ammunition Plant, De Soto, Kansas. USACE Kansas City District.
USCHPPM 2007. U.S. Army Center for Health Promotion and Preventive Medicine (USCHPPM) 2007, Wildlife Toxicity Assessment for Nitroglycerine (NG). USACHPPM Document No: 37-EJ-1138-01F. November.
U.S. EPA 1988. Recommendations for and documentation of biological values for use in risk assessment. Environmental Criteria and Assessment Office. Cincinnati, OH. EPA/600/6-87/008.

[4]- Mature rat body weight (average male & female) = 0.325 kg (U.S. EPA, 1988).

Table F.2-11
SSA 18 - Soil Biocaccumulation/Bioconcentration Factors- Soil to Plant Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

					Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected K_{ow}**	**Source**	**BAF**	**Basis**	**C_s MDC (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	1.103	90th percentile	2.600	0.0375	Median	Bechtel Jacobs 1998
CADMIUM	7440-43-9	-- - --	--	--	3.25	90th percentile	1.300	0.5521	$C_p = e^{(0.546*ln(Cs) - 0.475)}$	Bechtel Jacobs 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.084	90th percentile	38.00	0.0410	Median	Bechtel Jacobs 1998
COPPER	7440-50-8	-- - --	--	--	0.625	90th percentile	19	0.3275	$C_p = e^{(0.394*ln(Cs) + 0.668)}$	Bechtel Jacobs 1998
LEAD	7439-92-1	-- - --	--	--	0.468	90th percentile	26.0	0.0634	$C_p = e^{(0.561*ln(Cs) - 1.328)}$	Bechtel Jacobs 1998
MERCURY	7439-97-6	-- - --	--	--	5	90th percentile	0.039	1.6231	$C_p = e^{(0.544*ln(Cs) - 0.995)}$	Bechtel Jacobs 1998
NICKEL	7440-02-0	-- - --	--	--	1.411	90th percentile	16	0.0538	$C_p = e^{(0.748*ln(Cs) + 2.223)}$	Bechtel Jacobs 1998
SELENIUM	7782-49-2	-- - --	--	--	3.012	90th percentile	0.36	0.4569	$C_p = e^{(1.104*ln(Cs) - 0.677)}$	Bechtel Jacobs 1998
SILVER	7440-22-4	-- - --	--	--	0.037	90th percentile	0.07	0.0140	Median	Bechtel Jacobs 1998
ZINC	7440-66-6	-- - --	--	--	1.82	90th percentile	71	0.7217	$C_p = e^{(0.554*ln(Cs) + 1.575)}$	Bechtel Jacobs 1998
Pesticides										
ENDRIN	72-20-8	2.92 - 5.2	5.06	USEPA 1995	1	Default Value	0.00	0.0461	K_{ow} Regression Eq.	Travis and Arms 1988
PCBs										
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	0.0045	K_{ow} Regression Eq.	0.01	0.0045	K_{ow} Regression Eq.	Travis and Arms 1988
VOCs and SVOCs										
ACENAPHTHYLENE	208-96-8	-- - --	4.1	USEPA 1995	4.6	Anthracene as Surrogate	0.00	1.0386	$C_p = e^{(0.791*ln(Cs) - 1.144)}$	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	0.54	Maximum	0.01	0.5110	$C_p = e^{(0.5944*ln(Cs) - 2.708)}$	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	3.3	Maximum	0.01	0.1441	$C_p = e^{(0.975*ln(Cs) - 2.0615)}$	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	0.48	Maximum	0.01	0.31	Median BAF	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.6	Maximum	0.00	0.1473	$C_p = e^{(1.183*ln(Cs) - 0.931)}$	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Maximum	0.00	0.2558	$C_p = e^{(0.860*ln(Cs) - 2.158)}$	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1.05	Maximum	0.01	0.5110	$C_p = e^{(0.594*ln(Cs) - 2.708)}$	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	6	Maximum	0.01	0.50	Median BAF	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	11	Maximum	0.00	6.3786	$C_p = e^{(0.620*ln(Cs) - 0.167)}$	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	3.7	Maximum	0.01	0.72	Median BAF	USEPA 2005

Notes:
CAS = Chemical Abstract Services
BAF = Bioaccumulation Factor
K_{ow} = Chemical octanol-water coefficient
NC = Not Calculated
C_s = Chemical Concentration in Soil
C_p = Chemical Concentration in Plant Matter (dry weight)
[1] = BAFs for chemical using Cp regression equation calculated by as follows: BAF = C_p/C_s
MDC = Maximum Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. 1995. Karickhoff, S.W. , and J.M. Long. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.
Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision
Bechtel Jacobs 1998: Bechtel Jacobs Company. September 1998. Emperical Models for the Uptake of Inorganic Chemical from Soil by Plants.
USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.
Travis and Arms 1988: Travis and Arms. 1988. Bioconcentration of Organics in Beef, Milk, and Vegetation. BAF values calculated for Tier I using lowest Kow value and for Tier II using the selected Kow value.
K_{ow} Regression Equation: BAF =10^((-0.578*K_{ow})+1.588))

Table F.2-12
SSA 18 - Soil Biocaccumulation/Bioconcentration Factors - Soil to Invertebrate Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected Log K_{ow}**	**Reference**	**K_{oc}**	**Reference**	**Value**	**Basis**	**C_s MDC (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics												
ARSENIC	7440-38-2	-- - --	--	--	--	--	0.523	90th percentile	2.6	0.1823	$C_e = e^{(0.706*\ln(Cs) - 1.421)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	--	--	40.69	90th percentile	1.3	7.8477	$C_e = e^{(0.795*\ln(Cs) + 2.114)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	--	--	3.162	90th percentile	38	0.31	Median	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	--	--	1.531	90th percentile	19	0.52	Median	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	--	--	1.522	90th percentile	26	0.4288	$C_e = e^{(0.807*\ln(Cs) - 0.218)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	--	--	20.625	90th percentile	0.039	1.69	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	--	--	4.73	90th percentile	16	1.06	Median	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	--	--	1.34	90th percentile	0.36	1.2187	$C_e = e^{(0.733*\ln(Cs) - 0.075)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	--	--	15.3	90th percentile	0.069	2.05	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	--	--	12.885	90th percentile	71	4.8768	$C_e = e^{(0.328*\ln(Cs) + 4.449)}$	Sample et al. 1998
Pesticides												
ENDRIN	72-20-8	2.92 - 5.2	5.06	USEPA 1995	1.14E+04	SRC, CF	3.6	Not Specified	0.00053	3.60	Not Specified	Edwards and Bohlen 1992
PCBs												
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	--	--	15.9	90th percentile	0.0084	6.67	Median	Sample et al. 1998
VOCs and SVOCs												
ACENAPHTHYLENE	208-96-8	-- - --	4.07	USEPA 1995	9.47E+02	USEPA 2005	114.7	Jager Model	0.0035	114.66	Jager Model	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	3.58E+05	USEPA 2005	9.512	Jager Model	0.0066	7.94	Jager Model	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	9.69E+05	USEPA 2005	10.58	Jager Model	0.0069	6.67	Jager Model	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	5.96E+05	USEPA 2005	19.39	Jager Model	0.0085	12.99	Jager Model	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.43E+06	USEPA 2005	29.72	Jager Model	0.0046	14.74	Jager Model	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	5.96E+05	USEPA 2005	14.95	Jager Model	0.0035	12.99	Jager Model	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	2.48E+05	USEPA 2005	13.73	Jager Model	0.0066	11.47	Jager Model	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	4.95	USEPA 1995	4.17E+04	USEPA 2005	36.64	Jager Model	0.01	15.18	Jager Model	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	3.30E+04	USEPA 2005	8.959	Jager Model	0.0049	8.61	Jager Model	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	4.88	USEPA 1995	6.27E+04	USEPA 2005	31.62	Jager Model	0.0094	8.77	Jager Model	USEPA 2005

Notes:

CAS = Chemical Abstract Services
C_s = Chemical Concentration in Soil
C_e = Chemical Concentration in Earthworm (dry weight)
K_{ow} = Chemical octanol-water coefficient
MDC = Maximum Detected Concentration
K_{oc} = Chemical water to soil partitioning coefficient
K_{ww} = Chemical worm to soil partitioning coefficient
foc = fraction organic content in soil (0.002 from physical samples)
[1] = BAFs for chemical using Ce regression equation calculated by as follows: BAF = C_e/C_s

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.
Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision
Sample et al. 1998: Sample, B.E., Beauchamp, J.J., Efroymson, R.A., Sutter, G.W., Ashwood, T.L., February 1998. Development and Validation of Bioaccumulation Models for Earthworms.
Jager Model: As presented in USEPA 2005, Guidance for Developing Ecological Screening Levels, Appendix 4-1, Table 5.
BAF = K_{ww}(L/kg worm dw)/K_d (L/kg soil dw)
K_{ww} (dry weight) = 10^(0.87*logK_{ow} - 2.0) / 0.16
Wet weight to dry weight assuming 16% solids
$K_d = f_{oc} * K_{oc}$
foc = 0.002 from site specific physical soil data
Note: The maximum Kow utilized for the preliminary calculation and the Selected Kow utilized for the refined calculation.
Edwards and Bohlen 1992: Edwards, C.A. and Bohlen, P.J. 1992. The effects of toxic chemicals on earthworms. Reviews of Environmental Contamination and Toxicology, 125: 23-99.
USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.
SRC/CF: Syracuse Research Corporation (SRC). Physical Properties Database. http://www.syrres.com/esc/physdemo.htm

Table F.2-13
SSA 18 - Soil Bioaccumulation/Bioconcentration Factors - Soil to Mammal Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS	Log K_{ow} Range	Selected K_{ow}	Reference	Preliminary Assessment		Refined Assessment			Source
					Value	Basis	C_s MDC (mg/kg)	BAF[1]	Basis	
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	0.0149	90th percentile	2.6	0.0066	$C_m = e^{(0.819*ln(Cs) - 4.847)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	3.991	90th percentile	1.3	0.2477	$C_m = e^{(0.472*ln(Cs) - 1.257)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.333	90th percentile	38	0.0882	$C_m = e^{(0.734*ln(Cs) - 1.46)}$	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	1.045	90th percentile	19	0.6205	$C_m = e^{(0.144*ln(Cs) + 2.042)}$	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	0.286	90th percentile	26	0.1753	$C_m = e^{(0.442*ln(Cs) + 0.0761)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	0.192	90th percentile	0.039	0.0543	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	0.589	90th percentile	16	0.1778	$C_m = e^{(0.466*ln(Cs) - 0.246)}$	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	1.187	90th percentile	0.36	1.2477	$C_m = e^{(0.376*ln(Cs) -0.416)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	0.501	90th percentile	0.069	0.004	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	2.69	90th percentile	71	1.4940	$C_m = e^{(0.071*ln(Cs) + 4.363)}$	Sample et al. 1998
Pesticides										
ENDRIN	72-20-8	2.92 - 5.2	5.06	USEPA 1995	1	Default Value	0.00053	1	Default Value	--
PCBs										
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	1	Default Value	NC	1	Default Value	--
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	1	Default Value	0.0084	1	Default Value	--
VOCs and SVOCs										
ACENAPHTHYLENE	208-96-8	-- - --	4.07	USEPA 1995	1	Default Value	0.0035	0	--	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	1	Default Value	0.0066	0	--	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	1	Default Value	0.0069	0	--	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	1	Default Value	0.0085	0	--	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1	Default Value	0.0046	0	--	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Default Value	0.0035	0	--	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1	Default Value	0.0066	0	--	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	1	Default Value	0.01	0	--	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	1	Default Value	0.0049	0	--	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	1	Default Value	0.0094	0	--	USEPA 2005

Notes:
CAS = Chemical Abstract Services
C_s = Chemical Concentration in Soil
C_d = Chemical Concentration in Prey (assumed to be 100% earthworms (dry weight))
C_m = Chemical Concentration in Mammal (dry weight)
K_{ow} = Chemical octanol to water partitioning coefficient
[1] = BAFs for chemical using Ce regression equation calculated by as follows: BAF = C_m/C_s
MDC = Maximun Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.
Sample et al. 1998: Sample et al. 1998. Development and Validation of Bioaccumulation Models for Small Mammals.
Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision
USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

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Table F.2-14
SSA 18 - Preliminary Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	2.6	1.1E+00	2.9E+00	1.8E-01	1.8E+00	**1.44E+01**	**1.4E+00**
Cadmium	7440-43-9	1.69E+00	1.69E+01	1.3	3.3E+00	4.2E+00	8.8E-01	8.8E+00	**1.48E+00**	1.5E-01
Chromium	7440-47-3	5.75E+00	5.75E+01	38	8.4E-02	3.2E+00	9.1E+01	9.1E+02	4.20E-01	4.2E-02
Copper	7440-50-8	2.67E+01	3.51E+01	19	6.3E-01	1.2E+01	7.0E+01	9.2E+01	2.72E-01	2.1E-01
Lead	7439-92-1	1.40E+01	1.40E+02	26	4.7E-01	1.2E+01	4.8E+01	4.8E+02	5.36E-01	5.4E-02
Mercury	7439-97-6	3.01E+01	3.01E+02	0.039	5.0E+00	2.0E-01	1.0E+01	1.0E+02	3.83E-03	3.8E-04
Nickel	7440-02-0	7.01E+01	1.40E+02	16	1.4E+00	2.3E+01	8.3E+01	1.7E+02	1.93E-01	9.6E-02
Selenium	7782-49-2	3.51E-01	5.79E-01	0.36	3.0E+00	1.1E+00	2.0E-01	3.2E-01	**1.83E+00**	**1.1E+00**
Silver	7440-22-4	3.89E+01	3.89E+02	0.069	3.7E-02	2.6E-03	1.1E+03	1.1E+04	6.36E-05	6.4E-06
Zinc	7440-66-6	2.81E+02	5.61E+02	71	1.8E+00	1.3E+02	2.6E+02	5.2E+02	2.74E-01	1.4E-01
Pesticides										
Endrin	72-20-8	8.73E-02	8.73E-01	0.00053	1.0E+00	5.3E-04	1.4E-01	1.4E+00	3.66E-03	3.7E-04
PCBs										
Aroclor 1260	11096-82-5	6.45E-02	6.45E-01	0.0084	4.5E-03	3.8E-05	3.8E+00	3.8E+01	2.19E-03	2.2E-04
SVOCs										
Acenaphthylene	208-96-8	1.75E+02	8.77E+02	0.0035	4.6E+00	1.6E-02	6.4E+01	3.2E+02	5.43E-05	1.1E-05
Benzo(a)anthracene	56-55-3	2.91E-01	2.91E+00	0.0066	5.4E-01	3.6E-03	8.8E-01	8.8E+00	7.53E-03	7.5E-04
Benzo(a)pyrene	50-32-8	9.49E-01	9.49E+00	0.0069	3.3E+00	2.3E-02	4.9E-01	4.9E+00	1.42E-02	1.4E-03
Benzo(b)fluoranthene	205-99-2	9.49E-01	9.49E+00	0.0085	4.8E-01	4.1E-03	3.2E+00	3.2E+01	2.66E-03	2.7E-04
Benzo(g,h,i)perylene	191-24-2	4.74E-01	2.37E+00	0.0046	1.6E+00	7.4E-03	5.0E-01	2.5E+00	9.26E-03	1.9E-03
Benzo(k)fluoranthene	207-08-9	1.05E+01	1.05E+02	0.0035	1.0E+00	3.5E-03	1.7E+01	1.7E+02	2.01E-04	2.0E-05
Chrysene	218-01-9	1.44E+01	1.44E+02	0.0066	1.1E+00	6.9E-03	2.3E+01	2.3E+02	2.90E-04	2.9E-05
Fluoranthene	206-44-0	2.91E+01	1.45E+02	0.01	6.0E+00	6.0E-02	8.2E+00	4.1E+01	1.22E-03	2.4E-04
Phenanthrene	85-01-8	6.64E+00	3.32E+01	0.0049	1.1E+01	5.4E-02	1.0E+00	5.1E+00	4.78E-03	9.6E-04
Pyrene	129-00-0	7.59E+00	3.80E+01	0.0094	3.7E+00	3.5E-02	3.5E+00	1.7E+01	2.71E-03	5.4E-04

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Meadow Vole Specific Data from Table F.2-9

BW=	0.017	kg
IR_{food} =	0.010	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00024	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.2-15
SSA 18 - Refined Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	2.6	3.8E-02	9.8E-02	9.0E+00	9.0E+01	2.9E-01	2.9E-02
Cadmium	7440-43-9	1.69E+00	1.69E+01	1.3	5.5E-01	7.2E-01	1.4E+01	1.4E+02	9.6E-02	9.6E-03
Selenium	7782-49-2	3.51E-01	5.79E-01	0.36	4.6E-01	1.6E-01	3.4E+00	5.6E+00	1.1E-01	6.5E-02

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Meadow Vole Specific Data from Table F.2-9

BW=	0.037	kg
IR_{food} =	0.008	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	1.00	unitless
IR_{soil} =	0.00019	kg dw/day
AF =	1	unitless

Table F.2-16
SSA 18 - Preliminary Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	1.50E-01	1.50E+00	2.6	1.1E+00	2.9E+00	5.2E-01	1.4E+00	Plant	5.1E-01	5.1E+00	**5.1E+00**	5.1E-01
Cadmium	7440-43-9	2.11E+00	2.11E+01	1.3	3.3E+00	4.2E+00	4.1E+01	5.3E+01	Invertebrate	2.2E-01	2.2E+00	**6.0E+00**	6.0E-01
Chromium	7440-47-3	7.21E+00	7.21E+01	38	8.4E-02	3.2E+00	3.2E+00	1.2E+02	Invertebrate	9.1E+00	9.1E+01	**4.2E+00**	4.2E-01
Copper	7440-50-8	3.34E+01	4.40E+01	19	6.3E-01	1.2E+01	1.5E+00	2.9E+01	Invertebrate	8.4E+01	1.1E+02	2.3E-01	1.7E-01
Lead	7439-92-1	1.76E+01	1.76E+02	26	4.7E-01	1.2E+01	1.5E+00	4.0E+01	Invertebrate	4.4E+01	4.4E+02	5.9E-01	5.9E-02
Mercury	7439-97-6	3.77E+01	3.77E+02	0.039	5.0E+00	2.0E-01	2.1E+01	8.0E-01	Invertebrate	7.6E+00	7.6E+01	5.2E-03	5.2E-04
Nickel	7440-02-0	8.79E+01	1.76E+02	16	1.4E+00	2.3E+01	4.7E+00	7.6E+01	Invertebrate	7.5E+01	1.5E+02	2.1E-01	1.1E-01
Selenium	7782-49-2	4.40E-01	7.25E-01	0.36	3.0E+00	1.1E+00	1.3E+00	4.8E-01	Plant	5.8E-01	9.6E-01	6.2E-01	3.7E-01
Silver	7440-22-4	4.88E+01	4.88E+02	0.069	3.7E-02	2.6E-03	1.5E+01	1.1E+00	Invertebrate	1.3E+01	1.3E+02	5.2E-03	5.2E-04
Zinc	7440-66-6	3.52E+02	7.03E+02	71	1.8E+00	1.3E+02	1.3E+01	9.1E+02	Invertebrate	1.1E+02	2.3E+02	6.3E-01	3.2E-01
Pesticides													
Endrin	72-20-8	1.09E-01	1.09E+00	0.00053	1.0E+00	5.3E-04	3.6E+00	1.9E-03	Invertebrate	1.2E-01	1.2E+00	4.3E-03	4.3E-04
PCBs													
Aroclor 1260	11096-82-5	8.09E-02	8.09E-01	0.0084	4.5E-03	3.8E-05	1.6E+01	1.3E-01	Invertebrate	2.1E-02	2.1E-01	4.0E-01	4.0E-02
SVOCs													
Acenaphthylene	208-96-8	2.20E+02	1.10E+03	0.0035	4.6E+00	1.6E-02	1.1E+02	4.0E-01	Invertebrate	8.0E+00	4.0E+01	4.4E-04	8.8E-05
Benzo(a)anthracene	56-55-3	3.64E-01	3.64E+00	0.0066	5.4E-01	3.6E-03	9.5E+00	6.3E-02	Invertebrate	1.6E-01	1.6E+00	4.2E-02	4.2E-03
Benzo(a)pyrene	50-32-8	1.19E+00	1.19E+01	0.0069	3.3E+00	2.3E-02	1.1E+01	7.3E-02	Invertebrate	4.6E-01	4.6E+00	1.5E-02	1.5E-03
Benzo(b)fluoranthene	205-99-2	1.19E+00	1.19E+01	0.0085	4.8E-01	4.1E-03	1.9E+01	1.6E-01	Invertebrate	2.5E-01	2.5E+00	3.3E-02	3.3E-03
Benzo(g,h,i)perylene	191-24-2	5.95E-01	2.97E+00	0.0046	1.6E+00	7.4E-03	3.0E+01	1.4E-01	Invertebrate	8.3E-02	4.2E-01	5.5E-02	1.1E-02
Benzo(k)fluoranthene	207-08-9	1.31E+01	1.31E+02	0.0035	1.0E+00	3.5E-03	1.5E+01	5.2E-02	Invertebrate	3.6E+00	3.6E+01	9.7E-04	9.7E-05
Chrysene	218-01-9	1.80E+01	1.80E+02	0.0066	1.1E+00	6.9E-03	1.4E+01	9.1E-02	Invertebrate	5.4E+00	5.4E+01	1.2E-03	1.2E-04
Fluoranthene	206-44-0	3.64E+01	1.82E+02	0.01	6.0E+00	6.0E-02	3.7E+01	3.7E-01	Invertebrate	4.1E+00	2.1E+01	2.4E-03	4.8E-04
Phenanthrene	85-01-8	8.32E+00	4.16E+01	0.0049	1.1E+01	5.4E-02	9.0E+00	4.4E-02	Plant	3.1E+00	1.6E+01	1.6E-03	3.1E-04
Pyrene	129-00-0	9.51E+00	4.76E+01	0.0094	3.7E+00	3.5E-02	3.2E+01	3.0E-01	Invertebrate	1.2E+00	6.2E+00	7.5E-03	1.5E-03

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Short-tailed Shrew Specific Data from Table F.2-9

BW=	0.0125	kg
IR_{food} =	0.003	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00039	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.2-17
SSA 18 - Refined Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Arsenic	7440-38-2	1.50E-01	1.50E+00	2.6	3.8E-02	9.8E-02	1.82E-01	4.7E-01	1.2E+01	1.2E+02	2.1E-01	2.1E-02
Cadmium	7440-43-9	2.11E+00	2.11E+01	1.3	5.5E-01	7.2E-01	7.85E+00	1.0E+01	7.4E+00	7.4E+01	1.8E-01	1.8E-02
Chromium	7440-47-3	7.21E+00	7.21E+01	38	4.1E-02	1.6E+00	3.06E-01	1.2E+01	4.4E+02	4.4E+03	8.7E-02	8.7E-03

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Short-tailed Shrew Specific Data from Table F.2-9

Short-tailed Shrew

BW=	0.015	kg
IR_{food} =	0.002	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.14	unitless
DF_{inv} =	0.86	unitless
IR_{soil} =	0.00026	kg dw/day
IR_{water} =	0.002	L/day
AF =	0.310	unitless

Table F.2-18
SSA 18 - Preliminary Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment											
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics															
Arsenic	7440-38-2	3.59E-02	3.59E-01	2.6	1.1E+00	2.9E+00	5.2E-01	1.4E+00	1.5E-02	3.9E-02	Plant	2.7E-01	2.7E+00	**9.5E+00**	9.5E-01
Cadmium	7440-43-9	5.07E-01	5.07E+00	1.3	3.3E+00	4.2E+00	4.1E+01	5.3E+01	4.0E+00	5.2E+00	Invertebrate	1.1E-01	1.1E+00	**1.2E+01**	**1.2E+00**
Chromium	7440-47-3	1.73E+00	1.73E+01	38	8.4E-02	3.2E+00	3.2E+00	1.2E+02	3.3E-01	1.3E+01	Invertebrate	4.7E+00	4.7E+01	**8.1E+00**	8.1E-01
Copper	7440-50-8	8.02E+00	1.06E+01	19	6.3E-01	1.2E+01	1.5E+00	2.9E+01	1.0E+00	2.0E+01	Invertebrate	4.4E+01	5.8E+01	4.3E-01	3.3E-01
Lead	7439-92-1	4.22E+00	4.22E+01	26	4.7E-01	1.2E+01	1.5E+00	4.0E+01	2.9E-01	7.4E+00	Invertebrate	2.3E+01	2.3E+02	**1.1E+00**	1.1E-01
Mercury	7439-97-6	9.05E+00	9.05E+01	0.039	5.0E+00	2.0E-01	2.1E+01	8.0E-01	1.9E-01	7.5E-03	Invertebrate	3.8E+00	3.8E+01	1.0E-02	1.0E-03
Nickel	7440-02-0	2.11E+01	4.22E+01	16	1.4E+00	2.3E+01	4.7E+00	7.6E+01	5.9E-01	9.4E+00	Invertebrate	3.8E+01	7.6E+01	4.2E-01	2.1E-01
Selenium	7782-49-2	1.05E-01	1.74E-01	0.36	3.0E+00	1.1E+00	1.3E+00	4.8E-01	1.2E+00	4.3E-01	Plant	3.0E-01	4.9E-01	**1.2E+00**	7.3E-01
Silver	7440-22-4	1.17E+01	1.17E+02	0.069	3.7E-02	2.6E-03	1.5E+01	1.1E+00	5.0E-01	3.5E-02	Invertebrate	6.6E+00	6.6E+01	1.0E-02	1.0E-03
Zinc	7440-66-6	8.44E+01	1.69E+02	71	1.8E+00	1.3E+02	1.3E+01	9.1E+02	2.7E+00	1.9E+02	Invertebrate	5.6E+01	1.1E+02	**1.3E+00**	6.3E-01
Pesticides															
Endrin	72-20-8	2.62E-02	2.62E-01	0.00053	1.0E+00	5.3E-04	3.6E+00	1.9E-03	1.0E+00	5.3E-04	Invertebrate	6.2E-02	6.2E-01	8.5E-03	8.5E-04
PCBs															
Aroclor 1260	11096-82-5	1.94E-02	1.94E-01	0.0084	4.5E-03	3.8E-05	1.6E+01	1.3E-01	1.0E+00	8.4E-03	Invertebrate	1.1E-02	1.1E-01	8.0E-01	8.0E-02
SVOCs															
Acenaphthylene	208-96-8	5.27E+01	2.64E+02	0.0035	4.6E+00	1.6E-02	1.1E+02	4.0E-01	1.0E+00	3.5E-03	Invertebrate	4.0E+00	2.0E+01	8.8E-04	1.8E-04
Benzo(a)anthracene	56-55-3	8.74E-02	8.74E-01	0.0066	5.4E-01	3.6E-03	9.5E+00	6.3E-02	1.0E+00	6.6E-03	Invertebrate	7.9E-02	7.9E-01	8.4E-02	8.4E-03
Benzo(a)pyrene	50-32-8	2.85E-01	2.85E+00	0.0069	3.3E+00	2.3E-02	1.1E+01	7.3E-02	1.0E+00	6.9E-03	Invertebrate	2.3E-01	2.3E+00	3.0E-02	3.0E-03
Benzo(b)fluoranthene	205-99-2	2.85E-01	2.85E+00	0.0085	4.8E-01	4.1E-03	1.9E+01	1.6E-01	1.0E+00	8.5E-03	Invertebrate	1.3E-01	1.3E+00	6.7E-02	6.7E-03
Benzo(g,h,i)perylene	191-24-2	1.43E-01	7.13E-01	0.0046	1.6E+00	7.4E-03	3.0E+01	1.4E-01	1.0E+00	4.6E-03	Invertebrate	4.1E-02	2.1E-01	1.1E-01	2.2E-02
Benzo(k)fluoranthene	207-08-9	3.15E+00	3.15E+01	0.0035	1.0E+00	3.5E-03	1.5E+01	5.2E-02	1.0E+00	3.5E-03	Invertebrate	1.8E+00	1.8E+01	1.9E-03	1.9E-04
Chrysene	218-01-9	4.32E+00	4.32E+01	0.0066	1.1E+00	6.9E-03	1.4E+01	9.1E-02	1.0E+00	6.6E-03	Invertebrate	2.7E+00	2.7E+01	2.4E-03	2.4E-04
Fluoranthene	206-44-0	8.74E+00	4.37E+01	0.01	6.0E+00	6.0E-02	3.7E+01	3.7E-01	1.0E+00	1.0E-02	Invertebrate	2.1E+00	1.0E+01	4.9E-03	9.7E-04
Phenanthrene	85-01-8	2.00E+00	9.98E+00	0.0049	1.1E+01	5.4E-02	9.0E+00	4.4E-02	1.0E+00	4.9E-03	Plant	1.6E+00	7.8E+00	3.1E-03	6.3E-04
Pyrene	129-00-0	2.28E+00	1.14E+01	0.0094	3.7E+00	3.5E-02	3.2E+01	3.0E-01	1.0E+00	9.4E-03	Invertebrate	6.2E-01	3.1E+00	1.5E-02	3.0E-03

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Red FoxSpecific Data from Table F.2-9

BW=	2.9500	kg
IR_{food} =	0.342	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00960	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.2-19
SSA 18 - Refined Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment										
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics														
Arsenic	7440-38-2	3.59E-02	3.59E-01	2.6	3.8E-02	9.8E-02	1.8E-01	4.7E-01	6.6E-03	1.7E-02	1.1E+04	1.1E+05	2.3E-04	2.3E-05
Cadmium	7440-43-9	5.07E-01	5.07E+00	1.3	5.5E-01	7.2E-01	7.8E+00	1.0E+01	2.5E-01	3.2E-01	1.2E+04	1.2E+05	1.1E-04	1.1E-05
Chromium	7440-47-3	1.73E+00	1.73E+01	38	4.1E-02	1.6E+00	3.1E-01	1.2E+01	8.8E-02	3.4E+00	2.2E+05	2.2E+06	1.8E-04	1.8E-05
Lead	7439-92-1	4.22E+00	4.22E+01	26	6.3E-02	1.6E+00	4.3E-01	1.1E+01	1.8E-01	4.6E+00	3.2E+05	3.2E+06	8.2E-05	8.2E-06
Selenium	7782-49-2	1.05E-01	1.74E-01	0.36	4.6E-01	1.6E-01	1.2E+00	4.4E-01	1.2E+00	4.5E-01	1.4E+03	2.2E+03	2.7E-04	1.6E-04
Zinc	7440-66-6	8.44E+01	1.69E+02	71	7.2E-01	5.1E+01	4.9E+00	3.5E+02	1.5E+00	1.1E+02	8.1E+05	1.6E+06	8.8E-05	4.4E-05

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red FoxSpecific Data from Table F.2-9

BW=	4.5300	kg
IR_{food} =	0.238	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.17	unitless
DF_{inv} =	0.04	unitless
DF_{mam} =	0.79	unitless
IR_{soil} =	0.00670	kg dw/day
AF =	0.0013	unitless

Table F.2-20
SSA 18 - Preliminary Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	5.14E+00	1.28E+01	2.6	1.1E+00	2.9E+00	5.2E-01	1.4E+00	Plant	1.4E+01	3.5E+01	1.8E-01	7.4E-02
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.3	3.3E+00	4.2E+00	4.1E+01	5.3E+01	Invertebrate	1.1E-01	1.6E+00	**1.2E+01**	8.3E-01
Chromium	7440-47-3	1.00E+00	5.00E+00	38	8.4E-02	3.2E+00	3.2E+00	1.2E+02	Invertebrate	9.9E-01	4.9E+00	**3.8E+01**	**7.7E+00**
Copper	7440-50-8	4.70E+01	6.17E+01	19	6.3E-01	1.2E+01	1.5E+00	2.9E+01	Invertebrate	9.4E+01	1.2E+02	2.0E-01	1.5E-01
Lead	7439-92-1	1.13E+00	1.13E+01	26	4.7E-01	1.2E+01	1.5E+00	4.0E+01	Invertebrate	2.3E+00	2.3E+01	**1.1E+01**	**1.1E+00**
Mercury	7439-97-6	4.50E-01	9.00E-01	0.039	5.0E+00	2.0E-01	2.1E+01	8.0E-01	Invertebrate	6.9E-02	1.4E-01	5.6E-01	2.8E-01
Nickel	7440-02-0	7.74E+01	1.07E+02	16	1.4E+00	2.3E+01	4.7E+00	7.6E+01	Invertebrate	5.1E+01	7.1E+01	3.1E-01	2.3E-01
Selenium	7782-49-2	4.00E-01	8.00E-01	0.36	3.0E+00	1.1E+00	1.3E+00	4.8E-01	Plant	4.1E-01	8.3E-01	8.7E-01	4.3E-01
Silver	7440-22-4	1.66E+01	1.24E+02	0.069	3.7E-02	2.6E-03	1.5E+01	1.1E+00	Invertebrate	3.4E+00	2.6E+01	2.0E-02	2.7E-03
Zinc	7440-66-6	1.45E+01	1.31E+02	71	1.8E+00	1.3E+02	1.3E+01	9.1E+02	Invertebrate	3.6E+00	3.2E+01	**2.0E+01**	**2.2E+00**
Pesticides													
Endrin	72-20-8	2.80E-02	1.70E-01	0.00053	1.0E+00	5.3E-04	3.6E+00	1.9E-03	Invertebrate	2.4E-02	1.5E-01	2.2E-02	3.6E-03
PCBs													
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.0084	4.5E-03	3.8E-05	1.6E+01	1.3E-01	Invertebrate	8.2E-02	8.2E-01	1.0E-01	1.0E-02
SVOCs													
Acenaphthylene	208-96-8	NV	NV	0.0035	--	--	--	--	--	--	--	**--**	**--**
Benzo(a)anthracene	56-55-3	NV	NV	0.0066	--	--	--	--	--	--	--	**--**	**--**
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.0069	3.3E+00	2.3E-02	1.1E+01	7.3E-02	Invertebrate	1.5E-01	7.5E-01	4.6E-02	9.2E-03
Benzo(b)fluoranthene	205-99-2	NV	NV	0.0085	--	--	--	--	--	--	--	**--**	**--**
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.0046	--	--	--	--	--	--	--	**--**	**--**
Benzo(k)fluoranthene	207-08-9	NV	NV	0.0035	--	--	--	--	--	--	--	**--**	**--**
Chrysene	218-01-9	NV	NV	0.0066	--	--	--	--	--	--	--	**--**	**--**
Fluoranthene	206-44-0	NV	NV	0.01	--	--	--	--	--	--	--	**--**	**--**
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.0049	1.1E+01	5.4E-02	9.0E+00	4.4E-02	Plant	3.2E-01	1.6E+00	1.5E-02	3.0E-03
Pyrene	129-00-0	NV	NV	0.0094	--	--	--	--	--	--	--	**--**	**--**

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

American Robin Specific Data from Table F.2-9

BW=	0.0635	kg
IR_{food} =	0.020	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00100	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.2-21
SSA 18 - Refined Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.3	5.5E-01	7.2E-01	7.8E+00	1.0E+01	8.3E+00	1.1E+02	1.6E-01	1.1E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	38	4.1E-02	1.6E+00	3.1E-01	1.2E+01	1.0E+02	5.0E+02	3.8E-01	7.5E-02
Lead	7439-92-1	1.13E+00	1.13E+01	26	6.3E-02	1.6E+00	4.3E-01	1.1E+01	8.7E+01	8.7E+02	3.0E-01	3.0E-02
Zinc	7440-66-6	1.45E+01	1.31E+02	71	7.2E-01	5.1E+01	4.9E+00	3.5E+02	1.2E+02	1.1E+03	6.0E-01	6.6E-02

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

American Robin Specific Data from Table F.2-9

BW=	0.0773	kg
IR_{food} =	0.016	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.62	unitless
DF_{inv} =	0.38	unitless
IR_{soil} =	0.0008	kg dw/day
AF =	0.250	unitless

Table F.2-22
SSA 18 - Preliminary Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	5.14E+00	1.28E+01	2.6	1.5E-02	3.9E-02	5.2E+03	2.1E+03	5.0E-04	2.0E-04
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.3	4.0E+00	5.2E+00	5.5E+00	4.0E-01	2.4E-01	1.7E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	38	3.3E-01	1.3E+01	4.6E+01	9.1E+00	8.3E-01	1.7E-01
Copper	7440-50-8	4.70E+01	6.17E+01	19	1.0E+00	2.0E+01	6.8E+02	5.2E+02	2.8E-02	2.1E-02
Lead	7439-92-1	1.13E+00	1.13E+01	26	2.9E-01	7.4E+00	6.0E+01	6.0E+00	4.3E-01	4.3E-02
Mercury	7439-97-6	4.50E-01	9.00E-01	0.039	1.9E-01	7.5E-03	3.6E+01	1.8E+01	1.1E-03	5.5E-04
Nickel	7440-02-0	7.74E+01	1.07E+02	16	5.9E-01	9.4E+00	2.0E+03	1.4E+03	8.0E-03	5.8E-03
Selenium	7782-49-2	4.00E-01	8.00E-01	0.36	1.2E+00	4.3E-01	5.1E+00	2.6E+00	7.0E-02	3.5E-02
Silver	7440-22-4	1.66E+01	1.24E+02	0.069	5.0E-01	3.5E-02	5.0E+02	6.7E+01	1.4E-04	1.8E-05
Zinc	7440-66-6	1.45E+01	1.31E+02	71	2.7E+00	1.9E+02	8.2E+01	9.1E+00	8.7E-01	9.6E-02
Pesticides										
Endrin	72-20-8	2.80E-02	1.70E-01	0.00053	1.0E+00	5.3E-04	4.3E-01	7.0E-02	1.2E-03	2.1E-04
PCBs										
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.0084	1.0E+00	8.4E-03	6.2E+00	6.2E-01	1.3E-03	1.3E-04
SVOCs										
Acenaphthylene	208-96-8	NV	NV	0.0035	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	NV	NV	0.0066	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.0069	1.0E+00	6.9E-03	7.6E+00	1.5E+00	9.1E-04	1.8E-04
Benzo(b)fluoranthene	205-99-2	NV	NV	0.0085	--	--	--	--	--	--
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.0046	--	--	--	--	--	--
Benzo(k)fluoranthene	207-08-9	NV	NV	0.0035	--	--	--	--	--	--
Chrysene	218-01-9	NV	NV	0.0066	--	--	--	--	--	--
Fluoranthene	206-44-0	NV	NV	0.01	--	--	--	--	--	--
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.0049	1.0E+00	4.9E-03	1.7E+01	3.4E+00	2.9E-04	5.7E-05
Pyrene	129-00-0	NV	NV	0.0094	--	--	--	--	--	--

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10

BW_i = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Red-tailed Hawk Specific Data from Table F.2-9

BW=	0.957	kg
IR_{food} =	0.063	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.00	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screenning levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.2-23
SSA 18 - Refined Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				EPC* (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Soil Screening Level[a] (mg/kg)	Calculated LOAEL-Based Soil Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
None										

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.2-10
BW = Average Body Weigth of Receptor (kg)
IR_{food} = Average Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor, specific to prey type and chemical
DF = Dietary fraction
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value
BDL = Below Detection Limit
EPC = Exposure Point Concentration
* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level
LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red-tailed Hawk Specific Data from Table F.2-9

BW=	1.134	kg
IR_{food} =	0.059	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.0	kg dw/day
AF =	0.0005	unitless

Table F.2-24
SSA 18 - Wildlife Summary
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS#	Meadow Vole				Short-tailed Shrew				Red Fox				American Robin				Red-tailed Hawk			
		Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ
Inorganics																					
Arsenic	7440-38-2	**1.4E+01**	**1.4E+00**	2.9E-01	2.9E-02	**5.1E+00**	5.1E-01	2.1E-01	2.1E-02	**9.5E+00**	9.5E-01	2.3E-04	2.3E-05	1.8E-01	7.4E-02	NC	NC	5.0E-04	2.0E-04	NC	NC
Cadmium	7440-43-9	**1.5E+00**	1.5E-01	9.6E-02	9.6E-03	**6.0E+00**	6.0E-01	1.8E-01	1.8E-02	**1.2E+01**	**1.2E+00**	1.1E-04	1.1E-05	**1.2E+01**	8.3E-01	1.6E-01	1.1E-02	2.4E-01	1.7E-02	NC	NC
Chromium	7440-47-3	4.2E-01	4.2E-02	NC	NC	**4.2E+00**	4.2E-01	8.7E-02	8.7E-03	**8.1E+00**	8.1E-01	1.8E-04	1.8E-05	**3.8E+01**	**7.7E+00**	3.8E-01	7.5E-02	8.3E-01	1.7E-01	NC	NC
Copper	7440-50-8	2.7E-01	2.1E-01	NC	NC	2.3E-01	1.7E-01	NC	NC	4.3E-01	3.3E-01	NC	NC	2.0E-01	1.5E-01	NC	NC	2.8E-02	2.1E-02	NC	NC
Lead	7439-92-1	5.4E-01	5.4E-02	NC	NC	5.9E-01	5.9E-02	NC	NC	**1.1E+00**	1.1E-01	8.2E-05	8.2E-06	**1.1E+01**	**1.1E+00**	3.0E-01	3.0E-02	4.3E-01	4.3E-02	NC	NC
Mercury	7439-97-6	3.8E-03	3.8E-04	NC	NC	5.2E-03	5.2E-04	NC	NC	1.0E-02	1.0E-03	NC	NC	5.6E-01	2.8E-01	NC	NC	1.1E-03	5.5E-04	NC	NC
Nickel	7440-02-0	1.9E-01	9.6E-02	NC	NC	2.1E-01	1.1E-01	NC	NC	4.2E-01	2.1E-01	NC	NC	3.1E-01	2.3E-01	NC	NC	8.0E-03	5.8E-03	NC	NC
Selenium	7782-49-2	**1.8E+00**	**1.1E+00**	1.1E-01	6.5E-02	6.2E-01	3.7E-01	NC	NC	**1.2E+00**	7.3E-01	2.7E-04	1.6E-04	8.7E-01	4.3E-01	NC	NC	7.0E-02	3.5E-02	NC	NC
Silver	7440-22-4	6.4E-05	6.4E-06	NC	NC	5.2E-03	5.2E-04	NC	NC	1.0E-02	1.0E-03	NC	NC	2.0E-02	2.7E-03	NC	NC	1.4E-04	1.8E-05	NC	NC
Zinc	7440-66-6	2.7E-01	1.4E-01	NC	NC	6.3E-01	3.2E-01	NC	NC	**1.3E+00**	6.3E-01	8.8E-05	4.4E-05	**2.0E+01**	**2.2E+00**	6.0E-01	6.6E-02	8.7E-01	9.6E-02	NC	NC
Pesticides																					
Endrin	72-20-8	3.7E-03	3.7E-04	NC	NC	4.3E-03	4.3E-04	NC	NC	8.5E-03	8.5E-04	NC	NC	2.2E-02	3.6E-03	NC	NC	1.2E-03	2.1E-04	NC	NC
PCBs																					
Aroclor 1260	11096-82-5	2.2E-03	2.2E-04	NC	NC	4.0E-01	4.0E-02	NC	NC	8.0E-01	8.0E-02	NC	NC	1.0E-01	1.0E-02	NC	NC	1.3E-03	1.3E-04	NC	NC
SVOCs																					
Acenaphthylene	208-96-8	5.4E-05	1.1E-05	NC	NC	4.4E-04	8.8E-05	NC	NC	8.8E-04	1.8E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)anthracene	56-55-3	7.5E-03	7.5E-04	NC	NC	4.2E-02	4.2E-03	NC	NC	8.4E-02	8.4E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)pyrene	50-32-8	1.4E-02	1.4E-03	NC	NC	1.5E-02	1.5E-03	NC	NC	3.0E-02	3.0E-03	NC	NC	4.6E-02	9.2E-03	NC	NC	9.1E-04	1.8E-04	NC	NC
Benzo(b)fluoranthene	205-99-2	2.7E-03	2.7E-04	NC	NC	3.3E-02	3.3E-03	NC	NC	6.7E-02	6.7E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(g,h,i)perylene	191-24-2	9.3E-03	1.9E-03	NC	NC	5.5E-02	1.1E-02	NC	NC	1.1E-01	2.2E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(k)fluoranthene	207-08-9	2.0E-04	2.0E-05	NC	NC	9.7E-04	9.7E-05	NC	NC	1.9E-03	1.9E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Chrysene	218-01-9	2.9E-04	2.9E-05	NC	NC	1.2E-03	1.2E-04	NC	NC	2.4E-03	2.4E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Fluoranthene	206-44-0	1.2E-03	2.4E-04	NC	NC	2.4E-03	4.8E-04	NC	NC	4.9E-03	9.7E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Phenanthrene	85-01-8	4.8E-03	9.6E-04	NC	NC	1.6E-03	3.1E-04	NC	NC	3.1E-03	6.3E-04	NC	NC	1.5E-02	3.0E-03	NC	NC	2.9E-04	5.7E-05	NC	NC
Pyrene	129-00-0	2.7E-03	5.4E-04	NC	NC	7.5E-03	1.5E-03	NC	NC	1.5E-02	3.0E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:
CAS = Chemical Abstract Services
NC = Not Calculated
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
HQ = Hazard Quotient

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APPENDIX F.3

SSAs 30 AND 79 SLERA

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Table F.3-1
SSAs 30 and 79 SLERA Occurence/Distribution - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Units	Location of Maximum Concentration	Total Samples Analyzed	Detection Frequency	Concentration Used for Screening
TAL Metals								
Aluminum	7429-90-5	11,000	31,000	mg/kg	30SS2	8	8/8	31,000
Antimony	7440-36-0	0.12	0.26	mg/kg	30SS2	8	8/8	0.26
Arsenic	7440-38-2	1.6	3.3	mg/kg	30SS2	8	8/8	3.3
Barium	7440-39-3	70	140	mg/kg	79SS3	8	8/8	140
Beryllium	7440-41-7	0.3	0.865	mg/kg	79SS5 DUP AVG	8	7/8	0.865
Cadmium	7440-43-9	0.65	2.2	mg/kg	30SS2	8	8/8	2.2
Calcium	7440-70-2	460	3,050	mg/kg	79SS5 DUP AVG	8	8/8	3,050
Chromium	7440-47-3	17	27	mg/kg	30SS2	8	8/8	27
Cobalt	7440-48-4	4.1	8.9	mg/kg	79SS4	8	8/8	8.9
Copper	7440-50-8	5.1	13.5	mg/kg	79SS5 DUP AVG	8	8/8	13.5
Iron	7439-89-6	12,000	35,000	mg/kg	30SS2	8	8/8	35,000
Lead	7439-92-1	11	43	mg/kg	79SS5 DUP AVG	8	8/8	43
Magnesium	7439-95-4	590	2,900	mg/kg	79SS5 DUP AVG	8	8/8	2,900
Manganese	7439-96-5	220	1,200	mg/kg	30SS1	8	8/8	1,200
Mercury	7439-97-6	0.037	0.11	mg/kg	30SS2	8	8/8	0.11
Nickel	7440-02-0	5.1	12	mg/kg	79SS4	8	8/8	12
Potassium	7440-09-7	520	1,300	mg/kg	79SS4	8	8/8	1,300
Selenium	7782-49-2	0.078	0.44	mg/kg	30SS2	8	8/8	0.44
Silver	7440-22-4	0.039	0.083	mg/kg	30SS1	8	8/8	0.083
Sodium	7440-23-5	8.1	27	mg/kg	79SS3	8	8/8	27
Thallium	7440-28-0	0.13	0.23	mg/kg	30SS2	8	8/8	0.23
Vanadium	7440-62-2	25	63	mg/kg	30SS2	8	8/8	63
Zinc	7440-66-6	24	110	mg/kg	79SS5 DUP AVG	8	8/8	110
Pesticides								
Dieldrin	60-57-1	0.000455	0.000455	mg/kg	79SS5 DUP AVG	8	1/8	0.000455
PCBs								
Aroclor 1254	11097-69-1	0.014	0.0285	mg/kg	79SS5 DUP AVG	8	2/8	0.0285
Aroclor 1260	11096-82-5	0.013	0.013	mg/kg	30SS3	8	1/8	0.013
VOCs								
2-Butanone	78-93-3	0.13	0.13	mg/kg	30SS2	8	1/8	0.13
Acetone	67-64-1	0.0086	0.43	mg/kg	30SS2	8	4/8	0.43
Carbon Disulfide	75-15-0	0.0029	0.0029	mg/kg	30SS2	8	1/8	0.0029
SVOCs								
1,1'-Biphenyl	92-52-4	0.0011	0.003825	mg/kg	79SS5 DUP AVG	8	2/8	0.003825
2-Methylnaphthalene	91-57-6	0.00076	0.010145	mg/kg	79SS5 DUP AVG	8	6/8	0.010145
4-Methylphenol	106-44-5	0.0082	0.0082	mg/kg	30SS2	8	1/8	0.0082
Acenaphthene	83-32-9	0.03085	0.03085	mg/kg	79SS5 DUP AVG	8	1/8	0.03085
Anthracene	120-12-7	0.031825	0.031825	mg/kg	79SS5 DUP AVG	8	1/8	0.031825
Benzo(a)anthracene	56-55-3	0.0015	0.1235	mg/kg	79SS5 DUP AVG	8	7/8	0.1235
Benzo(a)pyrene	50-32-8	0.0022	0.065	mg/kg	79SS5 DUP AVG	8	5/8	0.065
Benzo(b)fluoranthene	205-99-2	0.0033	0.1055	mg/kg	79SS5 DUP AVG	8	5/8	0.1055
Benzo(g,h,i)perylene	191-24-2	0.0012	0.04	mg/kg	79SS5 DUP AVG	8	6/8	0.04
Benzo(k)fluoranthene	207-08-9	0.0018	0.063	mg/kg	79SS5 DUP AVG	8	5/8	0.063
Bis(2-ethylhexyl) Phthalate	117-81-7	0.0085	0.053	mg/kg	30SS2	8	8/8	0.053
Butyl Benzyl Phthalate	85-68-7	0.005975	0.011	mg/kg	79SS2	8	2/8	0.011
Chrysene	218-01-9	0.0058	0.095	mg/kg	79SS5 DUP AVG	8	4/8	0.095
Di-n-butyl Phthalate	84-74-2	0.031	0.2	mg/kg	79SS2	8	5/8	0.2
Dibenz(a,h)anthracene	53-70-3	0.02345	0.02345	mg/kg	79SS5 DUP AVG	8	1/8	0.02345
Dibenzofuran	132-64-9	0.02425	0.02425	mg/kg	79SS5 DUP AVG	8	1/8	0.02425
Diethyl Phthalate	84-66-2	0.021	0.021	mg/kg	30SS2	8	1/8	0.021
Fluoranthene	206-44-0	0.0011	0.237	mg/kg	79SS5 DUP AVG	8	8/8	0.237
Fluorene	86-73-7	0.0387	0.0387	mg/kg	79SS5 DUP AVG	8	1/8	0.0387
Indeno(1,2,3-cd)pyrene	193-39-5	0.055	0.055	mg/kg	79SS5 DUP AVG	8	1/8	0.055
Naphthalene	91-20-3	0.0027	0.014175	mg/kg	79SS5 DUP AVG	8	3/8	0.014175
Phenanthrene	85-01-8	0.0029	0.288	mg/kg	79SS5 DUP AVG	8	7/8	0.288
Pyrene	129-00-0	0.0023	0.247	mg/kg	79SS5 DUP AVG	8	7/8	0.247
Explosives								
Nitrobenzene	98-95-3	0.0935	0.0935	mg/kg	79SS5 DUP AVG	8	1/8	0.0935
Cyanide								
Cyanide, Total	57-12-5	0.06575	0.27	mg/kg	30SS1	8	5/8	0.27
Total Organic Carbon (TOC)								
Carbon, Total Organic	--	0.85	0.85	%	79SB2A	1	1/1	0.85

Notes:
CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

Table F.3-2
SSAs 30 and 79 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
TAL Metals																		
Beryllium	7440-41-7	mg/kg	1	8	0.035	0.035	10	F	N	40	A	N	--	--	NS	21	A	N
Cyanide																		
Cyanide, Total	57-12-5	mg/kg	3	8	0.076	0.085	NV	--	NS	0.9	D	N	--	--	NS	--	--	NS
Pesticides																		
4,4'-DDD	72-54-8	mg/kg	8	8	0.00033	0.00038	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDE	72-55-9	mg/kg	8	8	0.00027	0.00032	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDT	50-29-3	mg/kg	8	8	0.00028	0.00033	0.1	G	N	0.1	C	N	0.093	A	N	0.021	A	N
Aldrin	309-00-2	mg/kg	8	8	0.0014	0.0016	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
alpha-BHC	319-84-6	mg/kg	8	8	0.00024	0.00028	100	G	N	NV	--	NS	--	--	NS	--	--	NS
alpha-Chlordane	5103-71-9	mg/kg	8	8	0.00044	0.00051	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
beta-BHC	319-85-7	mg/kg	8	8	0.00031	0.00037	100	G	N	NV	--	NS	--	--	NS	--	--	NS
delta-BHC	319-86-8	mg/kg	8	8	0.00029	0.00034	100	G	N	NV	--	NS	--	--	NS	--	--	NS
Dieldrin	60-57-1	mg/kg	7	8	0.00028	0.00032	0.1	G	N	0.1	C	N	0.022	A	N	0.0049	A	N
Endosulfan I	959-98-8	mg/kg	8	8	0.00028	0.00033	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan II	33213-65-9	mg/kg	8	8	0.0003	0.00035	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan Sulfate	1031-07-8	mg/kg	8	8	0.00036	0.00042	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endrin	72-20-8	mg/kg	8	8	0.0003	0.00035	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Aldehyde	7421-93-4	mg/kg	8	8	0.00099	0.0012	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Ketone	53494-70-5	mg/kg	8	8	0.0004	0.00046	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-BHC (Lindane)	58-89-9	mg/kg	8	8	0.00028	0.00033	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-Chlordane	5103-74-2	mg/kg	8	8	0.00031	0.00036	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor	76-44-8	mg/kg	8	8	0.00048	0.00055	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor Epoxide	1024-57-3	mg/kg	8	8	0.00023	0.00027	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Methoxychlor	72-43-5	mg/kg	8	8	0.0004	0.00047	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Toxaphene	8001-35-2	mg/kg	8	8	0.0032	0.0037	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
PCBs																		
Aroclor 1016	12674-11-2	ug/kg	8	8	4.6	5.4	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1221	11104-28-2	ug/kg	8	8	8.6	10	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1232	11141-16-5	ug/kg	8	8	4.9	5.7	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1242	53469-21-9	ug/kg	8	8	5	5.9	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1248	12672-29-6	ug/kg	8	8	7.1	8.3	40,000	F	NS	--	--	NS	--	--	NS	--	--	NS
Aroclor 1254	11097-69-1	ug/kg	6	8	6.7	7.5	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1260	11096-82-5	ug/kg	7	8	5.7	6.4	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1262	37324-23-5	ug/kg	8	8	5.7	6.6	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1268	11100-14-4	ug/kg	8	8	7.1	8.3	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
TCL VOCs																		
1,1,1-Trichloroethane	71-55-6	ug/kg	8	8	1.1	1.4	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	8	8	1	1.3	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	8	8	0.67	0.87	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,1,2-Trichloroethane	79-00-5	ug/kg	8	8	1.2	1.5	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethane	75-34-3	ug/kg	8	8	0.4	0.52	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethene	75-35-4	ug/kg	8	8	0.91	1.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,3-Trichlorobenzene	87-61-6	ug/kg	8	8	0.5	0.65	--	--	NS	--	--	NS	--	--	NS	--	--	NS
1,2,4-Trichlorobenzene	120-82-1	ug/kg	8	8	0.91	1.2	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	8	8	2.6	3.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2-Dibromoethane	106-93-4	ug/kg	8	8	1.1	1.4	NV	--	NS	5,000	C	N	--	--	NS	--	--	NS
1,2-Dichlorobenzene	95-50-1	ug/kg	8	8	0.33	0.43	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dichloroethane	107-06-2	ug/kg	8	8	0.46	0.6	870,000	G	N	NV	--	NS	--	--	NS	--	--	NS
1,2-Dichloropropane	78-87-5	ug/kg	8	8	0.47	0.61	300	G	N	300	C	N	--	--	NS	--	--	NS
1,3-Dichlorobenzene	541-73-1	ug/kg	8	8	0.49	0.64	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,4-Dichlorobenzene	106-46-7	ug/kg	8	8	0.6	0.78	100	G	N	20,000	B	N	--	--	NS	--	--	NS
2-Butanone	78-93-3	ug/kg	7	8	2.9	3.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Hexanone	591-78-6	ug/kg	8	8	1.3	1.7	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	8	8	0.23	0.3	100,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Acetone	67-64-1	ug/kg	4	8	4	4.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzene	71-43-2	ug/kg	8	8	0.27	0.35	100	G	N	100	C	N	--	--	NS	--	--	NS
Bromochloromethane	74-97-5	ug/kg	8	8	0.56	0.73	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Bromodichloromethane	75-27-4	ug/kg	8	8	1.1	1.4	450,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Bromoform	75-25-2	ug/kg	8	8	0.59	0.76	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bromomethane	74-83-9	ug/kg	8	8	1.2	1.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Disulfide	75-15-0	ug/kg	7	8	0.43	0.56	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Tetrachloride	56-23-5	ug/kg	8	8	0.86	1.1	300	G	N	300	C	N	--	--	NS	--	--	NS

Table F.3-2
SSAs 30 and 79 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Chlorobenzene	108-90-7	ug/kg	8	8	1	1.3	100	G	N	40,000	B	N	--	--	NS	--	--	NS
Chloroethane	75-00-3	ug/kg	8	8	1	1.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Chloroform	67-66-3	ug/kg	8	8	0.29	0.38	300	G	N	300	C	N	--	--	NS	--	--	NS
Chloromethane	74-87-3	ug/kg	8	8	0.53	0.69	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
cis-1,2-Dichloroethene	156-59-2	ug/kg	8	8	0.36	0.47	300	G	N	300	C	N	--	--	NS	--	--	NS
cis-1,3-Dichloropropene	10061-01-5	ug/kg	8	8	0.54	0.7	300	G	N	300	C	N	--	--	NS	--	--	NS
Cyclohexane	110-82-7	ug/kg	8	8	1.1	1.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibromochloromethane	124-48-1	ug/kg	8	8	0.6	0.77	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dichlorodifluoromethane	75-71-8	ug/kg	8	8	0.45	0.58	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Ethylbenzene	100-41-4	ug/kg	8	8	0.2	0.25	100	G	N	100	C	N	--	--	NS	--	--	NS
Isopropylbenzene	98-82-8	ug/kg	8	8	0.25	0.32	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl Acetate	79-20-9	ug/kg	8	8	3.1	4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl tert-Butyl Ether	1634-04-4	ug/kg	8	8	0.62	0.81	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methylcyclohexane	108-87-2	ug/kg	8	8	1.1	1.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methylene Chloride	75-09-2	ug/kg	8	8	1.6	2.1	300	G	N	300	C	N	--	--	NS	--	--	NS
Styrene	100-42-5	ug/kg	8	8	0.99	1.3	300,000	F	N	100	C	N	--	--	NS	--	--	NS
Tetrachloroethene	127-18-4	ug/kg	8	8	0.95	1.2	300	G	N	300	C	N	--	--	NS	--	--	NS
Toluene	108-88-3	ug/kg	8	8	0.77	0.99	200,000	F	N	100	C	N	--	--	NS	--	--	NS
trans-1,2-Dichloroethene	156-60-5	ug/kg	8	8	1	1.3	300	G	N	300	C	N	--	--	NS	--	--	NS
trans-1,3-Dichloropropene	10061-02-6	ug/kg	8	8	0.39	0.5	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichloroethene	79-01-6	ug/kg	8	8	0.55	0.72	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichlorofluoromethane	75-69-4	ug/kg	8	8	0.4	0.52	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Vinyl Chloride	75-01-4	ug/kg	8	8	0.33	0.43	300	G	N	300	C	N	--	--	NS	--	--	NS
Xylenes (Total)	1330-20-7	ug/kg	8	8	1.3	1.7	100	G	N	NV	--	NS	--	--	NS	--	--	NS
TCL SVOCs																		
1,1'-Biphenyl	92-52-4	ug/kg	6	8	0.91	1.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	8	8	2.3	2.7	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	8	8	10	12	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4,5-Trichlorophenol	95-95-4	ug/kg	8	8	2.7	3.1	4,000	F	N	9,000	B	N	--	--	NS	--	--	NS
2,4,6-Trichlorophenol	88-06-2	ug/kg	8	8	2.2	2.6	100	G	N	10,000	B	N	--	--	NS	--	--	NS
2,4-Dichlorophenol	120-83-2	ug/kg	8	8	3.7	4.3	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dimethylphenol	105-67-9	ug/kg	8	8	1.6	1.9	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dinitrophenol	51-28-5	ug/kg	8	8	120	130	20,000	F	N	100	C	**Y**	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	ug/kg	8	8	21	24	5,300	I	N	19,800	I	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	ug/kg	8	8	2.5	2.9	4,500	I	N	6,900	I	N	--	--	NS	--	--	NS
2-Chloronaphthalene	91-58-7	ug/kg	8	8	2.4	2.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Chlorophenol	95-57-8	ug/kg	8	8	4.1	4.8	7,000	F	N	10,000	B	N	--	--	NS	--	--	NS
2-Methylnaphthalene	91-57-6	ug/kg	2	8	0.56	0.58	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Methylphenol	95-48-7	ug/kg	8	8	5.2	6.1	100	G	N	100	C	N	--	--	NS	--	--	NS
2-Nitroaniline	88-74-4	ug/kg	8	8	7.8	9.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Nitrophenol	88-75-5	ug/kg	8	8	7.3	8.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	8	8	31	36	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3-Nitroaniline	99-09-2	ug/kg	8	8	7.8	9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	8	8	22	26	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	8	8	1.6	1.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloro-3-methylphenol	59-50-7	ug/kg	8	8	3.6	4.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloroaniline	106-47-8	ug/kg	8	8	7.8	9	20,000	F	N	NV	--	NS	--	--	NS	--	--	NS
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	8	8	3.7	4.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methylphenol	106-44-5	ug/kg	7	8	4.9	5.7	100	G	N	100	C	N	--	--	NS	--	--	NS
4-Nitroaniline	100-01-6	ug/kg	8	8	1.8	2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Nitrophenol	100-02-7	ug/kg	8	8	150	170	100	G	**Y**	7,000	B	N	--	--	NS	--	--	NS
Acenaphthene	83-32-9	ug/kg	7	8	0.86	1	100	G	N	100	C	N	--	--	NS	--	--	NS
Acenaphthylene	208-96-8	ug/kg	8	8	1.8	2.1	100	G	N	100	C	N	--	--	NS	--	--	NS
Acetophenone	98-86-2	ug/kg	8	8	4	4.7	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Anthracene	120-12-7	ug/kg	7	8	2.8	3.3	100	G	N	100	C	N	--	--	NS	--	--	NS
Atrazine	1912-24-9	ug/kg	8	8	4.9	5.7	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzaldehyde	100-52-7	ug/kg	8	8	6.8	7.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzo(a)anthracene	56-55-3	ug/kg	1	8	1.4	1.4	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(a)pyrene	50-32-8	ug/kg	3	8	1.6	1.7	100	G	N	NV	--	NS	--	--	NS	--	--	NS
Benzo(b)fluoranthene	205-99-2	ug/kg	3	8	3.4	3.6	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(g,h,i)perylene	191-24-2	ug/kg	2	8	1.1	1.1	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(k)fluoranthene	207-08-9	ug/kg	3	8	1.5	1.6	100	G	N	100	C	N	--	--	NS	--	--	NS
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	8	8	1.4	1.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS

Table F.3-2
SSAs 30 and 79 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	8	8	2.1	2.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	8	8	7.3	8.5	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Butyl Benzyl Phthalate	85-68-7	ug/kg	6	8	5.4	6.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Caprolactam	105-60-2	ug/kg	8	8	14	16	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbazole	86-74-8	ug/kg	8	8	92	110	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Chrysene	218-01-9	ug/kg	4	8	3.8	4.3	100	G	N	100	C	N	--	--	NS	--	--	NS
Di-n-butyl Phthalate	84-74-2	ug/kg	3	8	27	32	200,000	F	N	NV	--	NS	--	--	NS	--	--	NS
Di-n-octyl Phthalate	117-84-0	ug/kg	8	8	5.8	6.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	7	8	8.5	9.8	100	G	N	100	C	N	--	--	NS	--	--	NS
Dibenzofuran	132-64-9	ug/kg	7	8	9.6	11	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Diethyl Phthalate	84-66-2	ug/kg	7	8	3.8	4.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dimethyl Phthalate	131-11-3	ug/kg	8	8	0.95	1.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Fluorene	86-73-7	ug/kg	7	8	7.5	8.8	100	G	N	100	C	N	--	--	NS	--	--	NS
Hexachlorobenzene	118-74-1	ug/kg	8	8	4.7	5.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorobutadiene	87-68-3	ug/kg	8	8	3.8	4.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorocyclopentadiene	77-47-4	ug/kg	8	8	2.2	2.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachloroethane	67-72-1	ug/kg	8	8	2.7	3.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	7	8	4	4.7	100	G	N	100	C	N	--	--	NS	--	--	NS
Isophorone	78-59-1	ug/kg	8	8	6.8	7.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	8	8	6.2	7.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-diphenylamine	86-30-6	ug/kg	8	8	11	12	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Naphthalene	91-20-3	ug/kg	5	8	2.3	2.7	100	G	N	100	C	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	ug/kg	8	8	5.7	6.6	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Pentachlorophenol	87-86-5	ug/kg	8	8	48	56	5,000	A	N	31,000	A	N	2,100	A	N	2,800	A	N
Phenanthrene	85-01-8	ug/kg	1	8	1.3	1.3	100	G	N	100	C	N	--	--	NS	--	--	NS
Phenol	108-95-2	ug/kg	8	8	49	57	100	G	N	30,000	B	N	--	--	NS	--	--	NS
Pyrene	129-00-0	ug/kg	1	8	1.5	1.5	100	G	N	100	C	N	--	--	NS	--	--	NS
Explosives																		
1,3,5-Trinitrobenzene	99-35-4	mg/kg	8	8	0.12	0.12	8.6	I	N	18.1	I	N	--	--	NS	--	--	NS
1,3-Dinitrobenzene	99-65-0	mg/kg	8	8	0.11	0.11	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	mg/kg	8	8	0.23	0.23	5.3	I	N	19.8	I	N	--	--	NS	--	--	NS
2,4,6-Trinitrotoluene	118-96-7	mg/kg	8	8	0.16	0.16	2.4	H	N	1.2	H	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	mg/kg	8	8	0.23	0.23	4.5	I	N	6.9	I	N	--	--	NS	--	--	NS
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	8	8	0.21	0.21	80	J	N	--	--	NS	--	--	NS	--	--	NS
2-Nitrotoluene	88-72-2	mg/kg	8	8	0.14	0.14	--	--	NS	--	--	NS	--	--	NS	--	--	NS
3-Nitrotoluene	99-08-1	mg/kg	8	8	0.25	0.25	--	--	NS	--	--	NS	--	--	NS	--	--	NS
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	8	8	0.16	0.16	80	J	N	--	--	NS	--	--	NS	--	--	NS
4-Nitrotoluene	99-99-0	mg/kg	8	8	0.27	0.27	--	--	NS	--	--	NS	--	--	NS	--	--	NS
HMX	2691-41-0	mg/kg	8	8	0.12	0.12	--	--	NS	6.3	I	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	mg/kg	7	8	0.045	0.045	--	--	NS	--	--	NS	--	--	NS	--	--	NS
RDX	121-82-4	mg/kg	8	8	0.039	0.039	100	K	N	98.6	I	N	--	--	NS	--	--	NS
Tetryl	479-45-8	mg/kg	8	8	0.046	0.046	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Nitroglycerin/PETN																		
Nitroglycerin	55-63-0	mg/kg	8	8	0.29	0.58	--	--	NS	--	--	NS	--	--	NS	--	--	NS
PETN	78-11-5	mg/kg	8	8	0.25	0.51	--	--	NS	--	--	NS	--	--	NS	--	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
SL = Screening Level
Eco SSL = Ecological Soil Screening Level

Sources:
A = USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
B = ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
C = BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
D = CCME 2006
E = ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
F = ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
G = BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
H = Best, E.P.H., H.E. Tatem, K.N. Geter, M.L. Wells and B.K. Lane. 2004. Toxicity and Metabolites of 2,4,6 Trinitrotoluene (TNT) in Plants and Worms from Exposure to Aged Soil.
I = Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil.
J = Pennington, Judith C. 1988. Plant Uptake of 2,4,6-Trinitrotoluene, 4-Amino-2,6-Dinitrotoluene, and 2-Amino-4,6-Dinitrotoluene Using 14C-Labeled and Unlabeled Compounds.
K = Simini, M., R.S. Wentsel, R.T. Checkai, C.T. Phillips, N.A. Chester, M.A. Major, and J.C. Amos. 1995. Evaluation of Soil Toxicity at Joliet Army Ammunition Plant.

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

Table F.3-3
SSAs 30 and 79 - Summary of Total PCBs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID		30SS1		30SS2		30SS3		79SB2A		79SS1		79SS2		79SS3		79SS4		79SS5 DUP AVG	
Sample Date		8/13/2009		8/13/2009		8/13/2009		8/13/2009		8/13/2009		8/13/2009		8/13/2009		11/11/2009		11/11/2009	
Sample Depth (ft bgs)		0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1	
	CAS #	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
PCBs (ug/kg)																			
Aroclor 1254	11097-69-1	<38	U	<40	U	14	J	NT		<38	U	<38	U	<38	U	<42	U	28.5	J,J,c
Aroclor 1260	11096-82-5	<77	U	<82	U	13	J,J,g	NT		<78	U	<77	U	<77	U	<86	U	<86	U
Total PCBs	--	ND		ND		27		NT		ND		ND		ND		ND		28.5	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
ft bgs = Feet Below Ground Surface
PBC = Polychlorinated Biphenyl
See Table 6-3 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Table F.3-4
SSAs 30 and 79 - Summary of Low and High Molecular Weight PAHs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID		30SS1		30SS2		30SS3		79SB2A		79SS1		79SS2		79SS3		79SS4		79SS5 DUP AVG	
Sample Date		8/13/2009		8/13/2009		8/13/2009		8/13/2009		8/13/2009		8/13/2009		8/13/2009		11/11/2009		11/11/2009	
Sample Depth (ft bgs)		0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1		0-1	
	CAS #	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
TCL PAHs (ug/kg)																			
Acenaphthene	83-32-9	<20	U	<21	U	<19	U	NT		<20	U	<20	U	<19	U	<22	U	30.85	
Acenaphthylene	208-96-8	<20	U	<21	U	<19	U	NT		<20	U	<20	U	<19	U	<22	U	<22	U
Anthracene	120-12-7	<20	U	<21	U	<19	U	NT		<20	U	<20	U	<19	U	<22	U	31.825	
Fluorene	86-73-7	<38	U	<40	U	<36	U	NT		<38	U	<38	U	<38	U	<42	U	38.7	
Naphthalene	91-20-3	2.7	J	<21	U	<19	U	NT		<20	U	3.1	J	<19	U	<22	U	14.175	
Phenanthrene	85-01-8	6.2	J	<21	U	2.9	J	NT		3.5	J	4.2	J	4.6	J	10	J	288	
Low Molecular Weight PAHs	--	8.9		ND		2.9		NT		3.5		7.3		4.6		10		403.55	
Benzo(a)anthracene	56-55-3	5.8	J	<21	U	2.6	J	NT		1.5	J	1.5	J	6.9	J	8.9	J	123.5	
Benzo(a)pyrene	50-32-8	4.2	J	<21	U	2.2	J	NT		<20	U	<20	U	7.2	J	7.2	J	65	
Benzo(b)fluoranthene	205-99-2	5.8	J	<21	U	3.3	J	NT		<20	U	<20	U	8.4	J	8.5	J	105.5	
Benzo(g,h,i)perylene	191-24-2	3.5	J	<82	U	1.5	J	NT		1.2	J	<77	U	4.2	J	2.5	J	40	
Benzo(k)fluoranthene	207-08-9	3.8	J	<21	U	1.8	J	NT		<20	U	<20	U	5.3	J	3.8	J	63	
Chrysene	218-01-9	5.8	J	<21	U	<19	U	NT		<20	U	<20	U	7.2	J	8.5	J	95	
Dibenz(a,h)anthracene	53-70-3	<77	U	<82	U	<74	U	NT		<78	U	<77	U	<77	U	<86	U	23.45	
Fluoranthene	206-44-0	8.1	J	1.2	J	2.6	J	NT		1.9	J	1.1	J	8.4	J	14	J	237	
Indeno(1,2,3-cd)pyrene	193-39-5	<77	U	<82	U	<74	U	NT		<78	U	<77	U	<77	U	<86	U	55	
Pyrene	129-00-0	10	J	<21	U	3.3	J	NT		2.3	J	2.3	J	13	J	16	J	247	
High Molecular Weight PAHs	--	47		1.2		17.3		NT		6.9		4.9		60.6		69.4		1,054.45	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
ND = Not Detected
TCL = Target Compound List
PAH = Polynuclear Aromatic Hydrocarbon
See Table 6-3 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Table F.3-5
SSAs 30 and 79 - Plant Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	50	ORNL-Plants
Antimony	7440-36-0	5	ORNL-Plants
Arsenic	7440-38-2	18	ECO SSL
Barium	7440-39-3	500	ORNL-Plants
Beryllium	7440-41-7	10	ORNL-Plants
Cadmium	7440-43-9	32	ECO SSL
Chromium	7440-47-3	1	ORNL-Plants
Cobalt	7440-48-4	13	ECO SSL
Copper	7440-50-8	70	ECO SSL
Iron	7439-89-6	NV	--
Lead	7439-92-1	120	ECO SSL
Manganese	7439-96-5	220	ECO SSL
Mercury	7439-97-6	0.3	ORNL-Plants
Nickel	7440-02-0	38	ECO SSL
Selenium	7782-49-2	0.52	ECO SSL
Silver	7440-22-4	560	ECO SSL
Thallium	7440-28-0	1	ORNL-Plants
Vanadium	7440-62-2	2	ORNL-Plants
Zinc	7440-66-6	160	ECO SSL
Cyanide			
Cyanide, Total	57-12-5	NV	--
Pesticides			
Dieldrin	60-57-1	NV	--
PCBs			
Aroclor 1254	11097-69-1	NV	--
Aroclor 1260	11096-82-5	NV	--
VOCs			
2-Butanone	78-93-3	NV	--
Acetone	67-64-1	NV	--
Carbon Disulfide	75-15-0	NV	--
SVOCs			
1,1'-Biphenyl	92-52-4	NV	--
2-Methylnaphthalene	91-57-6	NV	--
4-Methylphenol	106-44-5	0.1	BTAG - Flora
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Di-n-butyl Phthalate	84-74-2	200	ORNL-Plants
Dibenzofuran	132-64-9	NV	--
Diethyl Phthalate	84-66-2	NV	--
Naphthalene	91-20-3	0.1	BTAG - Flora
Low Molecular Weight PAHs	--	NV	--
High Molecular Weight PAHs	--	NV	--
Explosives			
Nitrobenzene	98-95-3	NV	--

Notes:
CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
NV = No Value Available
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.3-6
SSAs 30 and 79 - Plant Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	31,000	50	**6.2E+02**	40,041	N
Antimony	7440-36-0	0.26	5	5.2E-02	--	NBE
Arsenic	7440-38-2	3.3	18	1.8E-01	15.8	N
Barium	7440-39-3	140	500	2.8E-01	209	N
Beryllium	7440-41-7	0.865	10	8.7E-02	1.02	N
Cadmium	7440-43-9	2.2	32	6.9E-02	0.69	N
Chromium	7440-47-3	27	1	**2.7E+01**	65.3	N
Cobalt	7440-48-4	8.9	13	6.8E-01	72.3	N
Copper	7440-50-8	13.5	70	1.9E-01	53.5	N
Iron	7439-89-6	35,000	NV	NC	50,962	N
Lead	7439-92-1	43	120	3.6E-01	26.8	N
Manganese	7439-96-5	1,200	220	**5.5E+00**	2,543	N
Mercury	7439-97-6	0.11	0.3	3.7E-01	0.13	N
Nickel	7440-02-0	12	38	3.2E-01	62.8	N
Selenium	7782-49-2	0.44	0.52	8.5E-01	--	NBE
Silver	7440-22-4	0.083	560	1.5E-04	--	NBE
Thallium	7440-28-0	0.23	1	2.3E-01	2.11	N
Vanadium	7440-62-2	63	2	**3.2E+01**	108	N
Zinc	7440-66-6	110	160	6.9E-01	202	N
Cyanide						
Cyanide, Total	57-12-5	0.27	NV	NC	NV	NA
Pesticides						
Dieldrin	60-57-1	0.000455	NV	NC	NV	NA
PCBs						
Aroclor 1254	11097-69-1	0.0285	NV	NC	NV	NA
Aroclor 1260	11096-82-5	0.013	NV	NC	NV	NA
Total PCBs	--	0.0285	NV	NC	NV	NA
VOCs						
2-Butanone	78-93-3	0.13	NV	NC	NV	NA
Acetone	67-64-1	0.43	NV	NC	NV	NA
Carbon Disulfide	75-15-0	0.0029	NV	NC	NV	NA
SVOCs						
1,1'-Biphenyl	92-52-4	0.003825	NV	NC	NV	NA
2-Methylnaphthalene	91-57-6	0.010145	NV	NC	NV	NA
4-Methylphenol	106-44-5	0.0082	0.1	8.2E-02	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.053	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.011	NV	NC	NV	NA
Di-n-butyl Phthalate	84-74-2	0.2	200	1.0E-03	NV	NA
Dibenzofuran	132-64-9	0.02425	NV	NC	NV	NA
Diethyl Phthalate	84-66-2	0.021	NV	NC	NV	NA
Naphthalene	91-20-3	0.014175	0.1	1.4E-01	NV	NA
Total Low Molecular Weight PAHs	--	0.40355	NV	NC	NV	NA
Total High Molecular Weight PAHs	--	1.05445	NV	NC	NV	NA
Explosives						
Nitrobenzene	98-95-3	0.0935	NV	NC	NV	NA

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
SL = Screening Level
NBE = No Background Point Estimate Available

NV = No Value Available
NC = Not Calculated
NA = Not Applicable
Hazard Quotient = Soil Concentration/Screening Level

See Table F.3-3 for Total PCBs
See Table F.3-4 for Total Low and High Molecular Weight PAHs

Table F.3-7
SSAs 30 and 79 - Invertebrate and Microbial Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	NV	--
Antimony	7440-36-0	78	ECO SSL
Arsenic	7440-38-2	60	ORNL-Earthworm
Barium	7440-39-3	330	ECO SSL
Beryllium	7440-41-7	40	ECO SSL
Cadmium	7440-43-9	140	ECO SSL
Chromium	7440-47-3	0.4	ORNL-Earthworm
Cobalt	7440-48-4	200	BTAG - Fauna
Copper	7440-50-8	80	ECO SSL
Iron	7439-89-6	200	ORNL - Microbial
Lead	7439-92-1	1,700	ECO SSL
Manganese	7439-96-5	450	ECO SSL
Mercury	7439-97-6	0.1	ORNL-Earthworm
Nickel	7440-02-0	280	ECO SSL
Selenium	7782-49-2	4.1	ECO SSL
Silver	7440-22-4	50	ORNL - Microbial
Thallium	7440-28-0	NV	--
Vanadium	7440-62-2	20	ORNL - Microbial
Zinc	7440-66-6	120	Eco SSL
Cyanide			
Cyanide, Total	57-12-5	0.9	CCME-2006
Pesticides			
Dieldrin	60-57-1	NV	--
PCBs			
Aroclor 1254	11097-69-1	NV	--
Aroclor 1260	11096-82-5	NV	--
VOCs			
2-Butanone	78-93-3	NV	--
Acetone	67-64-1	NV	--
Carbon Disulfide	75-15-0	NV	--
SVOCs			
1,1'-Biphenyl	92-52-4	NV	--
2-Methylnaphthalene	91-57-6	NV	--
4-Methylphenol	106-44-5	0.1	BTAG - Fauna
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Di-n-butyl Phthalate	84-74-2	NV	--
Dibenzofuran	132-64-9	NV	--
Diethyl Phthalate	84-66-2	NV	--
Naphthalene	91-20-3	0.1	BTAG - Fauna
Low Molecular Weight PAHs	--	29	ECO SSL
High Molecular Weight PAHs	--	18	ECO SSL
Explosives			
Nitrobenzene	98-95-3	NV	--

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
NV = No Value Available
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.3-8
SSAs 30 and 79 - Invertebrate and Microbial Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	31,000	NV	NC	40,041	N
Antimony	7440-36-0	0.26	78	3.3E-03	--	N
Arsenic	7440-38-2	3.3	60	5.5E-02	15.8	N
Barium	7440-39-3	140	330	4.2E-01	209	N
Beryllium	7440-41-7	0.865	40	2.2E-02	1.02	N
Cadmium	7440-43-9	2.2	140	1.6E-02	0.69	N
Chromium	7440-47-3	27	0.4	**6.8E+01**	65.3	N
Cobalt	7440-48-4	8.9	200	4.5E-02	72.3	N
Copper	7440-50-8	13.5	80	1.7E-01	53.5	N
Iron	7439-89-6	35,000	200	**1.8E+02**	50,962	N
Lead	7439-92-1	43	1,700	2.5E-02	26.8	N
Manganese	7439-96-5	1,200	450	**2.7E+00**	2,543	N
Mercury	7439-97-6	0.11	0.1	**1.1E+00**	0.13	N
Nickel	7440-02-0	12	280	4.3E-02	62.8	N
Selenium	7782-49-2	0.44	4.1	1.1E-01	--	N
Silver	7440-22-4	0.083	50	1.7E-03	--	N
Thallium	7440-28-0	0.23	NV	NC	2.11	N
Vanadium	7440-62-2	63	20	**3.2E+00**	108	N
Zinc	7440-66-6	110	120	9.2E-01	202	N
Cyanide						
Cyanide, Total	57-12-5	0.27	0.9	3.0E-01	NV	NA
Pesticides						
Dieldrin	60-57-1	0.000455	NV	NC	NV	NA
PCBs						
Aroclor 1254	11097-69-1	0.0285	NV	NC	NV	NA
Aroclor 1260	11096-82-5	0.013	NV	NC	NV	NA
Total PCBs	--	0.0285	NV	NC	NV	NA
VOCs						
2-Butanone	78-93-3	0.13	NV	NC	NV	NA
Acetone	67-64-1	0.43	NV	NC	NV	NA
Carbon Disulfide	75-15-0	0.0029	NV	NC	NV	NA
SVOCs						
1,1'-Biphenyl	92-52-4	0.003825	NV	NC	NV	NA
2-Methylnaphthalene	91-57-6	0.010145	NV	NC	NV	NA
4-Methylphenol	106-44-5	0.0082	0.1	8.2E-02	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.053	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.011	NV	NC	NV	NA
Di-n-butyl Phthalate	84-74-2	0.2	NV	NC	NV	NA
Dibenzofuran	132-64-9	0.02425	NV	NC	NV	NA
Diethyl Phthalate	84-66-2	0.021	NV	NC	NV	NA
Naphthalene	91-20-3	0.014175	0.1	1.4E-01	NV	NA
Total Low Molecular Weight PAHs	--	0.40355	29	1.4E-02	NV	NA
Total High Molecular Weight PAHs	--	1.05445	18	5.9E-02	NV	NA
Explosives						
Nitrobenzene	98-95-3	0.0935	NV	NC	NV	NA

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
SL = Screening Level
NBE = No Background Point Estimate Available

NV = No Value Available
NC = Not Calculated
NA = Not Applicable
Hazard Quotient = Soil Concentration/Screening Level

See Table F.3-3 for Total PCBs
See Table F.3-4 for Total Low and High Molecular Weight PAHs

Table F.3-9
SSAs 30 and 79 - Wildlife Profiles
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment					Refined Assessment					
Representative Species			Composition of Diet[1] (%)				Minimum Body Weight[1]	Maximum Body Weight[1]	Maximum Food Ingestion Rate[2]	Maximum Substrate Ingestion Rate[3]		Average Body Weight[1]	Average Food Ingestion Rate[2]	Average Substrate Ingestion Rate[3]	Home Range (ha)	Proportion of Year Species Active	AUFs
Food-web Classification	Common Name	Scientific Name	Plants (incl. fungi)	Inverte-brates	Small mammals	Fish	kg	kg	kg dw/day	% of dry intake	kg dry wt./day	kg	kg dw/day	kg dry wt./day			Study Area (0.65) hectares
Birds																	
soil-probing invertivore	American robin	*Turdus migratorius*	62%	38%			0.0635	0.103	0.02	5%	0.001	0.077	0.016	0.0008	0.48	1	1.00
large carnivore	Red-tailed hawk	*Buteo jamaicensis*			100%		0.957	1.235	0.063	0%	0	1.134	0.059	0	250	1	0.0026
Mammals																	
small herbivore	Meadow vole	*Microtus pennsylvanicus*	100%				0.017	0.0524	0.01	2.4%	0.00024	0.037	0.008	0.00019	0.037	1	1
medium carnivore	Red fox	*Vulpes vulpes*	17%	4%	79%		2.95	7.04	0.342	2.8%	0.0096	4.53	0.238	0.0067	96	1	0.0068
small invertivore	Short-tailed shrew	*Blarina brevicauda*	14%	86%			0.0125	0.0225	0.003	13%	0.00039	0.015	0.002	0.00026	0.39	1	1.00

Notes:
kg = Kilogram
kg dw/day = Kilogram Dry-weight per Day
L/day = Liter per Day
ha = Hectares
AUF = Area Use Factor

[1]Wildlife Exposure Factors Handbook. U.S. Environmental Protection Agency (EPA). 1993. Office of Research and Development. 2 Volumes. EPA/600/R93/187a&b. December.
[2] Estimated food intake rate (kg [dw]/day) calculated as follows:
FI ((kg/day) = 0.0687 $Wt.^{0.882}$ for mammals (red fox and short-tailed shrew)
FI ((g/day) = 0.577 $Wt.^{0.727}$ for herbivores (meadow vole)
FI ((g/day) = 0.301 $Wt.^{0.751}$ for non-passerine birds (red-tailed hawk)
FI ((g/day) = 0.398 $Wt.^{0.850}$ for passerine birds (american robin)
[3]Estimating Exposure to Terrestrial Wildlife to Contaminants. Sample and Sutter. 1994. ES/ER/TM-125.
The soil ingestion rate for the american robin set equal to 38% of the american woodcock value (0.34*10.4%=4%), based on a robin diet of 38% invertbrates.

Table F.3-10
SSAs 30 and 79 - Wildlife TRVs
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	AVIAN TEST SPECIES				MAMMALIAN TEST SPECIES					AVIAN RECEPTORS				MAMMALIAN RECEPTORS					
											American Robin		Red-tailed Hawk		Meadow Vole		Red Fox		Short-tailed Shrew	
		Chronic LOAEL	Chronic NOAEL	Test Animal	Source	Chronic LOAEL	Chronic NOAEL	Test Animal	Test Animal Body Weight (kg)	Source	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL
		(mg/kg-bw/d)				(mg/kg-bw/d)					(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)	
Arsenic	7440-38-2	1.28E+01	5.14E+00	mallard duck	ORNL 1996	1.26	0.126	mouse	0.03	ORNL 1996	1.28E+01	5.14E+00	1.28E+01	5.14E+00	1.20E+00	1.20E-01	3.59E-01	3.59E-02	1.50E+00	1.50E-01
Cadmium	7440-43-9	2.00E+01	1.45E+00	mallard duck	ORNL 1996	10	1	rat	0.3	ORNL 1996	2.00E+01	1.45E+00	2.00E+01	1.45E+00	1.69E+01	1.69E+00	5.07E+00	5.07E-01	2.11E+01	2.11E+00
Chromium	7440-47-3	5.00E+00	1.00E+00	black duck	ORNL 1996	32.8	3.28	rat	0.35	ORNL 1996	5.00E+00	1.00E+00	5.00E+00	1.00E+00	5.75E+01	5.75E+00	1.73E+01	1.73E+00	7.21E+01	7.21E+00
Copper	7440-50-8	6.17E+01	4.70E+01	1 day old chicks	ORNL 1996	15.4	11.7	mink	1	ORNL 1996	6.17E+01	4.70E+01	6.17E+01	4.70E+01	3.51E+01	2.67E+01	1.06E+01	8.02E+00	4.40E+01	3.34E+01
Lead	7439-92-1	1.13E+01	1.13E+00	Japanese quail	ORNL 1996	80	8	rat	0.35	ORNL 1996	1.13E+01	1.13E+00	1.13E+01	1.13E+00	1.40E+02	1.40E+01	4.22E+01	4.22E+00	1.76E+02	1.76E+01
Mercury	7439-97-6	9.00E-01	4.50E-01	Japanese Quail	ORNL 1996	132	13.2	mink	1	ORNL 1996	9.00E-01	4.50E-01	9.00E-01	4.50E-01	3.01E+02	3.01E+01	9.05E+01	9.05E+00	3.77E+02	3.77E+01
Nickel	7440-02-0	1.07E+02	7.74E+01	mallard duckling	ORNL 1996	80	40	rat	0.35	ORNL 1996	1.07E+02	7.74E+01	1.07E+02	7.74E+01	1.40E+02	7.01E+01	4.22E+01	2.11E+01	1.76E+02	8.79E+01
Selenium	7782-49-2	8.00E-01	4.00E-01	mallard duck	ORNL 1996	0.33	0.2	rat	0.35	ORNL 1996	8.00E-01	4.00E-01	8.00E-01	4.00E-01	5.79E-01	3.51E-01	1.74E-01	1.05E-01	7.25E-01	4.40E-01
Silver	7440-22-4	1.24E+02	1.66E+01	turkey	Matuk et al. 1981	222	22.2	rat	0.35	Matuk et al. 1981	1.24E+02	1.66E+01	1.24E+02	1.66E+01	3.89E+02	3.89E+01	1.17E+02	1.17E+01	4.88E+02	4.88E+01
Zinc	7440-66-6	1.31E+02	1.45E+01	white leghorn hen	ORNL 1996	320	160	rat	0.35	ORNL 1996	1.31E+02	1.45E+01	1.31E+02	1.45E+01	5.61E+02	2.81E+02	1.69E+02	8.44E+01	7.03E+02	3.52E+02
Low-Molec Wt PAHs																				
Anthracene	120-12-7	--	--	--	USACE 1998	3300	330	rodents	0.165	USACE 1998	NV	NV	NV	NV	4.80E+03	4.80E+02	1.44E+03	1.44E+02	6.01E+03	6.01E+02
PAHs																				
Acenaphthene	83-32-9	5.05E+00	1.01E+00	red-winged blackbird	USACE 1998	87.5	17.5	mouse	0.03	USACE 1998	5.05E+00	1.01E+00	5.05E+00	1.01E+00	8.30E+01	1.66E+01	2.50E+01	4.99E+00	1.04E+02	2.08E+01
Benzo(a)anthracene	56-55-3	--	--	--	USACE 1998	2	0.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	2.91E+00	2.91E-01	8.74E-01	8.74E-02	3.64E+00	3.64E-01
Benzo(a)pyrene	50-32-8	2.50E+00	5.00E-01	duck	ORNL 1996	10	1	mouse	0.03	ORNL 1996	2.50E+00	5.00E-01	2.50E+00	5.00E-01	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(b)fluoranthene	205-99-2	--	--	--	ORNL 1996	10	1	mouse	0.03	ORNL 1996	NV	NV	NV	NV	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(g,h,i)perylene	191-24-2	--	--	--	USACE 1998	2.5	0.5	mouse	0.03	USACE 1998	NV	NV	NV	NV	2.37E+00	4.74E-01	7.13E-01	1.43E-01	2.97E+00	5.95E-01
Benzo(k)fluoranthene	207-08-9	--	--	--	USACE 1998	72	7.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.05E+02	1.05E+01	3.15E+01	3.15E+00	1.31E+02	1.31E+01
Chrysene	218-01-9	--	--	--	USACE 1998	99	9.9	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.44E+02	1.44E+01	4.32E+01	4.32E+00	1.80E+02	1.80E+01
Dibenzo(a,h)anthracene	53-70-3	--	--	--	USACE 1998	13.33	1.333	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.94E+01	1.94E+00	5.82E+00	5.82E-01	2.43E+01	2.43E+00
Fluoranthene	206-44-0	--	--	--	USACE 1998	100	20	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.45E+02	2.91E+01	4.37E+01	8.74E+00	1.82E+02	3.64E+01
Fluorene	86-73-7	5.05E+00	1.01E+00	red-winged blackbird	USACE 1998	2.5	0.5	mouse	0.03	USACE 1998	5.05E+00	1.01E+00	5.05E+00	1.01E+00	2.37E+00	4.74E-01	7.13E-01	1.43E-01	2.97E+00	5.95E-01
Indeno(1,2,3-cd)pyrene	193-39-5	--	--	--	USACE 1998	72	7.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.05E+02	1.05E+01	3.15E+01	3.15E+00	1.31E+02	1.31E+01
Phenanthrene	85-01-8	5.65E+00	1.13E+00	red-winged blackbird	USACE 1998	35	7	mouse	0.03	USACE 1998	5.65E+00	1.13E+00	5.65E+00	1.13E+00	3.32E+01	6.64E+00	9.98E+00	2.00E+00	4.16E+01	8.32E+00
Pyrene	129-00-0	--	--	--	USACE 1998	40	8	mouse	0.03	USACE 1998	NV	NV	NV	NV	3.80E+01	7.59E+00	1.14E+01	2.28E+00	4.76E+01	9.51E+00
Pesticides																				
Dieldrin	60-57-1	7.70E-01	7.70E-02	barn owl	ORNL 1996	0.2	0.02	rat	0.35	ORNL 1996	7.70E-01	7.70E-02	7.70E-01	7.70E-02	3.51E-01	3.51E-02	1.05E-01	1.05E-02	4.40E-01	4.40E-02
PCBs																				
Aroclor 1254	11097-69-1	1.80E+00	1.80E-01	ring-necked pheasant	ORNL 1996	3.43	1.37	mink	1	Aroclor 1016 Value	1.80E+00	1.80E-01	1.80E+00	1.80E-01	7.82E+00	3.12E+00	2.35E+00	9.39E-01	9.80E+00	3.91E+00
Aroclor 1260	11096-82-5	1.80E+00	1.80E-01	ring-necked pheasant	Aroclor 1254 Value	3.43	1.37	mink	1	Aroclor 1016 Value	1.80E+00	1.80E-01	1.80E+00	1.80E-01	7.82E+00	3.12E+00	2.35E+00	9.39E-01	9.80E+00	3.91E+00

Notes:
CAS = Chemical Abstract Service
TRV = Toxic Reference Value
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw/d = Body Weight Per Day
kg = kilogram
PAH = Polynuclear Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
USACE = U.S. Army Corps of Engineers
ORNL = Oak Ridge National Laboratory
NOAEL and LOAEL values were derived from acute values by applying an uncertainty factor of 150.
LD_{50} = Lethal Dose for 50% of test organisms

Sources:

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USCHPPM 2007. U.S. Army Center for Health Promotion and Preventive Medicine (USCHPPM) 2007, Wildlife Toxicity Assessment for Nitroglycerine (NG). USACHPPM Document No: 37-EJ-1138-01F. November.
U.S. EPA 1988. Recommendations for and documentation of biological values for use in risk assessment. Environmental Criteria and Assessment Office. Cincinnati, OH. EPA/600/6-87/008.

[4]- Mature rat body weight (average male & female) = 0.325 kg (U.S. EPA, 1988).

Table F.3-11
SSAs 30 and 79 - Soil Biocaccumulation/Bioconcentration Factors- Soil to Plant Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

					Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected K_{ow}**	**Source**	**BAF**	**Basis**	**C_s MDC (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	1.103	90th percentile	3.3	0.0375	Median	Bechtel Jacobs 1998
CADMIUM	7440-43-9	-- - --	--	--	3.25	90th percentile	2.2	0.4348	$C_p = e^{(0.546*ln(Cs) - 0.475)}$	Bechtel Jacobs 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.084	90th percentile	27	0.0410	Median	Bechtel Jacobs 1998
COPPER	7440-50-8	-- - --	--	--	0.625	90th percentile	13.5	0.4028	$C_p = e^{(0.394*ln(Cs) + 0.668)}$	Bechtel Jacobs 1998
LEAD	7439-92-1	-- - --	--	--	0.468	90th percentile	43	0.0508	$C_p = e^{(0.561*ln(Cs) - 1.328)}$	Bechtel Jacobs 1998
MERCURY	7439-97-6	-- - --	--	--	5	90th percentile	0.11	1.0116	$C_p = e^{(0.544*ln(Cs) - 0.995)}$	Bechtel Jacobs 1998
NICKEL	7440-02-0	-- - --	--	--	1.411	90th percentile	12	0.0579	$C_p = e^{(0.748*ln(Cs) + 2.223)}$	Bechtel Jacobs 1998
SELENIUM	7782-49-2	-- - --	--	--	3.012	90th percentile	0.44	0.4666	$C_p = e^{(1.104*ln(Cs) - 0.677)}$	Bechtel Jacobs 1998
SILVER	7440-22-4	-- - --	--	--	0.037	90th percentile	0.083	0.0140	Median	Bechtel Jacobs 1998
ZINC	7440-66-6	-- - --	--	--	1.82	90th percentile	110	0.5937	$C_p = e^{(0.554*ln(Cs) + 1.575)}$	Bechtel Jacobs 1998
Pesticides										
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	1	Default Value	0.000455	0.41	Median	USEPA 2005
PCBs										
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	0.00678	K_{ow} Regression Eq.	0.0285	0.0068	K_{ow} Regression Eq.	Travis and Arms 1988
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	0.00455	K_{ow} Regression Eq.	0.013	0.0045	K_{ow} Regression Eq.	Travis and Arms 1988
VOCs and SVOCs										
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	4.6	Anthracene as Surrogate	0.03085	2.4423	$C_p = e^{(-0.8556*ln(Cs) - 5.562)}$	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	4.6	Maximum	0.031825	0.7987	$C_p = e^{(0.778*ln(Cs) - 0.989)}$	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	0.54	Maximum	0.1235	0.1558	$C_p = e^{(0.5944*ln(Cs) - 2.708)}$	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	3.3	Maximum	0.065	0.1363	$C_p = e^{(0.975*ln(Cs) - 2.0615)}$	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	0.48	Maximum	0.1055	0.31	Median BAF	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.6	Maximum	0.04	0.2187	$C_p = e^{(1.183*ln(Cs) - 0.931)}$	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Maximum	0.063	0.1704	$C_p = e^{(0.860*ln(Cs) - 2.158)}$	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1.05	Maximum	0.095	0.1732	$C_p = e^{(0.594*ln(Cs) - 2.708)}$	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	0.23	Maximum	0.02345	0.13	Median BAF	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	6	Maximum	0.237	0.50	Median BAF	USEPA 2005
FLUORENE	86-73-7	4.04 - 4.4	4.21	USEPA 1995	0.057	Maximum	0.0387	1.6036	$C_p = e^{(-0.856*ln(Cs) - 5.562)}$	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.65	USEPA 1995	0.15	Maximum	0.055	0.11	Median BAF	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	11	Maximum	0.288	1.3582	$C_p = e^{(0.620*ln(Cs) - 0.167)}$	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	3.7	Maximum	0.247	0.72	Median BAF	USEPA 2005

Notes:
CAS = Chemical Abstract Services
BAF = Bioaccumulation Factor
K_{ow} = Chemical octanol-water coefficient
NC = Not Calculated
C_s = Chemical Concentration in Soil
C_p = Chemical Concentration in Plant Matter (dry weight)
[1] = BAFs for chemical using Cp regression equation calculated by as follows: BAF = C_p/C_s
MDC = Maximum Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. 1995. Karickhoff, S.W. , and J.M. Long. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.
Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision
Bechtel Jacobs 1998: Bechtel Jacobs Company. September 1998. Emperical Models for the Uptake of Inorganic Chemical from Soil by Plants.
USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.
Travis and Arms 1988: Travis and Arms. 1988. Bioconcentration of Organics in Beef, Milk, and Vegetation. BAF values calculated for Tier I using lowest Kow value and for Tier II using the selected Kow value.
K_{ow} Regression Equation: BAF =10^((-0.578*K_{ow})+1.588))

Table F.3-12
SSAs 30 and 79 - Soil Biocaccumulation/Bioconcentration Factors - Soil to Invertebrate Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment		Refined Assessment			
Chemical	CAS	Log K_{ow} Range	Selected Log K_{ow}	Reference	K_{oc}	Reference	Value	Basis	C_s MDC (mg/kg)	BAF[1]	Basis	Source
Inorganics												
ARSENIC	7440-38-2	-- - --	--	--	--	--	0.523	90th percentile	3.3	0.1700	$C_e = e^{(0.706*ln(Cs) - 1.421)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	--	--	40.69	90th percentile	2.2	7.0453	$C_e = e^{(0.795*ln(Cs) + 2.114)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	--	--	3.162	90th percentile	27	0.31	Median	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	--	--	1.531	90th percentile	13.5	0.52	Median	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	--	--	1.522	90th percentile	43	0.3891	$C_e = e^{(0.807*ln(Cs) - 0.218)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	--	--	20.625	90th percentile	0.11	1.69	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	--	--	4.73	90th percentile	12	1.06	Median	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	--	--	1.34	90th percentile	0.44	1.1551	$C_e = e^{(0.733*ln(Cs) - 0.075)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	--	--	15.3	90th percentile	0.083	2.05	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	--	--	12.885	90th percentile	110	3.6338	$C_e = e^{(0.328*ln(Cs) + 4.449)}$	Sample et al. 1998
Pesticides												
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	--	--	79.58	Maximum	0.000455	32.757	$C_e = e^{(0.876*ln(Cs) + 2.276)}$	USEPA 2005
PCBs												
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	--	--	15.9	90th percentile	0.0285	6.67	Median	Sample et al. 1998
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	--	--	15.9	90th percentile	0.013	6.67	Median	Sample et al. 1998
VOCs and SVOCs												
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	1.09E+04	USEPA 2005	5.437	Jager Model	0.03085	1.736	Jager Model	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	2.35E+04	USEPA 2005	4.692	Jager Model	0.031825	2.844	Jager Model	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	3.58E+05	USEPA 2005	2.238	Jager Model	0.1235	1.869	Jager Model	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	9.69E+05	USEPA 2005	2.488	Jager Model	0.065	1.570	Jager Model	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	5.96E+05	USEPA 2005	4.563	Jager Model	0.1055	3.056	Jager Model	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.43E+06	USEPA 2005	6.992	Jager Model	0.04	3.468	Jager Model	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	5.96E+05	USEPA 2005	3.517	Jager Model	0.063	3.056	Jager Model	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	2.48E+05	USEPA 2005	3.231	Jager Model	0.095	2.698	Jager Model	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	1.79E+06	USEPA 2005	3.974	Jager Model	0.02345	2.716	Jager Model	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	4.95	USEPA 1995	4.17E+04	USEPA 2005	8.622	Jager Model	0.237	3.571	Jager Model	USEPA 2005
FLUORENE	86-73-7	4.04 - 4.4	4.18	USEPA 1995	2.83E+03	USEPA 2005	17.485	Jager Model	0.0387	11.253	Jager Model	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.58	USEPA 1995	1.17E+06	USEPA 2005	4.412	Jager Model	0.055	3.360	Jager Model	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	3.30E+04	USEPA 2005	2.108	Jager Model	0.288	2.025	Jager Model	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	4.88	USEPA 1995	6.27E+04	USEPA 2005	7.440	Jager Model	0.247	2.064	Jager Model	USEPA 2005

Notes:

CAS = Chemical Abstract Services
C_s = Chemical Concentration in Soil
C_e = Chemical Concentration in Earthworm (dry weight)
K_{ow} = Chemical octanol-water coefficient
MDC = Maximum Detected Concentration
K_{oc} = Chemical water to soil partitioning coefficient
K_{ww} = Chemical worm to soil partitioning coefficient
foc = fraction organic content in soil (0.0085 from physical sample)
[1] = BAFs for chemical using Ce regression equation calculated by as follows: BAF = C_e/C_s

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.
Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision
Sample et al. 1998: Sample, B.E., Beauchamp, J.J., Efroymson, R.A., Sutter, G.W., Ashwood, T.L., February 1998. Development and Validation of Bioaccumulation Models for Earthworms.
Jager Model: As presented in USEPA 2005, Guidance for Developing Ecological Screening Levels, Appendix 4-1, Table 5.
BAF = K_{ww}(L/kg worm dw)/K_d (L/kg soil dw)
K_{ww} (dry weight) = 10^(0.87*logK_{ow} - 2.0) / 0.16
Wet weight to dry weight assuming 16% solids
$K_d = f_{oc} * K_{oc}$
foc = 0.0085 from site specific physical soil data
Note: The maximum Kow utilized for the preliminary calculation and the Selected Kow utilized for the refined calculation.
Edwards and Bohlen 1992: Edwards, C.A. and Bohlen, P.J. 1992. The effects of toxic chemicals on earthworms. Reviews of Environmental Contamination and Toxicology, 125: 23-99.
USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.
SRC/CF: Syracuse Research Corporation (SRC). Physical Properties Database. http://www.syrres.com/esc/physdemo.htm

Table F.3-13
SSAs 30 and 79 - Soil Bioaccumulation/Bioconcentration Factors - Soil to Mammal Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

					Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected K_{ow}**	**Reference**	**Value**	**Basis**	**C_s MDC (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	0.0149	90th percentile	3.3	0.0063	$C_m = e^{(0.819*\ln(Cs) - 4.847)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	3.9905	90th percentile	2.2	0.1877	$C_m = e^{(0.472*\ln(Cs) - 1.257)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.333	90th percentile	27	0.0966	$C_m = e^{(0.734*\ln(Cs) - 1.46)}$	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	1.045	90th percentile	13.5	0.8312	$C_m = e^{(0.144*\ln(Cs) + 2.042)}$	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	0.2864	90th percentile	43	0.1324	$C_m = e^{(0.442*\ln(Cs) + 0.0761)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	0.192	90th percentile	0.11	0.0543	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	0.5891	90th percentile	12	0.2073	$C_m = e^{(0.466*\ln(Cs) - 0.246)}$	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	1.1867	90th percentile	0.44	1.1009	$C_m = e^{(0.376*\ln(Cs) -0.416)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	0.5013	90th percentile	0.083	0.004	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	2.6878	90th percentile	110	0.9946	$C_m = e^{(0.071*\ln(Cs) + 4.363)}$	Sample et al. 1998
Pesticides										
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	1	Default Value	0.000455	0.0005	$C_m = e^{(0.6076*\ln(Cs) - 1.9582)}$	USEPA 2005
PCBs										
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	1	Default Value	0.0285	1	Default Value	--
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	1	Default Value	0.013	1	Default Value	--
VOCs and SVOCs										
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	1	Default Value	0.03085	0	--	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	1	Default Value	0.031825	0	--	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	1	Default Value	0.1235	0	--	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	1	Default Value	0.065	0	--	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	1	Default Value	0.1055	0	--	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1	Default Value	0.04	0	--	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Default Value	0.063	0	--	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1	Default Value	0.095	0	--	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	1	Default Value	0.02345	0	--	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	1	Default Value	0.237	0	--	USEPA 2005
FLUORENE	86-73-7	4.04 - 4.4	4.21	USEPA 1995	1	Default Value	0.0387	0	--	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.65	USEPA 1995	1	Default Value	0.055	0	--	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	1	Default Value	0.288	0	--	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	1	Default Value	0.247	0	--	USEPA 2005

Notes:
CAS = Chemical Abstract Services
C_s = Chemical Concentration in Soil
C_d = Chemical Concentration in Prey (assumed to be 100% earthworms (dry weight))
C_m = Chemical Concentration in Mammal (dry weight)
K_{ow} = Chemical octanol to water partitioning coefficient
[1] = BAFs for chemical using Ce regression equation calculated by as follows: BAF = C_m/C_s
MDC = Maximum Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.
Sample et al. 1998: Sample et al. 1998. Development and Validation of Bioaccumulation Models for Small Mammals.
Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision
USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

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Table F.3-14
SSAs 30 and 79 - Preliminary Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	3.3	1.1E+00	3.6E+00	1.8E-01	1.8E+00	**1.83E+01**	**1.8E+00**
Cadmium	7440-43-9	1.69E+00	1.69E+01	2.2	3.3E+00	7.2E+00	8.8E-01	8.8E+00	**2.51E+00**	2.5E-01
Chromium	7440-47-3	5.75E+00	5.75E+01	27	8.4E-02	2.3E+00	9.1E+01	9.1E+02	2.98E-01	3.0E-02
Copper	7440-50-8	2.67E+01	3.51E+01	13.5	6.3E-01	8.4E+00	7.0E+01	9.2E+01	1.93E-01	1.5E-01
Lead	7439-92-1	1.40E+01	1.40E+02	43	4.7E-01	2.0E+01	4.8E+01	4.8E+02	8.87E-01	8.9E-02
Mercury	7439-97-6	3.01E+01	3.01E+02	0.11	5.0E+00	5.5E-01	1.0E+01	1.0E+02	1.08E-02	1.1E-03
Nickel	7440-02-0	7.01E+01	1.40E+02	12	1.4E+00	1.7E+01	8.3E+01	1.7E+02	1.44E-01	7.2E-02
Selenium	7782-49-2	3.51E-01	5.79E-01	0.44	3.0E+00	1.3E+00	2.0E-01	3.2E-01	**2.24E+00**	**1.4E+00**
Silver	7440-22-4	3.89E+01	3.89E+02	0.083	3.7E-02	3.1E-03	1.1E+03	1.1E+04	7.65E-05	7.6E-06
Zinc	7440-66-6	2.81E+02	5.61E+02	110	1.8E+00	2.0E+02	2.6E+02	5.2E+02	4.25E-01	2.1E-01
Pesticides										
Dieldrin	60-57-1	3.51E-02	3.51E-01	0.000455	1.0E+00	4.6E-04	5.8E-02	5.8E-01	7.81E-03	7.8E-04
PCBs										
Aroclor 1254	11097-69-1	6.45E-02	6.45E-01	0.0285	6.8E-03	1.9E-04	3.6E+00	3.6E+01	8.00E-03	8.0E-04
Aroclor 1260	11096-82-5	6.45E-02	6.45E-01	0.013	4.5E-03	5.9E-05	3.8E+00	3.8E+01	3.38E-03	3.4E-04
SVOCs										
Acenaphthene	83-32-9	1.66E+01	8.30E+01	0.03085	4.6E+00	1.4E-01	6.1E+00	3.1E+01	5.05E-03	1.0E-03
Anthracene	120-12-7	4.80E+02	4.80E+03	0.031825	4.6E+00	1.5E-01	1.8E+02	1.8E+03	1.81E-04	1.8E-05
Benzo(a)anthracene	56-55-3	2.91E-01	2.91E+00	0.1235	5.4E-01	6.7E-02	8.8E-01	8.8E+00	1.41E-01	1.4E-02
Benzo(a)pyrene	50-32-8	9.49E-01	9.49E+00	0.065	3.3E+00	2.1E-01	4.9E-01	4.9E+00	1.34E-01	1.3E-02
Benzo(b)fluoranthene	205-99-2	9.49E-01	9.49E+00	0.1055	4.8E-01	5.1E-02	3.2E+00	3.2E+01	3.30E-02	3.3E-03
Benzo(g,h,i)perylene	191-24-2	4.74E-01	2.37E+00	0.04	1.6E+00	6.4E-02	5.0E-01	2.5E+00	8.05E-02	1.6E-02
Benzo(k)fluoranthene	207-08-9	1.05E+01	1.05E+02	0.063	1.0E+00	6.3E-02	1.7E+01	1.7E+02	3.63E-03	3.6E-04
Chrysene	218-01-9	1.44E+01	1.44E+02	0.095	1.1E+00	1.0E-01	2.3E+01	2.3E+02	4.17E-03	4.2E-04
Dibenz(a,h)anthracene	53-70-3	1.94E+00	1.94E+01	0.02345	2.3E-01	5.4E-03	1.3E+01	1.3E+02	1.81E-03	1.8E-04
Fluoranthene	206-44-0	2.91E+01	1.45E+02	0.237	6.0E+00	1.4E+00	8.2E+00	4.1E+01	2.89E-02	5.8E-03
Fluorene	86-73-7	4.74E-01	2.37E+00	0.0387	5.7E-02	2.2E-03	1.0E+01	5.0E+01	3.89E-03	7.8E-04
Indeno(1,2,3-cd)pyrene	193-39-5	1.05E+01	1.05E+02	0.055	1.5E-01	8.3E-03	1.0E+02	1.0E+03	5.38E-04	5.4E-05
Phenanthrene	85-01-8	6.64E+00	3.32E+01	0.288	1.1E+01	3.2E+00	1.0E+00	5.1E+00	2.81E-01	5.6E-02
Pyrene	129-00-0	7.59E+00	3.80E+01	0.247	3.7E+00	9.1E-01	3.5E+00	1.7E+01	7.13E-02	1.4E-02

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

Meadow Vole Specific Data from Table F.3-9

BW=	0.017	kg
IR_{food} =	0.010	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00024	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.3-15
SSAs 30 and 79 - Refined Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	3.3	3.8E-02	1.2E-01	9.0E+00	9.0E+01	3.7E-01	3.7E-02
Cadmium	7440-43-9	1.69E+00	1.69E+01	2.2	4.3E-01	9.6E-01	1.7E+01	1.7E+02	1.3E-01	1.3E-02
Selenium	7782-49-2	3.51E-01	5.79E-01	0.44	4.7E-01	2.1E-01	3.3E+00	5.5E+00	1.3E-01	8.1E-02

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Meadow Vole Specific Data from Table F.3-9

BW=	0.037	kg
IR_{food} =	0.008	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	1.00	unitless
IR_{soil} =	0.00019	kg dw/day
AF =	1	unitless

Table F.3-16
SSAs 30 and 79 - Preliminary Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	1.50E-01	1.50E+00	3.3	1.1E+00	3.6E+00	5.2E-01	1.7E+00	Plant	5.1E-01	5.1E+00	**6.5E+00**	6.5E-01
Cadmium	7440-43-9	2.11E+00	2.11E+01	2.2	3.3E+00	7.2E+00	4.1E+01	9.0E+01	Invertebrate	2.2E-01	2.2E+00	**1.0E+01**	**1.0E+00**
Chromium	7440-47-3	7.21E+00	7.21E+01	27	8.4E-02	2.3E+00	3.2E+00	8.5E+01	Invertebrate	9.1E+00	9.1E+01	**3.0E+00**	3.0E-01
Copper	7440-50-8	3.34E+01	4.40E+01	13.5	6.3E-01	8.4E+00	1.5E+00	2.1E+01	Invertebrate	8.4E+01	1.1E+02	1.6E-01	1.2E-01
Lead	7439-92-1	1.76E+01	1.76E+02	43	4.7E-01	2.0E+01	1.5E+00	6.5E+01	Invertebrate	4.4E+01	4.4E+02	9.7E-01	9.7E-02
Mercury	7439-97-6	3.77E+01	3.77E+02	0.11	5.0E+00	5.5E-01	2.1E+01	2.3E+00	Invertebrate	7.6E+00	7.6E+01	1.5E-02	1.5E-03
Nickel	7440-02-0	8.79E+01	1.76E+02	12	1.4E+00	1.7E+01	4.7E+00	5.7E+01	Invertebrate	7.5E+01	1.5E+02	1.6E-01	8.0E-02
Selenium	7782-49-2	4.40E-01	7.25E-01	0.44	3.0E+00	1.3E+00	1.3E+00	5.9E-01	Plant	5.8E-01	9.6E-01	7.5E-01	4.6E-01
Silver	7440-22-4	4.88E+01	4.88E+02	0.083	3.7E-02	3.1E-03	1.5E+01	1.3E+00	Invertebrate	1.3E+01	1.3E+02	6.3E-03	6.3E-04
Zinc	7440-66-6	3.52E+02	7.03E+02	110	1.8E+00	2.0E+02	1.3E+01	1.4E+03	Invertebrate	1.1E+02	2.3E+02	9.8E-01	4.9E-01
Pesticides													
Dieldrin	60-57-1	4.40E-02	4.40E-01	0.000455	1.0E+00	4.6E-04	8.0E+01	3.6E-02	Invertebrate	2.3E-03	2.3E-02	2.0E-01	2.0E-02
PCBs													
Aroclor 1254	11097-69-1	8.09E-02	8.09E-01	0.0285	6.8E-03	1.9E-04	1.6E+01	4.5E-01	Invertebrate	2.1E-02	2.1E-01	**1.4E+00**	1.4E-01
Aroclor 1260	11096-82-5	8.09E-02	8.09E-01	0.013	4.5E-03	5.9E-05	1.6E+01	2.1E-01	Invertebrate	2.1E-02	2.1E-01	6.2E-01	6.2E-02
SVOCs													
Acenaphthene	83-32-9	2.08E+01	1.04E+02	0.03085	4.6E+00	1.4E-01	5.4E+00	1.7E-01	Invertebrate	1.6E+01	7.8E+01	2.0E-03	4.0E-04
Anthracene	120-12-7	6.01E+02	6.01E+03	0.031825	4.6E+00	1.5E-01	4.7E+00	1.5E-01	Invertebrate	5.2E+02	5.2E+03	6.1E-05	6.1E-06
Benzo(a)anthracene	56-55-3	3.64E-01	3.64E+00	0.1235	5.4E-01	6.7E-02	2.2E+00	2.8E-01	Invertebrate	6.4E-01	6.4E+00	1.9E-01	1.9E-02
Benzo(a)pyrene	50-32-8	1.19E+00	1.19E+01	0.065	3.3E+00	2.1E-01	2.5E+00	1.6E-01	Plant	1.4E+00	1.4E+01	4.5E-02	4.5E-03
Benzo(b)fluoranthene	205-99-2	1.19E+00	1.19E+01	0.1055	4.8E-01	5.1E-02	4.6E+00	4.8E-01	Invertebrate	1.1E+00	1.1E+01	1.0E-01	1.0E-02
Benzo(g,h,i)perylene	191-24-2	5.95E-01	2.97E+00	0.04	1.6E+00	6.4E-02	7.0E+00	2.8E-01	Invertebrate	3.5E-01	1.7E+00	1.1E-01	2.3E-02
Benzo(k)fluoranthene	207-08-9	1.31E+01	1.31E+02	0.063	1.0E+00	6.3E-02	3.5E+00	2.2E-01	Invertebrate	1.5E+01	1.5E+02	4.2E-03	4.2E-04
Chrysene	218-01-9	1.80E+01	1.80E+02	0.095	1.1E+00	1.0E-01	3.2E+00	3.1E-01	Invertebrate	2.2E+01	2.2E+02	4.3E-03	4.3E-04
Dibenz(a,h)anthracene	53-70-3	2.43E+00	2.43E+01	0.02345	2.3E-01	5.4E-03	4.0E+00	9.3E-02	Invertebrate	2.5E+00	2.5E+01	9.5E-03	9.5E-04
Fluoranthene	206-44-0	3.64E+01	1.82E+02	0.237	6.0E+00	1.4E+00	8.6E+00	2.0E+00	Invertebrate	1.7E+01	8.7E+01	1.4E-02	2.7E-03
Fluorene	86-73-7	5.95E-01	2.97E+00	0.0387	5.7E-02	2.2E-03	1.7E+01	6.8E-01	Invertebrate	1.4E-01	7.0E-01	2.8E-01	5.5E-02
Indeno(1,2,3-cd)pyrene	193-39-5	1.31E+01	1.31E+02	0.055	1.5E-01	8.3E-03	4.4E+00	2.4E-01	Invertebrate	1.2E+01	1.2E+02	4.6E-03	4.6E-04
Phenanthrene	85-01-8	8.32E+00	4.16E+01	0.288	1.1E+01	3.2E+00	2.1E+00	6.1E-01	Plant	3.1E+00	1.6E+01	9.2E-02	1.8E-02
Pyrene	129-00-0	9.51E+00	4.76E+01	0.247	3.7E+00	9.1E-01	7.4E+00	1.8E+00	Invertebrate	5.2E+00	2.6E+01	4.7E-02	9.4E-03

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Short-tailed Shrew Specific Data from Table F.3-9

BW=	0.0125	kg
IR_{food} =	0.003	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00039	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.3-17
SSAs 30 and 79 - Refined Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Arsenic	7440-38-2	1.50E-01	1.50E+00	3.3	3.8E-02	1.2E-01	1.70E-01	5.6E-01	4.0E+00	4.0E+01	8.3E-01	8.3E-02
Cadmium	7440-43-9	2.11E+00	2.11E+01	2.2	4.3E-01	9.6E-01	7.05E+00	1.5E+01	2.5E+00	2.5E+01	8.7E-01	8.7E-02
Chromium	7440-47-3	7.21E+00	7.21E+01	27	4.1E-02	1.1E+00	3.06E-01	8.3E+00	1.4E+02	1.4E+03	2.0E-01	2.0E-02
PCBs												
Aroclor 1254	11097-69-1	8.09E-02	8.09E-01	0.0285	6.8E-03	1.9E-04	6.67E+00	1.9E-01	1.0E-01	1.0E+00	2.8E-01	2.8E-02

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Short-tailed Shrew Specific Data from Table F.3-9

Short-tailed Shrew

BW=	0.015	kg
IR_{food} =	0.002	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.14	unitless
DF_{inv} =	0.86	unitless
IR_{soil} =	0.00026	kg dw/day
IR_{water} =	0.002	L/day
AF =	1.000	unitless

Table F.3-18
SSAs 30 and 79 - Preliminary Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment											
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics															
Arsenic	7440-38-2	3.59E-02	3.59E-01	3.3	1.1E+00	3.6E+00	5.2E-01	1.7E+00	1.5E-02	4.9E-02	Plant	2.7E-01	2.7E+00	**1.2E+01**	**1.2E+00**
Cadmium	7440-43-9	5.07E-01	5.07E+00	2.2	3.3E+00	7.2E+00	4.1E+01	9.0E+01	4.0E+00	8.8E+00	Invertebrate	1.1E-01	1.1E+00	**2.0E+01**	**2.0E+00**
Chromium	7440-47-3	1.73E+00	1.73E+01	27	8.4E-02	2.3E+00	3.2E+00	8.5E+01	3.3E-01	9.0E+00	Invertebrate	4.7E+00	4.7E+01	**5.8E+00**	5.8E-01
Copper	7440-50-8	8.02E+00	1.06E+01	13.5	6.3E-01	8.4E+00	1.5E+00	2.1E+01	1.0E+00	1.4E+01	Invertebrate	4.4E+01	5.8E+01	3.0E-01	2.3E-01
Lead	7439-92-1	4.22E+00	4.22E+01	43	4.7E-01	2.0E+01	1.5E+00	6.5E+01	2.9E-01	1.2E+01	Invertebrate	2.3E+01	2.3E+02	**1.8E+00**	1.8E-01
Mercury	7439-97-6	9.05E+00	9.05E+01	0.11	5.0E+00	5.5E-01	2.1E+01	2.3E+00	1.9E-01	2.1E-02	Invertebrate	3.8E+00	3.8E+01	2.9E-02	2.9E-03
Nickel	7440-02-0	2.11E+01	4.22E+01	12	1.4E+00	1.7E+01	4.7E+00	5.7E+01	5.9E-01	7.1E+00	Invertebrate	3.8E+01	7.6E+01	3.1E-01	1.6E-01
Selenium	7782-49-2	1.05E-01	1.74E-01	0.44	3.0E+00	1.3E+00	1.3E+00	5.9E-01	1.2E+00	5.2E-01	Plant	3.0E-01	4.9E-01	**1.5E+00**	8.9E-01
Silver	7440-22-4	1.17E+01	1.17E+02	0.083	3.7E-02	3.1E-03	1.5E+01	1.3E+00	5.0E-01	4.2E-02	Invertebrate	6.6E+00	6.6E+01	1.3E-02	1.3E-03
Zinc	7440-66-6	8.44E+01	1.69E+02	110	1.8E+00	2.0E+02	1.3E+01	1.4E+03	2.7E+00	3.0E+02	Invertebrate	5.6E+01	1.1E+02	**2.0E+00**	9.8E-01
Pesticides															
Dieldrin	60-57-1	1.05E-02	1.05E-01	0.000455	1.0E+00	4.6E-04	8.0E+01	3.6E-02	1.0E+00	4.6E-04	Invertebrate	1.1E-03	1.1E-02	4.0E-01	4.0E-02
PCBs															
Aroclor 1254	11097-69-1	1.94E-02	1.94E-01	0.0285	6.8E-03	1.9E-04	1.6E+01	4.5E-01	1.0E+00	2.9E-02	Invertebrate	1.1E-02	1.1E-01	**2.7E+00**	2.7E-01
Aroclor 1260	11096-82-5	1.94E-02	1.94E-01	0.013	4.5E-03	5.9E-05	1.6E+01	2.1E-01	1.0E+00	1.3E-02	Invertebrate	1.1E-02	1.1E-01	**1.2E+00**	1.2E-01
SVOCs															
Acenaphthene	83-32-9	4.99E+00	2.50E+01	0.03085	4.6E+00	1.4E-01	5.4E+00	1.7E-01	1.0E+00	3.1E-02	Invertebrate	7.9E+00	3.9E+01	3.9E-03	7.8E-04
Anthracene	120-12-7	1.44E+02	1.44E+03	0.031825	4.6E+00	1.5E-01	4.7E+00	1.5E-01	1.0E+00	3.2E-02	Invertebrate	2.6E+02	2.6E+03	1.2E-04	1.2E-05
Benzo(a)anthracene	56-55-3	8.74E-02	8.74E-01	0.1235	5.4E-01	6.7E-02	2.2E+00	2.8E-01	1.0E+00	1.2E-01	Invertebrate	3.3E-01	3.3E+00	3.7E-01	3.7E-02
Benzo(a)pyrene	50-32-8	2.85E-01	2.85E+00	0.065	3.3E+00	2.1E-01	2.5E+00	1.6E-01	1.0E+00	6.5E-02	Plant	7.4E-01	7.4E+00	8.8E-02	8.8E-03
Benzo(b)fluoranthene	205-99-2	2.85E-01	2.85E+00	0.1055	4.8E-01	5.1E-02	4.6E+00	4.8E-01	1.0E+00	1.1E-01	Invertebrate	5.4E-01	5.4E+00	2.0E-01	2.0E-02
Benzo(g,h,i)perylene	191-24-2	1.43E-01	7.13E-01	0.04	1.6E+00	6.4E-02	7.0E+00	2.8E-01	1.0E+00	4.0E-02	Invertebrate	1.8E-01	8.8E-01	2.3E-01	4.6E-02
Benzo(k)fluoranthene	207-08-9	3.15E+00	3.15E+01	0.063	1.0E+00	6.3E-02	3.5E+00	2.2E-01	1.0E+00	6.3E-02	Invertebrate	7.7E+00	7.7E+01	8.2E-03	8.2E-04
Chrysene	218-01-9	4.32E+00	4.32E+01	0.095	1.1E+00	1.0E-01	3.2E+00	3.1E-01	1.0E+00	9.5E-02	Invertebrate	1.1E+01	1.1E+02	8.3E-03	8.3E-04
Dibenz(a,h)anthracene	53-70-3	5.82E-01	5.82E+00	0.02345	2.3E-01	5.4E-03	4.0E+00	9.3E-02	1.0E+00	2.3E-02	Invertebrate	1.3E+00	1.3E+01	1.9E-02	1.9E-03
Fluoranthene	206-44-0	8.74E+00	4.37E+01	0.237	6.0E+00	1.4E+00	8.6E+00	2.0E+00	1.0E+00	2.4E-01	Invertebrate	8.7E+00	4.4E+01	2.7E-02	5.4E-03
Fluorene	86-73-7	1.43E-01	7.13E-01	0.0387	5.7E-02	2.2E-03	1.7E+01	6.8E-01	1.0E+00	3.9E-02	Invertebrate	7.0E-02	3.5E-01	5.5E-01	1.1E-01
Indeno(1,2,3-cd)pyrene	193-39-5	3.15E+00	3.15E+01	0.055	1.5E-01	8.3E-03	4.4E+00	2.4E-01	1.0E+00	5.5E-02	Invertebrate	6.1E+00	6.1E+01	9.0E-03	9.0E-04
Phenanthrene	85-01-8	2.00E+00	9.98E+00	0.288	1.1E+01	3.2E+00	2.1E+00	6.1E-01	1.0E+00	2.9E-01	Plant	1.6E+00	7.8E+00	1.8E-01	3.7E-02
Pyrene	129-00-0	2.28E+00	1.14E+01	0.247	3.7E+00	9.1E-01	7.4E+00	1.8E+00	1.0E+00	2.5E-01	Invertebrate	2.6E+00	1.3E+01	9.4E-02	1.9E-02

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

Red FoxSpecific Data from Table F.3-9

BW=	2.9500	kg
IR_{food} =	0.342	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00960	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.3-19
SSAs 30 and 79 - Refined Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment										
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics														
Arsenic	7440-38-2	3.59E-02	3.59E-01	3.3	3.8E-02	1.2E-01	1.7E-01	5.6E-01	6.3E-03	2.1E-02	2.2E+03	2.2E+04	1.5E-03	1.5E-04
Cadmium	7440-43-9	5.07E-01	5.07E+00	2.2	4.3E-01	9.6E-01	7.0E+00	1.5E+01	1.9E-01	4.1E-01	2.7E+03	2.7E+04	8.2E-04	8.2E-05
Chromium	7440-47-3	1.73E+00	1.73E+01	27	4.1E-02	1.1E+00	3.1E-01	8.3E+00	9.7E-02	2.6E+00	3.9E+04	3.9E+05	6.9E-04	6.9E-05
Lead	7439-92-1	4.22E+00	4.22E+01	43	5.1E-02	2.2E+00	3.9E-01	1.7E+01	1.3E-01	5.7E+00	7.5E+04	7.5E+05	5.7E-04	5.7E-05
Selenium	7782-49-2	1.05E-01	1.74E-01	0.44	4.7E-01	2.1E-01	1.2E+00	5.1E-01	1.1E+00	4.8E-01	2.9E+02	4.8E+02	1.5E-03	9.2E-04
Zinc	7440-66-6	8.44E+01	1.69E+02	110	5.9E-01	6.5E+01	3.6E+00	4.0E+02	9.9E-01	1.1E+02	2.2E+05	4.5E+05	4.9E-04	2.5E-04
PCBs														
Aroclor 1254	11097-69-1	1.94E-02	1.94E-01	0.0285	6.8E-03	1.9E-04	6.7E+00	1.9E-01	1.0E+00	2.9E-02	5.0E+01	5.0E+02	5.7E-04	5.7E-05
Aroclor 1260	11096-82-5	1.94E-02	1.94E-01	0.013	4.5E-03	5.9E-05	6.7E+00	8.7E-02	1.0E+00	1.3E-02	5.0E+01	5.0E+02	2.6E-04	2.6E-05

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red FoxSpecific Data from Table F.3-9

BW=	4.5300	kg
IR_{food} =	0.238	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.17	unitless
DF_{inv} =	0.04	unitless
DF_{mam} =	0.79	unitless
IR_{soil} =	0.00670	kg dw/day
AF =	0.0068	unitless

Table F.3-20
SSAs 30 and 79 - Preliminary Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	5.14E+00	1.28E+01	3.3	1.1E+00	3.6E+00	5.2E-01	1.7E+00	Plant	1.4E+01	3.5E+01	2.3E-01	9.3E-02
Cadmium	7440-43-9	1.45E+00	2.00E+01	2.2	3.3E+00	7.2E+00	4.1E+01	9.0E+01	Invertebrate	1.1E-01	1.6E+00	**1.9E+01**	**1.4E+00**
Chromium	7440-47-3	1.00E+00	5.00E+00	27	8.4E-02	2.3E+00	3.2E+00	8.5E+01	Invertebrate	9.9E-01	4.9E+00	**2.7E+01**	**5.5E+00**
Copper	7440-50-8	4.70E+01	6.17E+01	13.5	6.3E-01	8.4E+00	1.5E+00	2.1E+01	Invertebrate	9.4E+01	1.2E+02	1.4E-01	1.1E-01
Lead	7439-92-1	1.13E+00	1.13E+01	43	4.7E-01	2.0E+01	1.5E+00	6.5E+01	Invertebrate	2.3E+00	2.3E+01	**1.9E+01**	**1.9E+00**
Mercury	7439-97-6	4.50E-01	9.00E-01	0.11	5.0E+00	5.5E-01	2.1E+01	2.3E+00	Invertebrate	6.9E-02	1.4E-01	**1.6E+00**	8.0E-01
Nickel	7440-02-0	7.74E+01	1.07E+02	12	1.4E+00	1.7E+01	4.7E+00	5.7E+01	Invertebrate	5.1E+01	7.1E+01	2.3E-01	1.7E-01
Selenium	7782-49-2	4.00E-01	8.00E-01	0.44	3.0E+00	1.3E+00	1.3E+00	5.9E-01	Plant	4.1E-01	8.3E-01	**1.1E+00**	5.3E-01
Silver	7440-22-4	1.66E+01	1.24E+02	0.083	3.7E-02	3.1E-03	1.5E+01	1.3E+00	Invertebrate	3.4E+00	2.6E+01	2.4E-02	3.2E-03
Zinc	7440-66-6	1.45E+01	1.31E+02	110	1.8E+00	2.0E+02	1.3E+01	1.4E+03	Invertebrate	3.6E+00	3.2E+01	**3.1E+01**	**3.4E+00**
Pesticides													
Dieldrin	60-57-1	7.70E-02	7.70E-01	0.000455	1.0E+00	4.6E-04	8.0E+01	3.6E-02	Invertebrate	3.1E-03	3.1E-02	1.5E-01	1.5E-02
PCBs													
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.0285	6.8E-03	1.9E-04	1.6E+01	4.5E-01	Invertebrate	8.2E-02	8.2E-01	3.5E-01	3.5E-02
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.013	4.5E-03	5.9E-05	1.6E+01	2.1E-01	Invertebrate	8.2E-02	8.2E-01	1.6E-01	1.6E-02
SVOCs													
Acenaphthene	83-32-9	1.01E+00	5.05E+00	0.03085	4.6E+00	1.4E-01	5.4E+00	1.7E-01	Invertebrate	5.8E-01	2.9E+00	5.3E-02	1.1E-02
Anthracene	120-12-7	NV	NV	0.031825	--	--	--	--	--	--	--	**--**	**--**
Benzo(a)anthracene	56-55-3	NV	NV	0.1235	--	--	--	--	--	--	--	**--**	**--**
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.065	3.3E+00	2.1E-01	2.5E+00	1.6E-01	Plant	4.7E-01	2.4E+00	1.4E-01	2.7E-02
Benzo(b)fluoranthene	205-99-2	NV	NV	0.1055	--	--	--	--	--	--	--	**--**	**--**
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.04	--	--	--	--	--	--	--	**--**	**--**
Benzo(k)fluoranthene	207-08-9	NV	NV	0.063	--	--	--	--	--	--	--	**--**	**--**
Chrysene	218-01-9	NV	NV	0.095	--	--	--	--	--	--	--	**--**	**--**
Dibenz(a,h)anthracene	53-70-3	NV	NV	0.02345	--	--	--	--	--	--	--	**--**	**--**
Fluoranthene	206-44-0	NV	NV	0.237	--	--	--	--	--	--	--	**--**	**--**
Fluorene	86-73-7	1.01E+00	5.05E+00	0.0387	5.7E-02	2.2E-03	1.7E+01	6.8E-01	Invertebrate	1.8E-01	9.1E-01	2.1E-01	4.2E-02
Indeno(1,2,3-cd)pyrene	193-39-5	NV	NV	0.055	--	--	--	--	--	--	--	**--**	**--**
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.288	1.1E+01	3.2E+00	2.1E+00	6.1E-01	Plant	3.2E-01	1.6E+00	8.9E-01	1.8E-01
Pyrene	129-00-0	NV	NV	0.247	--	--	--	--	--	--	--	**--**	**--**

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

American Robin Specific Data from Table F.3-9

BW=	0.0635	kg
IR_{food} =	0.020	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00100	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.3-21
SSAs 30 and 79 - Refined Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Cadmium	7440-43-9	1.45E+00	2.00E+01	2.2	4.3E-01	9.6E-01	7.0E+00	1.5E+01	2.3E+00	3.2E+01	9.4E-01	6.8E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	27	4.1E-02	1.1E+00	3.1E-01	8.3E+00	2.5E+01	1.3E+02	**1.1E+00**	2.1E-01
Lead	7439-92-1	1.13E+00	1.13E+01	43	5.1E-02	2.2E+00	3.9E-01	1.7E+01	2.4E+01	2.4E+02	**1.8E+00**	1.8E-01
Mercury	7439-97-6	4.50E-01	9.00E-01	0.11	1.0E+00	1.1E-01	1.7E+00	1.9E-01	1.6E+00	3.3E+00	6.7E-02	3.3E-02
Selenium	7782-49-2	4.00E-01	8.00E-01	0.44	4.7E-01	2.1E-01	1.2E+00	5.1E-01	2.5E+00	5.0E+00	1.8E-01	8.9E-02
Zinc	7440-66-6	1.45E+01	1.31E+02	110	5.9E-01	6.5E+01	3.6E+00	4.0E+02	3.9E+01	3.5E+02	**2.8E+00**	3.1E-01

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

American Robin Specific Data from Table F.3-9

BW=	0.0773	kg
IR_{food} =	0.016	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.62	unitless
DF_{inv} =	0.38	unitless
IR_{soil} =	0.0008	kg dw/day
AF =	1.000	unitless

Table F.3-22
SSAs 30 and 79 - Preliminary Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	5.14E+00	1.28E+01	3.3	1.5E-02	4.9E-02	5.2E+03	2.1E+03	6.3E-04	2.5E-04
Cadmium	7440-43-9	1.45E+00	2.00E+01	2.2	4.0E+00	8.8E+00	5.5E+00	4.0E-01	4.0E-01	2.9E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	27	3.3E-01	9.0E+00	4.6E+01	9.1E+00	5.9E-01	1.2E-01
Copper	7440-50-8	4.70E+01	6.17E+01	13.5	1.0E+00	1.4E+01	6.8E+02	5.2E+02	2.0E-02	1.5E-02
Lead	7439-92-1	1.13E+00	1.13E+01	43	2.9E-01	1.2E+01	6.0E+01	6.0E+00	7.2E-01	7.2E-02
Mercury	7439-97-6	4.50E-01	9.00E-01	0.11	1.9E-01	2.1E-02	3.6E+01	1.8E+01	3.1E-03	1.5E-03
Nickel	7440-02-0	7.74E+01	1.07E+02	12	5.9E-01	7.1E+00	2.0E+03	1.4E+03	6.0E-03	4.3E-03
Selenium	7782-49-2	4.00E-01	8.00E-01	0.44	1.2E+00	5.2E-01	5.1E+00	2.6E+00	8.6E-02	4.3E-02
Silver	7440-22-4	1.66E+01	1.24E+02	0.083	5.0E-01	4.2E-02	5.0E+02	6.7E+01	1.7E-04	2.2E-05
Zinc	7440-66-6	1.45E+01	1.31E+02	110	2.7E+00	3.0E+02	8.2E+01	9.1E+00	**1.3E+00**	1.5E-01
Pesticides										
Dieldrin	60-57-1	7.70E-02	7.70E-01	0.000455	1.0E+00	4.6E-04	1.2E+00	1.2E-01	3.9E-04	3.9E-05
PCBs										
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.0285	1.0E+00	2.9E-02	6.2E+00	6.2E-01	4.6E-03	4.6E-04
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.013	1.0E+00	1.3E-02	6.2E+00	6.2E-01	2.1E-03	2.1E-04
SVOCs										
Acenaphthene	83-32-9	1.01E+00	5.05E+00	0.03085	1.0E+00	3.1E-02	1.5E+01	3.1E+00	2.0E-03	4.0E-04
Anthracene	120-12-7	NV	NV	0.031825	--	--	--	--	**--**	**--**
Benzo(a)anthracene	56-55-3	NV	NV	0.1235	--	--	--	--	**--**	**--**
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.065	1.0E+00	6.5E-02	7.6E+00	1.5E+00	8.6E-03	1.7E-03
Benzo(b)fluoranthene	205-99-2	NV	NV	0.1055	--	--	--	--	**--**	**--**
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.04	--	--	--	--	**--**	**--**
Benzo(k)fluoranthene	207-08-9	NV	NV	0.063	--	--	--	--	**--**	**--**
Chrysene	218-01-9	NV	NV	0.095	--	--	--	--	**--**	**--**
Dibenz(a,h)anthracene	53-70-3	NV	NV	0.02345	--	--	--	--	**--**	**--**
Fluoranthene	206-44-0	NV	NV	0.237	--	--	--	--	**--**	**--**
Fluorene	86-73-7	1.01E+00	5.05E+00	0.0387	1.0E+00	3.9E-02	1.5E+01	3.1E+00	2.5E-03	5.0E-04
Indeno(1,2,3-cd)pyrene	193-39-5	NV	NV	0.055	--	--	--	--	**--**	**--**
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.288	1.0E+00	2.9E-01	1.7E+01	3.4E+00	1.7E-02	3.4E-03
Pyrene	129-00-0	NV	NV	0.247	--	--	--	--	**--**	**--**

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10

BW_i = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Red-tailed Hawk Specific Data from Table F.3-9

BW=	0.957	kg
IR_{food} =	0.063	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.00	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screenning levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.3-23
SSAs 30 and 79 - Refined Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				EPC* (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Soil Screening Level[a] (mg/kg)	Calculated LOAEL-Based Soil Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Zinc	7440-66-6	1.45E+01	1.31E+02	110	9.9E-01	1.1E+02	1.1E+05	9.7E+05	1.0E-03	1.1E-04

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.3-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red-tailed Hawk Specific Data from Table F.3-9

BW=	1.134	kg
IR_{food} =	0.059	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.0	kg dw/day
AF =	0.0026	unitless

Table F.3-24
SSAs 30 and 79 - Wildlife Summary
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

		Meadow Vole				Short-tailed Shrew				Red Fox				American Robin				Red-tailed Hawk			
Chemical	**CAS#**	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ
Inorganics																					
Arsenic	7440-38-2	**1.8E+01**	**1.8E+00**	3.7E-01	3.7E-02	**6.5E+00**	6.5E-01	8.3E-01	8.3E-02	**1.2E+01**	**1.2E+00**	1.5E-03	1.5E-04	2.3E-01	9.3E-02	NC	NC	6.3E-04	2.5E-04	NC	NC
Cadmium	7440-43-9	**2.5E+00**	2.5E-01	1.3E-01	1.3E-02	**1.0E+01**	**1.0E+00**	8.7E-01	8.7E-02	**2.0E+01**	**2.0E+00**	8.2E-04	8.2E-05	**1.9E+01**	**1.4E+00**	9.4E-01	6.8E-02	4.0E-01	2.9E-02	NC	NC
Chromium	7440-47-3	3.0E-01	3.0E-02	NC	NC	**3.0E+00**	3.0E-01	2.0E-01	2.0E-02	**5.8E+00**	5.8E-01	6.9E-04	6.9E-05	**2.7E+01**	**5.5E+00**	**1.1E+00**	2.1E-01	5.9E-01	1.2E-01	NC	NC
Copper	7440-50-8	1.9E-01	1.5E-01	NC	NC	1.6E-01	1.2E-01	NC	NC	3.0E-01	2.3E-01	NC	NC	1.4E-01	1.1E-01	NC	NC	2.0E-02	1.5E-02	NC	NC
Lead	7439-92-1	8.9E-01	8.9E-02	NC	NC	9.7E-01	9.7E-02	NC	NC	**1.8E+00**	1.8E-01	5.7E-04	5.7E-05	**1.9E+01**	**1.9E+00**	**1.8E+00**	1.8E-01	7.2E-01	7.2E-02	NC	NC
Mercury	7439-97-6	1.1E-02	1.1E-03	NC	NC	1.5E-02	1.5E-03	NC	NC	2.9E-02	2.9E-03	NC	NC	**1.6E+00**	8.0E-01	6.7E-02	3.3E-02	3.1E-03	1.5E-03	NC	NC
Nickel	7440-02-0	1.4E-01	7.2E-02	NC	NC	1.6E-01	8.0E-02	NC	NC	3.1E-01	1.6E-01	NC	NC	2.3E-01	1.7E-01	NC	NC	6.0E-03	4.3E-03	NC	NC
Selenium	7782-49-2	**2.2E+00**	**1.4E+00**	1.3E-01	8.1E-02	7.5E-01	4.6E-01	NC	NC	**1.5E+00**	8.9E-01	1.5E-03	9.2E-04	**1.1E+00**	5.3E-01	1.8E-01	8.9E-02	8.6E-02	4.3E-02	NC	NC
Silver	7440-22-4	7.6E-05	7.6E-06	NC	NC	6.3E-03	6.3E-04	NC	NC	1.3E-02	1.3E-03	NC	NC	2.4E-02	3.2E-03	NC	NC	1.7E-04	2.2E-05	NC	NC
Zinc	7440-66-6	4.3E-01	2.1E-01	NC	NC	9.8E-01	4.9E-01	NC	NC	**2.0E+00**	9.8E-01	4.9E-04	2.5E-04	**3.1E+01**	**3.4E+00**	**2.8E+00**	3.1E-01	**1.3E+00**	1.5E-01	1.0E-03	1.1E-04
Pesticides																					
Dieldrin	60-57-1	7.8E-03	7.8E-04	NC	NC	2.0E-01	2.0E-02	NC	NC	4.0E-01	4.0E-02	NC	NC	1.5E-01	1.5E-02	NC	NC	3.9E-04	3.9E-05	NC	NC
PCBs																					
Aroclor 1254	11097-69-1	8.0E-03	8.0E-04	NC	NC	**1.4E+00**	1.4E-01	2.8E-01	2.8E-02	**2.7E+00**	2.7E-01	5.7E-04	5.7E-05	3.5E-01	3.5E-02	NC	NC	4.6E-03	4.6E-04	NC	NC
Aroclor 1260	11096-82-5	3.4E-03	3.4E-04	NC	NC	6.2E-01	6.2E-02	NC	NC	**1.2E+00**	1.2E-01	2.6E-04	2.6E-05	1.6E-01	1.6E-02	NC	NC	2.1E-03	2.1E-04	NC	NC
SVOCs																					
Acenaphthene	83-32-9	5.1E-03	1.0E-03	NC	NC	2.0E-03	4.0E-04	NC	NC	3.9E-03	7.8E-04	NC	NC	5.3E-02	1.1E-02	NC	NC	2.0E-03	4.0E-04	NC	NC
Anthracene	120-12-7	1.8E-04	1.8E-05	NC	NC	6.1E-05	6.1E-06	NC	NC	1.2E-04	1.2E-05	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)anthracene	56-55-3	1.4E-01	1.4E-02	NC	NC	1.9E-01	1.9E-02	NC	NC	3.7E-01	3.7E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)pyrene	50-32-8	1.3E-01	1.3E-02	NC	NC	4.5E-02	4.5E-03	NC	NC	8.8E-02	8.8E-03	NC	NC	1.4E-01	2.7E-02	NC	NC	8.6E-03	1.7E-03	NC	NC
Benzo(b)fluoranthene	205-99-2	3.3E-02	3.3E-03	NC	NC	1.0E-01	1.0E-02	NC	NC	2.0E-01	2.0E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(g,h,i)perylene	191-24-2	8.1E-02	1.6E-02	NC	NC	1.1E-01	2.3E-02	NC	NC	2.3E-01	4.6E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(k)fluoranthene	207-08-9	3.6E-03	3.6E-04	NC	NC	4.2E-03	4.2E-04	NC	NC	8.2E-03	8.2E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Chrysene	218-01-9	4.2E-03	4.2E-04	NC	NC	4.3E-03	4.3E-04	NC	NC	8.3E-03	8.3E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Dibenz(a,h)anthracene	53-70-3	1.8E-03	1.8E-04	NC	NC	9.5E-03	9.5E-04	NC	NC	1.9E-02	1.9E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Fluoranthene	206-44-0	2.9E-02	5.8E-03	NC	NC	1.4E-02	2.7E-03	NC	NC	2.7E-02	5.4E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Fluorene	86-73-7	3.9E-03	7.8E-04	NC	NC	2.8E-01	5.5E-02	NC	NC	5.5E-01	1.1E-01	NC	NC	2.1E-01	4.2E-02	NC	NC	2.5E-03	5.0E-04	NC	NC
Indeno(1,2,3-cd)pyrene	193-39-5	5.4E-04	5.4E-05	NC	NC	4.6E-03	4.6E-04	NC	NC	9.0E-03	9.0E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Phenanthrene	85-01-8	2.8E-01	5.6E-02	NC	NC	9.2E-02	1.8E-02	NC	NC	1.8E-01	3.7E-02	NC	NC	8.9E-01	1.8E-01	NC	NC	1.7E-02	3.4E-03	NC	NC
Pyrene	129-00-0	7.1E-02	1.4E-02	NC	NC	4.7E-02	9.4E-03	NC	NC	9.4E-02	1.9E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:
CAS = Chemical Abstract Services
NC = Not Calculated
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
HQ = Hazard Quotient

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APPENDIX F.4

SSA 60 SLERA

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Table F.4-1
SSA 60 SLERA Occurence/Distribution - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Units	Location of Maximum Concentration	Total Samples Analyzed	Detection Frequency	Concentration Used for Screening
TAL Metals								
Aluminum	7429-90-5	11,000	25,000	mg/kg	60SE1	7	7/7	25,000
Antimony	7440-36-0	0.2	0.5	mg/kg	60SS1	7	7/7	0.5
Arsenic	7440-38-2	4.5	12	mg/kg	60SS2	7	7/7	12
Barium	7440-39-3	58	130	mg/kg	60SS3	7	7/7	130
Beryllium	7440-41-7	0.16	1.3	mg/kg	60SE1	7	7/7	1.3
Cadmium	7440-43-9	0.83	1.1	mg/kg	60SE2	7	7/7	1.1
Calcium	7440-70-2	27,000	150,000	mg/kg	60SS2	7	7/7	150,000
Chromium	7440-47-3	16	39	mg/kg	60SE1	7	7/7	39
Cobalt	7440-48-4	3.9	11.5	mg/kg	60SS4 DUP AVG	7	7/7	11.5
Copper	7440-50-8	8.7	51	mg/kg	60SS4 DUP AVG	7	7/7	51
Iron	7439-89-6	18,000	30,000	mg/kg	60SE2	7	7/7	30,000
Lead	7439-92-1	12	130	mg/kg	60SE1	7	7/7	130
Magnesium	7439-95-4	17,000	71,000	mg/kg	60SS2	7	7/7	71,000
Manganese	7439-96-5	300	670	mg/kg	60SS2	7	7/7	670
Mercury	7439-97-6	0.011	0.092	mg/kg	60SE1	7	7/7	0.092
Nickel	7440-02-0	9.8	24	mg/kg	60SE2	7	7/7	24
Potassium	7440-09-7	520	3,000	mg/kg	60SE1	7	7/7	3,000
Selenium	7782-49-2	0.3	0.66	mg/kg	60SS1	7	7/7	0.66
Silver	7440-22-4	0.086	0.12	mg/kg	60SS1	7	7/7	0.12
Sodium	7440-23-5	54	360	mg/kg	60SS3	7	7/7	360
Thallium	7440-28-0	0.1	0.21	mg/kg	60SE1	7	7/7	0.21
Vanadium	7440-62-2	25	43	mg/kg	60SS1	7	7/7	43
Zinc	7440-66-6	35	130	mg/kg	60SE2	7	7/7	130
Pesticides								
4,4'-DDD	72-54-8	0.001345	0.001345	mg/kg	60SS4 DUP AVG	7	1/7	0.001345
4,4'-DDE	72-55-9	0.0021	0.01608	mg/kg	60SS4 DUP AVG	7	2/7	0.01608
Dieldrin	60-57-1	0.00058	0.00058	mg/kg	60SS1	7	1/7	0.00058
gamma-Chlordane	5103-74-2	0.00124	0.00124	mg/kg	60SS4 DUP AVG	7	1/7	0.00124
Heptachlor Epoxide	1024-57-3	0.0008675	0.0022	mg/kg	60SS1	7	3/7	0.0022
PCBs								
Aroclor 1254	11097-69-1	0.012	0.089	mg/kg	60SS1	7	6/7	0.089
Aroclor 1260	11096-82-5	0.014	0.05	mg/kg	60SS1	7	6/7	0.05
VOCs								
Acetone	67-64-1	0.0065	0.012	mg/kg	60SE2	7	3/7	0.012
Methylene Chloride	75-09-2	0.003	0.003	mg/kg	60SE2	7	1/7	0.003
Toluene	108-88-3	0.00105	0.0012	mg/kg	60SE1	7	2/7	0.0012
SVOCs								
2-Methylnaphthalene	91-57-6	0.00072	0.0049	mg/kg	60SE1	7	7/7	0.0049
Acenaphthene	83-32-9	0.0012	0.0012	mg/kg	60SS1	7	1/7	0.0012
Acenaphthylene	208-96-8	0.0031	0.0073	mg/kg	60SS1	7	2/7	0.0073
Anthracene	120-12-7	0.0042	0.0042	mg/kg	60SS1	7	1/7	0.0042
Benzo(a)anthracene	56-55-3	0.00595	0.051	mg/kg	60SS1	7	7/7	0.051
Benzo(a)pyrene	50-32-8	0.0069	0.069	mg/kg	60SS1	7	7/7	0.069
Benzo(b)fluoranthene	205-99-2	0.008	0.12	mg/kg	60SS1	7	7/7	0.12
Benzo(g,h,i)perylene	191-24-2	0.0047	0.046	mg/kg	60SS1	7	7/7	0.046
Benzo(k)fluoranthene	207-08-9	0.0036	0.035	mg/kg	60SS1	7	7/7	0.035
Bis(2-ethylhexyl) Phthalate	117-81-7	0.011	0.057	mg/kg	60SE1	7	7/7	0.057
Butyl Benzyl Phthalate	85-68-7	0.0078	0.016	mg/kg	60SE2	7	4/7	0.016
Chrysene	218-01-9	0.0066	0.067	mg/kg	60SS1	7	7/7	0.067
Dibenz(a,h)anthracene	53-70-3	0.0093	0.0093	mg/kg	60SS1	7	1/7	0.0093
Dimethyl Phthalate	131-11-3	0.0019	0.0019	mg/kg	60SS1	7	1/7	0.0019
Fluoranthene	206-44-0	0.0094	0.06	mg/kg	60SS1	7	7/7	0.06
Indeno(1,2,3-cd)pyrene	193-39-5	0.004175	0.036	mg/kg	60SS1	7	4/7	0.036
Naphthalene	91-20-3	0.0027	0.0027	mg/kg	60SS1	7	1/7	0.0027
Phenanthrene	85-01-8	0.0042	0.023	mg/kg	60SS1	7	7/7	0.023
Pyrene	129-00-0	0.012	0.086	mg/kg	60SS1	7	7/7	0.086
Cyanide								
Cyanide, Total	57-12-5	0.08	2.6	mg/kg	60SE2	7	4/7	2.6
Total Organic Carbon (TOC)								
Carbon, Total Organic	--	0.096	0.096	mg/kg	60SS3	1	1/1	0.096

Notes:
CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

Table F.4-2
SSA 60 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Cyanide																		
Cyanide, Total	57-12-5	mg/kg	3	7	0.072	0.094	NV	--	NS	0.9	D	N	--	--	NS	--	--	NS
Pesticides																		
4,4'-DDD	72-54-8	mg/kg	6	7	0.00032	0.0005	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDE	72-55-9	mg/kg	5	7	0.00029	0.00042	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDT	50-29-3	mg/kg	7	7	0.00028	0.00043	0.1	G	N	0.1	C	N	0.093	A	N	0.021	A	N
Aldrin	309-00-2	mg/kg	7	7	0.0014	0.0021	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
alpha-BHC	319-84-6	mg/kg	7	7	0.00024	0.00037	100	G	N	NV	--	NS	--	--	NS	--	--	NS
alpha-Chlordane	5103-71-9	mg/kg	7	7	0.00043	0.00067	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
beta-BHC	319-85-7	mg/kg	7	7	0.00031	0.00048	100	G	N	NV	--	NS	--	--	NS	--	--	NS
delta-BHC	319-86-8	mg/kg	7	7	0.00029	0.00044	100	G	N	NV	--	NS	--	--	NS	--	--	NS
Dieldrin	60-57-1	mg/kg	6	7	0.00027	0.00042	0.1	G	N	0.1	C	N	0.022	A	N	0.0049	A	N
Endosulfan I	959-98-8	mg/kg	7	7	0.00028	0.00043	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan II	33213-65-9	mg/kg	7	7	0.0003	0.00046	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan Sulfate	1031-07-8	mg/kg	7	7	0.00036	0.00055	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endrin	72-20-8	mg/kg	7	7	0.0003	0.00046	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Aldehyde	7421-93-4	mg/kg	7	7	0.00098	0.0015	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Ketone	53494-70-5	mg/kg	7	7	0.00039	0.0006	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-BHC (Lindane)	58-89-9	mg/kg	7	7	0.00028	0.00043	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-Chlordane	5103-74-2	mg/kg	6	7	0.00031	0.00048	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor	76-44-8	mg/kg	7	7	0.00047	0.00073	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor Epoxide	1024-57-3	mg/kg	4	7	0.00023	0.00031	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Methoxychlor	72-43-5	mg/kg	7	7	0.0004	0.00061	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Toxaphene	8001-35-2	mg/kg	7	7	0.0032	0.0049	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
PCBs																		
Aroclor 1016	12674-11-2	ug/kg	7	7	4.6	7	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1221	11104-28-2	ug/kg	7	7	8.5	13	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1232	11141-16-5	ug/kg	7	7	4.9	7.5	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1242	53469-21-9	ug/kg	7	7	5	7.7	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1248	12672-29-6	ug/kg	7	7	7.1	11	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1254	11097-69-1	ug/kg	1	7	7.7	7.7	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1260	11096-82-5	ug/kg	1	7	6.5	6.5	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1262	37324-23-5	ug/kg	7	7	5.6	8.7	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1268	11100-14-4	ug/kg	7	7	7.1	11	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
TCL VOCs																		
1,1,1-Trichloroethane	71-55-6	ug/kg	7	7	1	1.6	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	7	7	0.95	1.5	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	7	7	0.63	0.98	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,1,2-Trichloroethane	79-00-5	ug/kg	7	7	1.1	1.7	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethane	75-34-3	ug/kg	7	7	0.38	0.58	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethene	75-35-4	ug/kg	7	7	0.86	1.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,3-Trichlorobenzene	87-61-6	ug/kg	7	7	0.47	0.73	--	--	NS	--	--	NS	--	--	NS	--	--	NS
1,2,4-Trichlorobenzene	120-82-1	ug/kg	7	7	0.86	1.3	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	7	7	2.5	3.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2-Dibromoethane	106-93-4	ug/kg	7	7	0.99	1.5	NV	--	NS	5,000	C	N	--	--	NS	--	--	NS
1,2-Dichlorobenzene	95-50-1	ug/kg	7	7	0.31	0.48	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dichloroethane	107-06-2	ug/kg	7	7	0.44	0.68	870,000	G	N	NV	--	NS	--	--	NS	--	--	NS
1,2-Dichloropropane	78-87-5	ug/kg	7	7	0.45	0.69	300	G	N	300	C	N	--	--	NS	--	--	NS
1,3-Dichlorobenzene	541-73-1	ug/kg	7	7	0.46	0.71	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,4-Dichlorobenzene	106-46-7	ug/kg	7	7	0.57	0.87	100	G	N	20,000	B	N	--	--	NS	--	--	NS
2-Butanone	78-93-3	ug/kg	7	7	2.8	4.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Hexanone	591-78-6	ug/kg	7	7	1.3	2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	7	7	0.22	0.33	100,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Acetone	67-64-1	ug/kg	4	7	3.8	5.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzene	71-43-2	ug/kg	7	7	0.25	0.39	100	G	N	100	C	N	--	--	NS	--	--	NS
Bromochloromethane	74-97-5	ug/kg	7	7	0.53	0.82	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Bromodichloromethane	75-27-4	ug/kg	7	7	1.1	1.6	450,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Bromoform	75-25-2	ug/kg	7	7	0.56	0.86	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bromomethane	74-83-9	ug/kg	7	7	1.2	1.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Disulfide	75-15-0	ug/kg	7	7	0.41	0.63	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Tetrachloride	56-23-5	ug/kg	7	7	0.81	1.3	300	G	N	300	C	N	--	--	NS	--	--	NS
Chlorobenzene	108-90-7	ug/kg	7	7	0.95	1.5	100	G	N	40,000	B	N	--	--	NS	--	--	NS

Table F.4-2
SSA 60 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Chloroethane	75-00-3	ug/kg	7	7	0.95	1.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Chloroform	67-66-3	ug/kg	7	7	0.28	0.43	300	G	N	300	C	N	--	--	NS	--	--	NS
Chloromethane	74-87-3	ug/kg	7	7	0.5	0.78	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
cis-1,2-Dichloroethene	156-59-2	ug/kg	7	7	0.34	0.53	300	G	N	300	C	N	--	--	NS	--	--	NS
cis-1,3-Dichloropropene	10061-01-5	ug/kg	7	7	0.51	0.78	300	G	N	300	C	N	--	--	NS	--	--	NS
Cyclohexane	110-82-7	ug/kg	7	7	1	1.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibromochloromethane	124-48-1	ug/kg	7	7	0.56	0.87	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dichlorodifluoromethane	75-71-8	ug/kg	7	7	0.42	0.66	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Ethylbenzene	100-41-4	ug/kg	7	7	0.18	0.28	100	G	N	100	C	N	--	--	NS	--	--	NS
Isopropylbenzene	98-82-8	ug/kg	7	7	0.24	0.36	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl Acetate	79-20-9	ug/kg	7	7	2.9	4.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl tert-Butyl Ether	1634-04-4	ug/kg	7	7	0.59	0.91	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methylcyclohexane	108-87-2	ug/kg	7	7	1.1	1.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methylene Chloride	75-09-2	ug/kg	6	7	1.5	2.3	300	G	N	300	C	N	--	--	NS	--	--	NS
Styrene	100-42-5	ug/kg	7	7	0.94	1.4	300,000	F	N	100	C	N	--	--	NS	--	--	NS
Tetrachloroethene	127-18-4	ug/kg	7	7	0.9	1.4	300	G	N	300	C	N	--	--	NS	--	--	NS
Toluene	108-88-3	ug/kg	5	7	0.72	1.1	200,000	F	N	100	C	N	--	--	NS	--	--	NS
trans-1,2-Dichloroethene	156-60-5	ug/kg	7	7	0.98	1.5	300	G	N	300	C	N	--	--	NS	--	--	NS
trans-1,3-Dichloropropene	10061-02-6	ug/kg	7	7	0.36	0.56	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichloroethene	79-01-6	ug/kg	7	7	0.52	0.81	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichlorofluoromethane	75-69-4	ug/kg	7	7	0.38	0.58	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Vinyl Chloride	75-01-4	ug/kg	7	7	0.31	0.48	300	G	N	300	C	N	--	--	NS	--	--	NS
Xylenes (Total)	1330-20-7	ug/kg	7	7	1.2	1.9	100	G	N	NV	--	NS	--	--	NS	--	--	NS
TCL SVOCs																		
1,1'-Biphenyl	92-52-4	ug/kg	7	7	0.9	1.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	7	7	2.3	3.5	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	7	7	10	16	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4,5-Trichlorophenol	95-95-4	ug/kg	7	7	2.7	4.1	4,000	F	N	9,000	B	N	--	--	NS	--	--	NS
2,4,6-Trichlorophenol	88-06-2	ug/kg	7	7	2.2	3.4	100	G	N	10,000	B	N	--	--	NS	--	--	NS
2,4-Dichlorophenol	120-83-2	ug/kg	7	7	3.7	5.7	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dimethylphenol	105-67-9	ug/kg	7	7	1.6	2.5	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dinitrophenol	51-28-5	ug/kg	7	7	110	180	20,000	F	N	100	C	**Y**	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	ug/kg	7	7	20	31	5,300	I	N	19,800	I	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	ug/kg	7	7	2.5	3.8	4,500	I	N	6,900	I	N	--	--	NS	--	--	NS
2-Chloronaphthalene	91-58-7	ug/kg	7	7	2.4	3.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Chlorophenol	95-57-8	ug/kg	7	7	4.1	6.3	7,000	F	N	10,000	B	N	--	--	NS	--	--	NS
2-Methylphenol	95-48-7	ug/kg	7	7	5.2	8	100	G	N	100	C	N	--	--	NS	--	--	NS
2-Nitroaniline	88-74-4	ug/kg	7	7	7.7	12	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Nitrophenol	88-75-5	ug/kg	7	7	7.2	11	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	7	7	30	47	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3-Nitroaniline	99-09-2	ug/kg	7	7	7.7	12	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	7	7	22	34	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	7	7	1.6	2.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloro-3-methylphenol	59-50-7	ug/kg	7	7	3.6	5.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloroaniline	106-47-8	ug/kg	7	7	7.7	12	20,000	F	N	NV	--	NS	--	--	NS	--	--	NS
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	7	7	3.6	5.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methylphenol	106-44-5	ug/kg	7	7	4.8	7.4	100	G	N	100	C	N	--	--	NS	--	--	NS
4-Nitroaniline	100-01-6	ug/kg	7	7	1.7	2.7	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Nitrophenol	100-02-7	ug/kg	7	7	140	220	100	G	**Y**	7,000	B	N	--	--	NS	--	--	NS
Acenaphthene	83-32-9	ug/kg	6	7	0.85	1.3	100	G	N	100	C	N	--	--	NS	--	--	NS
Acenaphthylene	208-96-8	ug/kg	5	7	1.8	2.8	100	G	N	100	C	N	--	--	NS	--	--	NS
Acetophenone	98-86-2	ug/kg	7	7	4	6.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Anthracene	120-12-7	ug/kg	6	7	2.8	4.3	100	G	N	100	C	N	--	--	NS	--	--	NS
Atrazine	1912-24-9	ug/kg	7	7	4.8	7.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzaldehyde	100-52-7	ug/kg	7	7	6.7	10	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	7	7	1.4	2.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	7	7	2	3.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	7	7	7.2	11	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Butyl Benzyl Phthalate	85-68-7	ug/kg	3	7	5.3	6.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Caprolactam	105-60-2	ug/kg	7	7	14	21	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbazole	86-74-8	ug/kg	7	7	91	140	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS

Table F.4-2
SSA 60 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Di-n-butylphthalate	84-74-2	ug/kg	7	7	27	42	200,000	F	N	NV	--	NS	--	--	NS	--	--	NS
Di-n-octylphthalate	117-84-0	ug/kg	7	7	5.8	8.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	6	7	8.4	13	100	G	N	100	C	N	--	--	NS	--	--	NS
Dibenzofuran	132-64-9	ug/kg	7	7	9.5	15	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Diethylphthalate	84-66-2	ug/kg	7	7	3.8	5.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dimethylphthalate	131-11-3	ug/kg	6	7	0.94	1.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Fluorene	86-73-7	ug/kg	7	7	7.5	12	100	G	N	100	C	N	--	--	NS	--	--	NS
Hexachlorobenzene	118-74-1	ug/kg	7	7	4.6	7.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorobutadiene	87-68-3	ug/kg	7	7	3.7	5.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorocyclopentadiene	77-47-4	ug/kg	7	7	2.2	3.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachloroethane	67-72-1	ug/kg	7	7	2.7	4.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	3	7	4	6.1	100	G	N	100	C	N	--	--	NS	--	--	NS
Isophorone	78-59-1	ug/kg	7	7	6.7	10	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	7	7	6.1	9.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-diphenylamine	86-30-6	ug/kg	7	7	11	16	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Naphthalene	91-20-3	ug/kg	6	7	2.3	3.5	100	G	N	100	C	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	ug/kg	7	7	5.6	8.6	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Pentachlorophenol	87-86-5	ug/kg	7	7	48	74	5,000	A	N	31,000	A	N	2,100	A	N	2,800	A	N
Phenol	108-95-2	ug/kg	7	7	49	75	100	G	N	30000	B	N	--	--	NS	--	--	NS
Explosives																		
1,3,5-Trinitrobenzene	99-35-4	mg/kg	7	7	0.12	0.12	8.6	I	N	18.1	I	N	--	--	NS	--	--	NS
1,3-Dinitrobenzene	99-65-0	mg/kg	7	7	0.11	0.11	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	mg/kg	7	7	0.23	0.23	5.3	I	N	19.8	I	N	--	--	NS	--	--	NS
2,4,6-Trinitrotoluene	118-96-7	mg/kg	7	7	0.16	0.16	2.4	H	N	1.2	H	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	mg/kg	7	7	0.23	0.23	4.5	I	N	6.9	I	N	--	--	NS	--	--	NS
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	7	7	0.21	0.21	80	J	N	--	--	NS	--	--	NS	--	--	NS
2-Nitrotoluene	88-72-2	mg/kg	7	7	0.14	0.14	--	--	NS	--	--	NS	--	--	NS	--	--	NS
3-Nitrotoluene	99-08-1	mg/kg	7	7	0.25	0.25	--	--	NS	--	--	NS	--	--	NS	--	--	NS
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	7	7	0.16	0.16	80	J	N	--	--	NS	--	--	NS	--	--	NS
4-Nitrotoluene	99-99-0	mg/kg	7	7	0.27	0.27	--	--	NS	--	--	NS	--	--	NS	--	--	NS
HMX	2691-41-0	mg/kg	7	7	0.12	0.12	--	--	NS	6.3	I	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	mg/kg	7	7	0.045	0.045	--	--	NS	--	--	NS	--	--	NS	--	--	NS
RDX	121-82-4	mg/kg	7	7	0.039	0.039	100	K	N	98.6	I	N	--	--	NS	--	--	NS
Tetryl	479-45-8	mg/kg	7	7	0.046	0.046	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Nitroglycerin/PETN																		
Nitroglycerin	55-63-0	mg/kg	7	7	0.29	0.29	--	--	NS	--	--	NS	--	--	NS	--	--	NS
PETN	78-11-5	mg/kg	7	7	0.25	0.25	--	--	NS	--	--	NS	--	--	NS	--	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
SL = Screening Level
Eco SSL = Ecological Soil Screening Level

Sources:
A = USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
B = ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
C = BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
D = CCME 2006
E = ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
F = ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
G = BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
H = Best, E.P.H., H.E. Tatem, K.N. Geter, M.L. Wells and B.K. Lane. 2004. Toxicity and Metabolites of 2,4,6 Trinitrotoluene (TNT) in Plants and Worms from Exposure to Aged Soil.
I = Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil.
J = Pennington, Judith C. 1988. Plant Uptake of 2,4,6-Trinitrotoluene, 4-Amino-2,6-Dinitrotoluene, and 2-Amino-4,6-Dinitrotoluene Using 14C-Labeled and Unlabeled Compounds.
K = Simini, M., R.S. Wentsel, R.T. Checkai, C.T. Phillips, N.A. Chester, M.A. Major, and J.C. Amos. 1995. Evaluation of Soil Toxicity at Joliet Army Ammunition Plant.

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

Table F.4-3
SSA 60 - Summary of Total PCBs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	60SE1 8/10/2009 0-1		60SE2 8/10/2009 0-1		60SS1 8/10/2009 0-1		60SS2 8/10/2009 0-1		60SS3 8/10/2009 0-1		60SS4 DUP AVG 8/10/2009 0-1		60SS5 8/10/2009 0-1	
		Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
PCBs (ug/kg)															
Aroclor 1254	11097-69-1	59		42	J	89		<43	U	53		34.5	J	12	J
Aroclor 1260	11096-82-5	27	J,J,g	31	J,J,g	50	J,J,g	<88	U	25	J,J,g	21.5	J,J,g	14	J,J,g
Total PCBs	--	86		73		139		ND		78		56		26	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
ft bgs = Feet Below Ground Surface
PBC = Polychlorinated Biphenyl
See Table 7-1 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code
ND = Not Detected

Table F.4-4
SSA 60 - Summary of Low and High Molecular Weight PAHs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	60SE1 8/10/2009 0-1		60SE2 8/10/2009 0-1		60SS1 8/10/2009 0-1		60SS2 8/10/2009 0-1		60SS3 8/10/2009 0-1		60SS4 DUP AVG 8/10/2009 0-1		60SS5 8/10/2009 0-1	
		Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
TCL PAHs (ug/kg)															
Acenaphthene	83-32-9	<25	U	<28	U	1.2	J	<22	U	<18	U	<22	U	<24	U
Acenaphthylene	208-96-8	<25	U	<28	U	7.3	J	3.1	J	<18	U	<22	U	<24	U
Anthracene	120-12-7	<25	U	<28	U	4.2	J	<22	U	<18	U	<22	U	<24	U
Fluorene	86-73-7	<10	U	<12	U	<8	U	<9	U	<7.5	U	<8.8	U	<9.7	U
Naphthalene	91-20-3	<25	U	<28	U	2.7	J	<22	U	<18	U	<22	U	<24	U
Phenanthrene	85-01-8	11	J	8.9	J	23		11	J	4.3	J	5.1	J	4.2	J
Low Molecular Weight PAHs	--	11		8.9		38.4		14.1		4.3		5.1		4.2	
Benzo(a)anthracene	56-55-3	11	J,J,i	7.8	J,J,i	51	,J,i	11	J	6.5	J	5.95	J	6.1	J
Benzo(a)pyrene	50-32-8	13	J,J,i	11	J,J,i	69	,J,i	17	J	6.9	J	7	J	7.1	J
Benzo(b)fluoranthene	205-99-2	22	J,J,i	14	J,J,i	120	,J,i	27		8	J	13	J	10	J
Benzo(g,h,i)perylene	191-24-2	7.4	J,J,i	7.8	J,J,i	46	J,J,i	14	J	4.7	J	6.2	J	5.2	J
Benzo(k)fluoranthene	207-08-9	6.4	J,J,i	10	J,J,i	35	,J,i	12	J	3.6	J	4.5	J	3.8	J
Chrysene	218-01-9	15	J,J,i	12	J,J,i	67	,J,i	16	J	7.2	J	8.15	J	6.6	J
Dibenz(a,h)anthracene	53-70-3	<99	U,UJ,i	<110	U,UJ,i	9.3	J,J,i	<88	U	<73	U	<86	U	<95	U
Fluoranthene	206-44-0	16	J	12	J	60		19	J	9.4	J	9.8	J	9.9	J
Indeno(1,2,3-cd)pyrene	193-39-5	7.8	J,J,i	<110	U,UJ,i	36	J,J,i	11	J	<73	U	4.175	J	<95	U
Pyrene	129-00-0	23	J,J,i	17	J,J,i	86	,J,i	24		12	J	12.75	J	12	J
High Molecular Weight PAHs	--	121.6		91.6		579.3		151		58.3		71.525		60.7	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
ND = Not Detected
TCL = Target Compound List
PAH = Polynuclear Aromatic Hydrocarbon
See Table 7-1 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Table F.4-5
SSA 60 - Plant Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	50	ORNL-Plants
Antimony	7440-36-0	5	ORNL-Plants
Arsenic	7440-38-2	18	ECO SSL
Barium	7440-39-3	500	ORNL-Plants
Beryllium	7440-41-7	10	ORNL-Plants
Cadmium	7440-43-9	32	ECO SSL
Chromium	7440-47-3	1	ORNL-Plants
Cobalt	7440-48-4	13	ECO SSL
Copper	7440-50-8	70	ECO SSL
Iron	7439-89-6	NV	--
Lead	7439-92-1	120	ECO SSL
Manganese	7439-96-5	220	ECO SSL
Mercury	7439-97-6	0.3	ORNL-Plants
Nickel	7440-02-0	38	ECO SSL
Selenium	7782-49-2	0.52	ECO SSL
Silver	7440-22-4	560	ECO SSL
Thallium	7440-28-0	1	ORNL-Plants
Vanadium	7440-62-2	2	ORNL-Plants
Zinc	7440-66-6	160	ECO SSL
Cyanide			
Cyanide, Total	57-12-5	NV	--
Pesticides			
4,4'-DDD	72-54-8	0.1	BTAG - Flora
4,4'-DDE	72-55-9	0.1	BTAG - Flora
Dieldrin	60-57-1	NV	--
gamma-Chlordane	5103-74-2	0.1	BTAG - Flora
Heptachlor Epoxide	1024-57-3	0.1	BTAG - Flora
PCBs			
Aroclor 1254	11097-69-1	NV	--
Aroclor 1260	11096-82-5	NV	--
VOCs			
Acetone	67-64-1	NV	--
Methylene Chloride	75-09-2	0.3	BTAG - Flora
Toluene	108-88-3	200	ORNL-Plants
SVOCs			
2-Methylnaphthalene	91-57-6	NV	--
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Dimethyl Phthalate	131-11-3	NV	--
Low Molecular Weight PAHs	--	NV	--
High Molecular Weight PAHs	--	NV	--

Notes:
CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
NV = No Value Available
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.4-6
SSA 60 - Plant Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	25,000	50	**5.0E+02**	40,041	N
Antimony	7440-36-0	0.5	5	1.0E-01	--	NBE
Arsenic	7440-38-2	12	18	6.7E-01	15.8	N
Barium	7440-39-3	130	500	2.6E-01	209	N
Beryllium	7440-41-7	1.3	10	1.3E-01	1.02	N
Cadmium	7440-43-9	1.1	32	3.4E-02	0.69	N
Chromium	7440-47-3	39	1	**3.9E+01**	65.3	N
Cobalt	7440-48-4	11.5	13	8.8E-01	72.3	N
Copper	7440-50-8	51	70	7.3E-01	53.5	N
Iron	7439-89-6	30,000	NV	NC	50,962	N
Lead	7439-92-1	130	120	**1.1E+00**	26.8	**Y**
Manganese	7439-96-5	670	220	**3.0E+00**	2,543	N
Mercury	7439-97-6	0.092	0.3	3.1E-01	0.13	N
Nickel	7440-02-0	24	38	6.3E-01	62.8	N
Selenium	7782-49-2	0.66	0.52	**1.3E+00**	--	NBE
Silver	7440-22-4	0.12	560	2.1E-04	--	NBE
Thallium	7440-28-0	0.21	1	2.1E-01	2.11	N
Vanadium	7440-62-2	43	2	**2.2E+01**	108	N
Zinc	7440-66-6	130	160	8.1E-01	202	N
Cyanide						
Cyanide, Total	57-12-5	2.6	NV	NC	NV	NA
Pesticides						
4,4'-DDD	72-54-8	0.001345	0.1	1.3E-02	NV	NA
4,4'-DDE	72-55-9	0.01608	0.1	1.6E-01	NV	NA
Dieldrin	60-57-1	0.00058	NV	NC	NV	NA
gamma-Chlordane	5103-74-2	0.00124	0.1	1.2E-02	NV	NA
Heptachlor Epoxide	1024-57-3	0.0022	0.1	2.2E-02	NV	NA
PCBs						
Aroclor 1254	11097-69-1	0.089	NV	NC	NV	NA
Aroclor 1260	11096-82-5	0.05	NV	NC	NV	NA
Total PCBs	--	0.139	NV	NC	NV	NA
VOCs						
Acetone	67-64-1	0.012	NV	NC	NV	NA
Methylene Chloride	75-09-2	0.003	0.3	1.0E-02	NV	NA
Toluene	108-88-3	0.0012	200	6.0E-06	NV	NA
SVOCs						
2-Methylnaphthalene	91-57-6	0.0049	NV	NC	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.057	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.016	NV	NC	NV	NA
Dimethyl Phthalate	131-11-3	0.0019	NV	NC	NV	NA
Total Low Molecular Weight PAHs	--	0.0384	NV	NC	NV	NA
Total High Molecular Weight PAHs	--	0.5793	NV	NC	NV	NA

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
NV = No Value Available
NC = Not Calculated
Hazard Quotient = Soil Concentration/Screening Level
SL = Screening Level
NBE = No Background Point Estimate Available
NA = Not Applicable

See Table F.4-3 for Total PCBs
See Table F.4-4 for Total Low and High Molecular Weight PAHs

Table F.4-7
SSA 60 - Invertebrate and Microbial Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	NV	--
Antimony	7440-36-0	78	ECO SSL
Arsenic	7440-38-2	60	ORNL-Earthworm
Barium	7440-39-3	330	ECO SSL
Beryllium	7440-41-7	40	ECO SSL
Cadmium	7440-43-9	140	ECO SSL
Chromium	7440-47-3	0.4	ORNL-Earthworm
Cobalt	7440-48-4	200	BTAG - Fauna
Copper	7440-50-8	80	ECO SSL
Iron	7439-89-6	200	ORNL - Microbial
Lead	7439-92-1	1,700	ECO SSL
Manganese	7439-96-5	450	ECO SSL
Mercury	7439-97-6	0.1	ORNL-Earthworm
Nickel	7440-02-0	280	ECO SSL
Selenium	7782-49-2	4.1	ECO SSL
Silver	7440-22-4	50	ORNL - Microbial
Thallium	7440-28-0	NV	--
Vanadium	7440-62-2	20	ORNL - Microbial
Zinc	7440-66-6	120	Eco SSL
Cyanide			
Cyanide, Total	57-12-5	0.9	CCME-2006
Pesticides			
4,4'-DDD	72-54-8	0.1	BTAG - Fauna
4,4'-DDE	72-55-9	0.1	BTAG - Fauna
Dieldrin	60-57-1	NV	--
gamma-Chlordane	5103-74-2	0.1	BTAG - Fauna
Heptachlor Epoxide	1024-57-3	0.1	BTAG - Fauna
PCBs			
Aroclor 1254	11097-69-1	NV	--
Aroclor 1260	11096-82-5	NV	--
VOCs			
Acetone	67-64-1	NV	--
Methylene Chloride	75-09-2	0.3	BTAG - Fauna
Toluene	108-88-3	0.1	BTAG - Fauna
SVOCs			
2-Methylnaphthalene	91-57-6	NV	--
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Dimethyl Phthalate	131-11-3	NV	--
Low Molecular Weight PAHs	--	29	ECO SSL
High Molecular Weight PAHs	--	18	ECO SSL

Notes:
CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
NV = No Value Available
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.4-8
SSA 60 - Invertebrate and Microbial Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	25,000	NV	NC	40,041	N
Antimony	7440-36-0	0.5	78	6.4E-03	--	NBE
Arsenic	7440-38-2	12	60	2.0E-01	15.8	N
Barium	7440-39-3	130	330	3.9E-01	209	N
Beryllium	7440-41-7	1.3	40	3.3E-02	1.02	N
Cadmium	7440-43-9	1.1	140	7.9E-03	0.69	N
Chromium	7440-47-3	39	0.4	**9.8E+01**	65.3	N
Cobalt	7440-48-4	11.5	200	5.8E-02	72.3	N
Copper	7440-50-8	51	80	6.4E-01	53.5	N
Iron	7439-89-6	30,000	200	**1.5E+02**	50,962	N
Lead	7439-92-1	130	1,700	7.6E-02	26.8	N
Manganese	7439-96-5	670	450	**1.5E+00**	2,543	N
Mercury	7439-97-6	0.09	0.1	9.2E-01	0.13	N
Nickel	7440-02-0	24	280	8.6E-02	62.8	N
Selenium	7782-49-2	0.66	4	1.6E-01	--	NBE
Silver	7440-22-4	0.12	50	2.4E-03	--	NBE
Thallium	7440-28-0	0.21	NV	NC	2.11	N
Vanadium	7440-62-2	43	20	**2.2E+00**	108	N
Zinc	7440-66-6	130	120	**1.1E+00**	202	N
Cyanide						
Cyanide, Total	57-12-5	2.6	0.9	**2.9E+00**	NV	NA
Pesticides						
4,4'-DDD	72-54-8	0.001345	0.1	1.3E-02	NV	NA
4,4'-DDE	72-55-9	0.01608	0.1	1.6E-01	NV	NA
Dieldrin	60-57-1	0.00058	NV	NC	NV	NA
gamma-Chlordane	5103-74-2	0.00124	0.1	1.2E-02	NV	NA
Heptachlor Epoxide	1024-57-3	0.0022	0.1	2.2E-02	NV	NA
PCBs						
Aroclor 1254	11097-69-1	0.089	NV	NC	NV	NA
Aroclor 1260	11096-82-5	0.05	NV	NC	NV	NA
Total PCBs	--	0.139	NV	NC	NV	NA
VOCs					NV	NA
Acetone	67-64-1	0.012	NV	NC	NV	NA
Methylene Chloride	75-09-2	0.003	0.3	1.0E-02	NV	NA
Toluene	108-88-3	0.0012	0.1	1.2E-02	NV	NA
SVOCs						
2-Methylnaphthalene	91-57-6	0.0049	NV	NC	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.057	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.016	NV	NC	NV	NA
Dimethyl Phthalate	131-11-3	0.0019	NV	NC	NV	NA
Total Low Molecular Weight PAHs	--	0.0457	29	1.6E-03	NV	NA
Total High Molecular Weight PAHs	--	0.444	18	2.5E-02	NV	NA

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
NV = No Value Available
NC = Not Calculated
Hazard Quotient = Soil Concentration/Screening Level
NBE = No Background Point Estimate Available
NA = Not Applicable

See Table F.4-3 for Total PCBs
See Table F.4-4 for Total Low and High Molecular Weight PAHs

Table F.4-9
SSA 60 - Wildlife Profiles
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment					Refined Assessment					
Representative Species			Composition of Diet[1] (%)				Minimum Body Weight[1]	Maximum Body Weight[1]	Maximum Food Ingestion Rate[2]	Maximum Substrate Ingestion Rate[3]		Average Body Weight[1]	Average Food Ingestion Rate[2]	Average Substrate Ingestion Rate[3]	Home Range (ha)	Proportion of Year Species Active	AUFs
Food-web Classification	Common Name	Scientific Name	Plants (incl. fungi)	Inverte-brates	Small mammals	Fish	kg	kg	kg dw/day	% of dry intake	kg dry wt./day	kg	kg dw/day	kg dry wt./day			Study Area (0.608) hectares
Birds																	
soil-probing invertivore	American robin	*Turdus migratorius*	62%	38%			0.0635	0.103	0.02	5%	0.001	0.077	0.016	0.0008	0.48	1	1.00
large carnivore	Red-tailed hawk	*Buteo jamaicensis*			100%		0.957	1.235	0.063	0%	0	1.134	0.059	0	250	1	0.0024
Mammals																	
small herbivore	Meadow vole	*Microtus pennsylvanicus*	100%				0.017	0.0524	0.01	2.4%	0.00024	0.037	0.008	0.00019	0.037	1	1
medium carnivore	Red fox	*Vulpes vulpes*	17%	4%	79%		2.95	7.04	0.342	2.8%	0.0096	4.53	0.238	0.0067	96	1	0.0063
small invertivore	Short-tailed shrew	*Blarina brevicauda*	14%	86%			0.0125	0.0225	0.003	13%	0.00039	0.015	0.002	0.00026	0.39	1	1.00

Notes:
kg = Kilogram
kg dw/day = Kilogram Dry-weight per Day
L/day = Liter per Day
ha = Hectares
AUF = Area Use Factor

[1]Wildlife Exposure Factors Handbook. U.S. Environmental Protection Agency (EPA). 1993. Office of Research and Development. 2 Volumes. EPA/600/R93/187a&b. December.
[2] Estimated food intake rate (kg [dw]/day) calculated as follows:
FI ((kg/day) = 0.0687 $Wt.^{0.882}$ for mammals (red fox and short-tailed shrew)
FI ((g/day) = 0.577 $Wt.^{0.727}$ for herbivores (meadow vole)
FI ((g/day) = 0.301 $Wt.^{0.751}$ for non-passerine birds (red-tailed hawk)
FI ((g/day) = 0.398 $Wt.^{0.850}$ for passerine birds (american robin)
[3]Estimating Exposure to Terrestrial Wildlife to Contaminants. Sample and Sutter. 1994. ES/ER/TM-125.
The soil ingestion rate for the american robin set equal to 38% of the american woodcock value (0.34*10.4%=4%), based on a robin diet of 38% invertbrates.

Table F.4-10
SSA 60 - Wildlife TRVs
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	AVIAN TEST SPECIES				MAMMALIAN TEST SPECIES					AVIAN RECEPTORS				MAMMALIAN RECEPTORS					
											American Robin		Red-tailed Hawk		Meadow Vole		Red Fox		Short-tailed Shrew	
		Chronic LOAEL	Chronic NOAEL	Test Animal	Source	Chronic LOAEL	Chronic NOAEL	Test Animal	Test Animal Body Weight (kg)	Source	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL
		(mg/kg-bw/d)				(mg/kg-bw/d)					(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)	
Arsenic	7440-38-2	1.28E+01	5.14E+00	mallard duck	ORNL 1996	1.26	0.126	mouse	0.03	ORNL 1996	1.28E+01	5.14E+00	1.28E+01	5.14E+00	1.20E+00	1.20E-01	3.59E-01	3.59E-02	1.50E+00	1.50E-01
Cadmium	7440-43-9	2.00E+01	1.45E+00	mallard duck	ORNL 1996	10	1	rat	0.3	ORNL 1996	2.00E+01	1.45E+00	2.00E+01	1.45E+00	1.69E+01	1.69E+00	5.07E+00	5.07E-01	2.11E+01	2.11E+00
Chromium	7440-47-3	5.00E+00	1.00E+00	black duck	ORNL 1996	32.8	3.28	rat	0.35	ORNL 1996	5.00E+00	1.00E+00	5.00E+00	1.00E+00	5.75E+01	5.75E+00	1.73E+01	1.73E+00	7.21E+01	7.21E+00
Copper	7440-50-8	6.17E+01	4.70E+01	1 day old chicks	ORNL 1996	15.4	11.7	mink	1	ORNL 1996	6.17E+01	4.70E+01	6.17E+01	4.70E+01	3.51E+01	2.67E+01	1.06E+01	8.02E+00	4.40E+01	3.34E+01
Lead	7439-92-1	1.13E+01	1.13E+00	Japanese quail	ORNL 1996	80	8	rat	0.35	ORNL 1996	1.13E+01	1.13E+00	1.13E+01	1.13E+00	1.40E+02	1.40E+01	4.22E+01	4.22E+00	1.76E+02	1.76E+01
Mercury	7439-97-6	9.00E-01	4.50E-01	Japanese Quail	ORNL 1996	132	13.2	mink	1	ORNL 1996	9.00E-01	4.50E-01	9.00E-01	4.50E-01	3.01E+02	3.01E+01	9.05E+01	9.05E+00	3.77E+02	3.77E+01
Nickel	7440-02-0	1.07E+02	7.74E+01	mallard duckling	ORNL 1996	80	40	rat	0.35	ORNL 1996	1.07E+02	7.74E+01	1.07E+02	7.74E+01	1.40E+02	7.01E+01	4.22E+01	2.11E+01	1.76E+02	8.79E+01
Selenium	7782-49-2	8.00E-01	4.00E-01	mallard duck	ORNL 1996	0.33	0.2	rat	0.35	ORNL 1996	8.00E-01	4.00E-01	8.00E-01	4.00E-01	5.79E-01	3.51E-01	1.74E-01	1.05E-01	7.25E-01	4.40E-01
Silver	7440-22-4	1.24E+02	1.66E+01	turkey	Matuk et al. 1981	222	22.2	rat	0.35	Matuk et al. 1981	1.24E+02	1.66E+01	1.24E+02	1.66E+01	3.89E+02	3.89E+01	1.17E+02	1.17E+01	4.88E+02	4.88E+01
Zinc	7440-66-6	1.31E+02	1.45E+01	white leghorn hen	ORNL 1996	320	160	rat	0.35	ORNL 1996	1.31E+02	1.45E+01	1.31E+02	1.45E+01	5.61E+02	2.81E+02	1.69E+02	8.44E+01	7.03E+02	3.52E+02
PAHs																				
Acenaphthene	83-32-9	5.05E+00	1.01E+00	red-winged blackbird	USACE 1998	87.5	17.5	mouse	0.03	USACE 1998	5.05E+00	1.01E+00	5.05E+00	1.01E+00	8.30E+01	1.66E+01	2.50E+01	4.99E+00	1.04E+02	2.08E+01
Acenaphthylene	208-96-8	--	--	--	USACE 1998	500	100	rat	0.35	USACE 1998	NV	NV	NV	NV	8.77E+02	1.75E+02	2.64E+02	5.27E+01	1.10E+03	2.20E+02
Benzo(a)anthracene	56-55-3	--	--	--	USACE 1998	2	0.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	2.91E+00	2.91E-01	8.74E-01	8.74E-02	3.64E+00	3.64E-01
Benzo(a)pyrene	50-32-8	2.50E+00	5.00E-01	duck	ORNL 1996	10	1	mouse	0.03	ORNL 1996	2.50E+00	5.00E-01	2.50E+00	5.00E-01	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(b)fluoranthene	205-99-2	--	--	--	ORNL 1996	10	1	mouse	0.03	ORNL 1996	NV	NV	NV	NV	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(g,h,i)perylene	191-24-2	--	--	--	USACE 1998	2.5	0.5	mouse	0.03	USACE 1998	NV	NV	NV	NV	2.37E+00	4.74E-01	7.13E-01	1.43E-01	2.97E+00	5.95E-01
Benzo(k)fluoranthene	207-08-9	--	--	--	USACE 1998	72	7.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.05E+02	1.05E+01	3.15E+01	3.15E+00	1.31E+02	1.31E+01
Chrysene	218-01-9	--	--	--	USACE 1998	99	9.9	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.44E+02	1.44E+01	4.32E+01	4.32E+00	1.80E+02	1.80E+01
Dibenzo(a,h)anthracene	53-70-3	--	--	--	USACE 1998	13.33	1.333	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.94E+01	1.94E+00	5.82E+00	5.82E-01	2.43E+01	2.43E+00
Fluoranthene	206-44-0	--	--	--	USACE 1998	100	20	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.45E+02	2.91E+01	4.37E+01	8.74E+00	1.82E+02	3.64E+01
Indeno(1,2,3-cd)pyrene	193-39-5	--	--	--	USACE 1998	72	7.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.05E+02	1.05E+01	3.15E+01	3.15E+00	1.31E+02	1.31E+01
Phenanthrene	85-01-8	5.65E+00	1.13E+00	red-winged blackbird	USACE 1998	35	7	mouse	0.03	USACE 1998	5.65E+00	1.13E+00	5.65E+00	1.13E+00	3.32E+01	6.64E+00	9.98E+00	2.00E+00	4.16E+01	8.32E+00
Pyrene	129-00-0	--	--	--	USACE 1998	40	8	mouse	0.03	USACE 1998	NV	NV	NV	NV	3.80E+01	7.59E+00	1.14E+01	2.28E+00	4.76E+01	9.51E+00
Pesticides																				
4,4'-DDD	72-54-8	2.80E-02	2.80E-03	brown pelican	NCI 1978	850	85	rat	0.35	NCI 1978	2.80E-02	2.80E-03	2.80E-02	2.80E-03	1.49E+03	1.49E+02	4.48E+02	4.48E+01	1.87E+03	1.87E+02
4,4'-DDE	72-55-9	5.80E-01	5.80E-02	mallard duck	Kornbrust et al. 1986	230	23	rat	0.35	Kornbrust et al. 1986	5.80E-01	5.80E-02	5.80E-01	5.80E-02	4.03E+02	4.03E+01	1.21E+02	1.21E+01	5.06E+02	5.06E+01
Dieldrin	60-57-1	7.70E-01	7.70E-02	barn owl	ORNL 1996	0.2	0.02	rat	0.35	ORNL 1996	7.70E-01	7.70E-02	7.70E-01	7.70E-02	3.51E-01	3.51E-02	1.05E-01	1.05E-02	4.40E-01	4.40E-02
gamma-Chlordane	5103-74-2	1.06E+01	2.14E+00	red-winged blackbird	Chlordane Value	3.9	0.39	mouse	0.03	ATSDR 1994	1.06E+01	2.14E+00	1.06E+01	2.14E+00	3.70E+00	3.70E-01	1.11E+00	1.11E-01	4.64E+00	4.64E-01
Heptachlor epoxide	1024-57-3	4.95E+00	9.90E-01	Japanese quail	USACE 1998	0.25	0.025	rat	0.35	USACE 1998	4.95E+00	9.90E-01	4.95E+00	9.90E-01	4.38E-01	4.38E-02	1.32E-01	1.32E-02	5.49E-01	5.49E-02
PCBs																				
Aroclor 1254	11097-69-1	1.80E+00	1.80E-01	ring-necked pheasant	ORNL 1996	3.43	1.37	mink	1	Aroclor 1016 Value	1.80E+00	1.80E-01	1.80E+00	1.80E-01	7.82E+00	3.12E+00	2.35E+00	9.39E-01	9.80E+00	3.91E+00
Aroclor 1260	11096-82-5	1.80E+00	1.80E-01	ring-necked pheasant	Aroclor 1254 Value	3.43	1.37	mink	1	Aroclor 1016 Value	1.80E+00	1.80E-01	1.80E+00	1.80E-01	7.82E+00	3.12E+00	2.35E+00	9.39E-01	9.80E+00	3.91E+00

Notes:
CAS = Chemical Abstract Service
TRV = Toxic Reference Value
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw/d = Body Weight Per Day
kg = kilogram
PAH = Polynuclear Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
USACE = U.S. Army Corps of Engineers
ORNL = Oak Ridge National Laboratory
NOAEL and LOAEL values were derived from acute values by applying an uncertainty factor of 150.
LD_{50} = Lethal Dose for 50% of test organisms

Sources:

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ORNL 1996. Sample, B.E., D.M. Opresko and G.W. Suter II. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. ES/ER/TM-86/R3. Oak Ridge National Laboratory, Oak Ridge, Tennessee.
USACE 1998. U.S. Army Corps of Engineers (USACE). 1998. Final Ecological Risk Assessment, RCRA Facility Investigation, for Sunflower Army Ammunition Plant, De Soto, Kansas. USACE Kansas City District.
USCHPPM 2007. U.S. Army Center for Health Promotion and Preventive Medicine (USCHPPM) 2007, Wildlife Toxicity Assessment for Nitroglycerine (NG). USACHPPM Document No: 37-EJ-1138-01F. November.
U.S. EPA 1988. Recommendations for and documentation of biological values for use in risk assessment. Environmental Criteria and Assessment Office. Cincinnati, OH. EPA/600/6-87/008.

[4]- Mature rat body weight (average male & female) = 0.325 kg (U.S. EPA, 1988).

Table F.4-11
SSA 60 - Soil Biocaccumulation/Bioconcentration Factors- Soil to Plant Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

					Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected K_{ow}**	**Source**	**BAF**	**Basis**	**C_s MDC (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	1.103	90th percentile	12	0.0375	Median	Bechtel Jacobs 1998
CADMIUM	7440-43-9	-- - --	--	--	3.25	90th percentile	1.1	0.5955	$C_p = e^{(0.546*ln(Cs) - 0.475)}$	Bechtel Jacobs 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.084	90th percentile	39	0.0410	Median	Bechtel Jacobs 1998
COPPER	7440-50-8	-- - --	--	--	0.625	90th percentile	51	0.1800	$C_p = e^{(0.394*ln(Cs) + 0.668)}$	Bechtel Jacobs 1998
LEAD	7439-92-1	-- - --	--	--	0.468	90th percentile	130	0.0313	$C_p = e^{(0.561*ln(Cs) - 1.328)}$	Bechtel Jacobs 1998
MERCURY	7439-97-6	-- - --	--	--	5	90th percentile	0.092	1.0975	$C_p = e^{(0.544*ln(Cs) - 0.995)}$	Bechtel Jacobs 1998
NICKEL	7440-02-0	-- - --	--	--	1.411	90th percentile	24	0.0486	$C_p = e^{(0.748*ln(Cs) + 2.223)}$	Bechtel Jacobs 1998
SELENIUM	7782-49-2	-- - --	--	--	3.012	90th percentile	0.66	0.4866	$C_p = e^{(1.104*ln(Cs) - 0.677)}$	Bechtel Jacobs 1998
SILVER	7440-22-4	-- - --	--	--	0.037	90th percentile	0.12	0.0140	Median	Bechtel Jacobs 1998
ZINC	7440-66-6	-- - --	--	--	1.82	90th percentile	130	0.5511	$C_p = e^{(0.554*ln(Cs) + 1.575)}$	Bechtel Jacobs 1998
Pesticides										
4,4'-DDD	72-54-8	5.9 - 6.65	6.1	USEPA 1995	0.08	DDE as Surrogate	0.001345	0.4169	$C_p = e^{(0.752*ln(Cs) - 2.512)}$	USEPA 2005
4,4'-DDE	72-55-9	5.63 - 6.96	6.76	USEPA 1995	0.08	Maximum	0.01608	0.2256	$C_p = e^{(0.752*ln(Cs) - 2.512)}$	USEPA 2005
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	1	Default Value	0.00058	0.41	Median	USEPA 2005
GAMMA-CHLORDANE	5103-74-2	5.8 - 6.41	6.32	USEPA 1995	1	Default Value	0.00124	0.0086	K_{ow} Regression Eq.	Travis and Arms 1988
HEPTACHLOR EPOXIDE	1024-57-3	3.5 - 5.4	5	USEPA 1995	1	Default Value	0.0022	0.0499	K_{ow} Regression Eq.	Travis and Arms 1988
PCBs										
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	0.00678	K_{ow} Regression Eq.	0.089	0.0068	K_{ow} Regression Eq.	Travis and Arms 1988
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	0.00455	K_{ow} Regression Eq.	0.05	0.0045	K_{ow} Regression Eq.	Travis and Arms 1988
VOCs and SVOCs										
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	4.6	Anthracene as Surrogate	0.0012	1010.0093	$C_p = e^{(-0.8556*ln(Cs) - 5.562)}$	USEPA 2005
ACENAPHTHYLENE	208-96-8	-- - --	4.1	USEPA 1995	4.6	Anthracene as Surrogate	0.0073	0.8907	$C_p = e^{(0.791*ln(Cs) - 1.144)}$	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	4.6	Maximum	0.0042	1.2511	$C_p = e^{(0.778*ln(Cs) - 0.989)}$	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	0.54	Maximum	0.051	0.2230	$C_p = e^{(0.5944*ln(Cs) - 2.708)}$	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	3.3	Maximum	0.069	0.1361	$C_p = e^{(0.975*ln(Cs) - 2.0615)}$	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	0.48	Maximum	0.12	0.31	Median BAF	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.6	Maximum	0.046	0.2244	$C_p = e^{(1.183*ln(Cs) - 0.931)}$	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Maximum	0.035	0.1851	$C_p = e^{(0.860*ln(Cs) - 2.158)}$	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1.05	Maximum	0.067	0.1996	$C_p = e^{(0.594*ln(Cs) - 2.708)}$	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	0.23	Maximum	0.0093	0.13	Median BAF	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	6	Maximum	0.06	0.50	Median BAF	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.65	USEPA 1995	0.15	Maximum	0.036	0.11	Median BAF	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	11	Maximum	0.023	3.5460	$C_p = e^{(0.620*ln(Cs) - 0.167)}$	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	3.7	Maximum	0.086	0.72	Median BAF	USEPA 2005

Notes:

CAS = Chemical Abstract Services

BAF = Bioaccumulation Factor

K_{ow} = Chemical octanol-water coefficient

NC = Not Calculated

C_s = Chemical Concentration in Soil

C_p = Chemical Concentration in Plant Matter (dry weight)

[1] = BAFs for chemical using Cp regression equation calculated by as follows: BAF = C_p/C_s

MDC = Maximum Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. 1995. Karickhoff, S.W. , and J.M. Long. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.

Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision

Bechtel Jacobs 1998: Bechtel Jacobs Company. September 1998. Emperical Models for the Uptake of Inorganic Chemical from Soil by Plants.

USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

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K_{ow} Regression Equation: BAF =10^((-0.578*K_{ow})+1.588))

Table F.4-12
SSA 60 - Soil Biocaccumulation/Bioconcentration Factors - Soil to Invertebrate Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected Log K_{ow}**	**Reference**	**K_{oc}**	**Reference**	**Value**	**Basis**	**C_s MDC (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics												
ARSENIC	7440-38-2	-- - --	--	--	--	--	0.523	90th percentile	12	0.1163	$C_e = e^{(0.706\ ln(C_s) - 1.421)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	--	--	40.69	90th percentile	1.1	8.121	$C_e = e^{(0.795\ ln(C_s) + 2.114)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	--	--	3.162	90th percentile	39	0.306	Median	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	--	--	1.531	90th percentile	51	0.515	Median	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	--	--	1.522	90th percentile	130	0.3143	$C_e = e^{(0.867\ ln(C_s) - 0.218)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	--	--	20.625	90th percentile	0.092	1.693	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	--	--	4.73	90th percentile	24	1.059	Median	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	--	--	1.34	90th percentile	0.66	1.037	$C_e = e^{(0.733\ ln(C_s) - 0.075)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	--	--	15.3	90th percentile	0.12	2.045	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	--	--	12.885	90th percentile	130	3.248	$C_e = e^{(0.328\ ln(C_s) + 4.449)}$	Sample et al. 1998
Pesticides												
4,4'-DDD	72-54-8	5.9 - 6.65	6.1	USEPA 1995	--	--	12.2	90th percentile	0.001345	19.97	$C_e = e^{(0.699\ ln(C_s) + 1.161)}$	USEPA 2005
4,4'-DDE	72-55-9	5.63 - 6.96	6.76	USEPA 1995	--	--	20.1	90th percentile	0.01608	19.51	$C_e = e^{(0.88\ ln(C_s) + 2.471)}$	USEPA 2005
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	--	--	79.58	Maximum	0.00058	30.44	$C_e = e^{(0.876\ ln(C_s) + 2.278)}$	USEPA 2005
GAMMA-CHLORDANE	5103-74-2	5.8 - 6.41	6.32	USEPA 1995	5.89E+04	SRC, CF	4	Not Specified	0.00124	4	Not Specified	Edwards and Bohlen 1992
HEPTACHLOR EPOXIDE	1024-57-3	3.5 - 5.4	5	USEPA 1995	1.06E+01	SRC, CF	8.39	Not Specified	0.0022	8.39	Not Specified	USEPA 1999
PCBs												
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	--	--	15.9	90th percentile	0.089	6.67	Median	Sample et al. 1998
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	--	--	15.9	90th percentile	0.05	6.67	Median	Sample et al. 1998
VOCs and SVOCs												
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	1.09E+04	USEPA 2005	48.14	Jager Model	0.0012	15.367	Jager Model	USEPA 2005
ACENAPHTHYLENE	208-96-8	-- - --	4.07	USEPA 1995	9.47E+02	USEPA 2005	238.87	Jager Model	0.0073	238.9	Jager Model	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	2.35E+04	USEPA 2005	41.55	Jager Model	0.0042	25.18	Jager Model	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	3.58E+05	USEPA 2005	19.82	Jager Model	0.051	16.547	Jager Model	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	9.69E+05	USEPA 2005	22.03	Jager Model	0.069	13.899	Jager Model	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	5.96E+05	USEPA 2005	40.40	Jager Model	0.12	27.06	Jager Model	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.43E+06	USEPA 2005	61.91	Jager Model	0.046	30.71	Jager Model	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	5.96E+05	USEPA 2005	31.14	Jager Model	0.035	27.06	Jager Model	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	2.48E+05	USEPA 2005	28.61	Jager Model	0.067	23.89	Jager Model	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	1.79E+06	USEPA 2005	35.18	Jager Model	0.0093	24.05	Jager Model	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	4.95	USEPA 1995	4.17E+04	USEPA 2005	76.34	Jager Model	0.06	31.62	Jager Model	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.58	USEPA 1995	1.17E+06	USEPA 2005	39.07	Jager Model	0.036	29.75	Jager Model	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	3.30E+04	USEPA 2005	18.66	Jager Model	0.023	17.931	Jager Model	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	4.88	USEPA 1995	6.27E+04	USEPA 2005	65.88	Jager Model	0.086	18.279	Jager Model	USEPA 2005
Dioxin/Furans												
2,3,7,8-TCDD	1746-01-6	6.42 - 7.02	6.53	USEPA 1995	--	--	22.2	90th percentile	NC	11	Median	Sample et al. 1998

Notes:

CAS = Chemical Abstract Services

C_s = Chemical Concentration in Soil

C_e = Chemical Concentration in Earthworm (dry weight)

K_{ow} = Chemical octanol-water coefficient

MDC = Maximum Detected Concentration

K_{oc} = Chemical water to soil partitioning coefficient

K_{ww} = Chemical worm to soil partitioning coefficient

foc = fraction organic content in soil (0.00096 from physical samples)

[1] = BAFs for chemical using Ce regression equation calculated by as follows: BAF = C_e/C_s

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia

Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision

Sample et al. 1998: Sample, B.E., Beauchamp, J.J., Efroymson, R.A., Sutter, G.W., Ashwood, T.L., February 1998. Development and Validation of Bioaccumulation Models for Earthworms.

Jager Model: As presented in USEPA 2005, Guidance for Developing Ecological Screening Levels, Appendix 4-1, Table 5.

BAF = K_{ww}(L/kg worm dw)/K_d (L/kg soil dw)

K_{ww} (dry weight) = 10^(0.87*logK_{ow} - 2.0) / 0.16

Wet weight to dry weight assuming 16% solids

$K_d = f_{oc} * K_{oc}$

foc = 0.00096 from site specific physical soil data

Note: The maximum Kow utilized for the preliminary calculation and the Selected Kow utilized for the refined calculation.

Edwards and Bohlen 1992: Edwards, C.A. and Bohlen, P.J. 1992. The effects of toxic chemicals on earthworms. Reviews of Environmental Contamination and Toxicology, 125: 23-99.

USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

SRC/CF: Syracuse Research Corporation (SRC). Physical Properties Database. http://www.syrres.com/esc/physdemo.htm

Table F.4-13
SSA 60 - Soil Bioaccumulation/Bioconcentration Factors - Soil to Mammal Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS	Log K_{ow} Range	Selected K_{ow}	Reference	Preliminary Assessment		Refined Assessment			Source
					Value	Basis	C_s MDC (mg/kg)	BAF[1]	Basis	
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	0.0149	90th percentile	12	0.0050	$C_m = e^{(0.819*\ln(Cs) - 4.847)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	3.9905	90th percentile	1.1	0.2705	$C_m = e^{(0.472*\ln(Cs) - 1.257)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.333	90th percentile	39	0.0876	$C_m = e^{(0.734*\ln(Cs) - 1.46)}$	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	1.045	90th percentile	51	0.2666	$C_m = e^{(0.144*\ln(Cs) + 2.042)}$	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	0.2864	90th percentile	130	0.0714	$C_m = e^{(0.442*\ln(Cs) + 0.0761)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	0.192	90th percentile	0.092	0.0543	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	0.5891	90th percentile	24	0.1431	$C_m = e^{(0.466*\ln(Cs) - 0.246)}$	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	1.1867	90th percentile	0.66	0.8550	$C_m = e^{(0.376*\ln(Cs) -0.416)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	0.5013	90th percentile	0.12	0.0040	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	2.6878	90th percentile	130	0.8516	$C_m = e^{(0.071*\ln(Cs) + 4.363)}$	Sample et al. 1998
Pesticides										
4,4'-DDD	72-54-8	5.9 - 6.65	6.1	USEPA 1995	1	Default Value	0.001345	408.94	$C_m = e^{(0.641*\ln(Cd) + 3.640)}$	USEPA 2005
4,4'-DDE	72-55-9	5.63 - 6.96	6.76	USEPA 1995	1	Default Value	0.01608	167.81	$C_m = e^{(0.641*\ln(Cd) + 3.640)}$	USEPA 2005
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	1	Default Value	0.00058	0.0005	$C_m = e^{(0.6076*\ln(Cs) - 1.9582)}$	USEPA 2005
GAMMA-CHLORDANE	5103-74-2	5.8 - 6.41	6.32	USEPA 1995	1	Default Value	0.00124	1	Default Value	--
HEPTACHLOR EPOXIDE	1024-57-3	3.5 - 5.4	5	USEPA 1995	1	Default Value	0.0022	1	Default Value	--
PCBs										
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	1	Default Value	0.089	1	Default Value	--
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	1	Default Value	0.05	1	Default Value	--
VOCs and SVOCs										
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	1	Default Value	0.0012	0	--	USEPA 2005
ACENAPHTHYLENE	208-96-8	-- - --	4.07	USEPA 1995	1	Default Value	0.0073	0	--	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	1	Default Value	0.0042	0	--	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	1	Default Value	0.051	0	--	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	1	Default Value	0.069	0	--	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	1	Default Value	0.12	0	--	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1	Default Value	0.046	0	--	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Default Value	0.035	0	--	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1	Default Value	0.067	0	--	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	1	Default Value	0.0093	0	--	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	1	Default Value	0.06	0	--	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.65	USEPA 1995	1	Default Value	0.036	0	--	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	1	Default Value	0.023	0	--	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	1	Default Value	0.086	0	--	USEPA 2005

Notes:

CAS = Chemical Abstract Services

C_s = Chemical Concentration in Soil

C_d = Chemical Concentration in Prey (assumed to be 100% earthworms (dry weight))

C_m = Chemical Concentration in Mammal (dry weight)

K_{ow} = Chemical octanol to water partitioning coefficient

[1] = BAFs for chemical using Ce regression equation calculated by as follows: $BAF = C_m/C_s$

MDC = Maximum Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.

Sample et al. 1998: Sample et al. 1998. Development and Validation of Bioaccumulation Models for Small Mammals.

Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision

USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

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Table F.4-14
SSA 60 - Preliminary Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	12	1.1E+00	1.3E+01	1.8E-01	1.8E+00	**6.65E+01**	**6.7E+00**
Cadmium	7440-43-9	1.69E+00	1.69E+01	1.1	3.3E+00	3.6E+00	8.8E-01	8.8E+00	**1.26E+00**	1.3E-01
Chromium	7440-47-3	5.75E+00	5.75E+01	39	8.4E-02	3.3E+00	9.1E+01	9.1E+02	4.31E-01	4.3E-02
Copper	7440-50-8	2.67E+01	3.51E+01	51	6.3E-01	3.2E+01	7.0E+01	9.2E+01	7.30E-01	5.5E-01
Lead	7439-92-1	1.40E+01	1.40E+02	130	4.7E-01	6.1E+01	4.8E+01	4.8E+02	**2.68E+00**	2.7E-01
Mercury	7439-97-6	3.01E+01	3.01E+02	0.092	5.0E+00	4.6E-01	1.0E+01	1.0E+02	9.03E-03	9.0E-04
Nickel	7440-02-0	7.01E+01	1.40E+02	24	1.4E+00	3.4E+01	8.3E+01	1.7E+02	2.89E-01	1.4E-01
Selenium	7782-49-2	3.51E-01	5.79E-01	0.66	3.0E+00	2.0E+00	2.0E-01	3.2E-01	**3.36E+00**	**2.0E+00**
Silver	7440-22-4	3.89E+01	3.89E+02	0.12	3.7E-02	4.4E-03	1.1E+03	1.1E+04	1.11E-04	1.1E-05
Zinc	7440-66-6	2.81E+02	5.61E+02	130	1.8E+00	2.4E+02	2.6E+02	5.2E+02	5.03E-01	2.5E-01
Pesticides										
4,4'-DDD	72-54-8	1.49E+02	1.49E+03	0.001345	8.0E-02	1.1E-04	2.4E+03	2.4E+04	5.52E-07	5.5E-08
4,4'-DDE	72-55-9	4.03E+01	4.03E+02	0.01608	8.0E-02	1.3E-03	6.6E+02	6.6E+03	2.44E-05	2.4E-06
Dieldrin	60-57-1	3.51E-02	3.51E-01	0.00058	1.0E+00	5.8E-04	5.8E-02	5.8E-01	9.96E-03	1.0E-03
gamma-Chlordane	5103-74-2	3.70E-01	3.70E+00	0.00124	1.0E+00	1.2E-03	6.1E-01	6.1E+00	2.02E-03	2.0E-04
Heptachlor Epoxide	1024-57-3	4.38E-02	4.38E-01	0.0022	1.0E+00	2.2E-03	7.3E-02	7.3E-01	3.02E-02	3.0E-03
PCBs										
Aroclor 1254	11097-69-1	6.45E-02	6.45E-01	0.089	6.8E-03	6.0E-04	3.6E+00	3.6E+01	2.50E-02	2.5E-03
Aroclor 1260	11096-82-5	6.45E-02	6.45E-01	0.05	4.5E-03	2.3E-04	3.8E+00	3.8E+01	1.30E-02	1.3E-03
SVOCs										
Acenaphthene	83-32-9	1.66E+01	8.30E+01	0.0012	4.6E+00	5.5E-03	6.1E+00	3.1E+01	1.97E-04	3.9E-05
Acenaphthylene	208-96-8	1.75E+02	8.77E+02	0.0073	4.6E+00	3.4E-02	6.4E+01	3.2E+02	1.13E-04	2.3E-05
Anthracene	120-12-7	4.80E+02	4.80E+03	0.0042	4.6E+00	1.9E-02	1.8E+02	1.8E+03	2.38E-05	2.4E-06
Benzo(a)anthracene	56-55-3	2.91E-01	2.91E+00	0.051	5.4E-01	2.8E-02	8.8E-01	8.8E+00	5.82E-02	5.8E-03
Benzo(a)pyrene	50-32-8	9.49E-01	9.49E+00	0.069	3.3E+00	2.3E-01	4.9E-01	4.9E+00	1.42E-01	1.4E-02
Benzo(b)fluoranthene	205-99-2	9.49E-01	9.49E+00	0.12	4.8E-01	5.8E-02	3.2E+00	3.2E+01	3.75E-02	3.7E-03
Benzo(g,h,i)perylene	191-24-2	4.74E-01	2.37E+00	0.046	1.6E+00	7.4E-02	5.0E-01	2.5E+00	9.26E-02	1.9E-02
Benzo(k)fluoranthene	207-08-9	1.05E+01	1.05E+02	0.035	1.0E+00	3.5E-02	1.7E+01	1.7E+02	2.01E-03	2.0E-04
Chrysene	218-01-9	1.44E+01	1.44E+02	0.067	1.1E+00	7.0E-02	2.3E+01	2.3E+02	2.94E-03	2.9E-04
Dibenz(a,h)anthracene	53-70-3	1.94E+00	1.94E+01	0.0093	2.3E-01	2.1E-03	1.3E+01	1.3E+02	7.17E-04	7.2E-05
Fluoranthene	206-44-0	2.91E+01	1.45E+02	0.06	6.0E+00	3.6E-01	8.2E+00	4.1E+01	7.32E-03	1.5E-03
Indeno(1,2,3-cd)pyrene	193-39-5	1.05E+01	1.05E+02	0.036	1.5E-01	5.4E-03	1.0E+02	1.0E+03	3.52E-04	3.5E-05
Phenanthrene	85-01-8	6.64E+00	3.32E+01	0.023	1.1E+01	2.5E-01	1.0E+00	5.1E+00	2.25E-02	4.5E-03
Pyrene	129-00-0	7.59E+00	3.80E+01	0.086	3.7E+00	3.2E-01	3.5E+00	1.7E+01	2.48E-02	5.0E-03

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Meadow Vole Specific Data from Table F.4-9

BW=	0.017	kg
IR_{food} =	0.010	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00024	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.4-15
SSA 60 - Refined Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	12	3.8E-02	4.5E-01	9.0E+00	9.0E+01	**1.3E+00**	1.3E-01
Cadmium	7440-43-9	1.69E+00	1.69E+01	1.1	6.0E-01	6.6E-01	1.3E+01	1.3E+02	8.7E-02	8.7E-03
Lead	7439-92-1	1.40E+01	1.40E+02	130	3.1E-02	4.1E+00	1.2E+03	1.2E+04	1.1E-01	1.1E-02
Selenium	7782-49-2	3.51E-01	5.79E-01	0.66	4.9E-01	3.2E-01	3.2E+00	5.2E+00	2.1E-01	1.3E-01

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Meadow Vole Specific Data from Table F.4-9

BW=	0.037	kg
IR_{food} =	0.008	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	1.00	unitless
IR_{soil} =	0.00019	kg dw/day
AF =	1	unitless

Table F.4-16
SSA 60 - Preliminary Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	1.50E-01	1.50E+00	12	1.1E+00	1.3E+01	5.2E-01	6.3E+00	Plant	5.1E-01	5.1E+00	**2.4E+01**	**2.4E+00**
Cadmium	7440-43-9	2.11E+00	2.11E+01	1.1	3.3E+00	3.6E+00	4.1E+01	4.5E+01	Invertebrate	2.2E-01	2.2E+00	**5.1E+00**	5.1E-01
Chromium	7440-47-3	7.21E+00	7.21E+01	39	8.4E-02	3.3E+00	3.2E+00	1.2E+02	Invertebrate	9.1E+00	9.1E+01	**4.3E+00**	4.3E-01
Copper	7440-50-8	3.34E+01	4.40E+01	51	6.3E-01	3.2E+01	1.5E+00	7.8E+01	Invertebrate	8.4E+01	1.1E+02	6.1E-01	4.6E-01
Lead	7439-92-1	1.76E+01	1.76E+02	130	4.7E-01	6.1E+01	1.5E+00	2.0E+02	Invertebrate	4.4E+01	4.4E+02	**2.9E+00**	2.9E-01
Mercury	7439-97-6	3.77E+01	3.77E+02	0.092	5.0E+00	4.6E-01	2.1E+01	1.9E+00	Invertebrate	7.6E+00	7.6E+01	1.2E-02	1.2E-03
Nickel	7440-02-0	8.79E+01	1.76E+02	24	1.4E+00	3.4E+01	4.7E+00	1.1E+02	Invertebrate	7.5E+01	1.5E+02	3.2E-01	1.6E-01
Selenium	7782-49-2	4.40E-01	7.25E-01	0.66	3.0E+00	2.0E+00	1.3E+00	8.8E-01	Plant	5.8E-01	9.6E-01	**1.1E+00**	6.9E-01
Silver	7440-22-4	4.88E+01	4.88E+02	0.12	3.7E-02	4.4E-03	1.5E+01	1.8E+00	Invertebrate	1.3E+01	1.3E+02	9.1E-03	9.1E-04
Zinc	7440-66-6	3.52E+02	7.03E+02	130	1.8E+00	2.4E+02	1.3E+01	1.7E+03	Invertebrate	1.1E+02	2.3E+02	**1.2E+00**	5.8E-01
Pesticides													
4,4'-DDD	72-54-8	1.87E+02	1.87E+03	0.001345	8.0E-02	1.1E-04	1.2E+01	1.6E-02	Invertebrate	6.3E+01	6.3E+02	2.1E-05	2.1E-06
4,4'-DDE	72-55-9	5.06E+01	5.06E+02	0.01608	8.0E-02	1.3E-03	2.0E+01	3.2E-01	Invertebrate	1.0E+01	1.0E+02	1.5E-03	1.5E-04
Dieldrin	60-57-1	4.40E-02	4.40E-01	0.00058	1.0E+00	5.8E-04	8.0E+01	4.6E-02	Invertebrate	2.3E-03	2.3E-02	2.5E-01	2.5E-02
gamma-Chlordane	5103-74-2	4.64E-01	4.64E+00	0.00124	1.0E+00	1.2E-03	4.0E+00	5.0E-03	Invertebrate	4.7E-01	4.7E+00	2.7E-03	2.7E-04
Heptachlor Epoxide	1024-57-3	5.49E-02	5.49E-01	0.0022	1.0E+00	2.2E-03	8.4E+00	1.8E-02	Invertebrate	2.7E-02	2.7E-01	8.2E-02	8.2E-03
PCBs													
Aroclor 1254	11097-69-1	8.09E-02	8.09E-01	0.089	6.8E-03	6.0E-04	1.6E+01	1.4E+00	Invertebrate	2.1E-02	2.1E-01	**4.2E+00**	4.2E-01
Aroclor 1260	11096-82-5	8.09E-02	8.09E-01	0.05	4.5E-03	2.3E-04	1.6E+01	8.0E-01	Invertebrate	2.1E-02	2.1E-01	**2.4E+00**	2.4E-01
SVOCs													
Acenaphthene	83-32-9	2.08E+01	1.04E+02	0.0012	4.6E+00	5.5E-03	4.8E+01	5.8E-02	Invertebrate	1.8E+00	9.0E+00	6.7E-04	1.3E-04
Acenaphthylene	208-96-8	2.20E+02	1.10E+03	0.0073	4.6E+00	3.4E-02	2.4E+02	1.7E+00	Invertebrate	3.8E+00	1.9E+01	1.9E-03	3.8E-04
Anthracene	120-12-7	6.01E+02	6.01E+03	0.0042	4.6E+00	1.9E-02	4.2E+01	1.7E-01	Invertebrate	6.0E+01	6.0E+02	7.0E-05	7.0E-06
Benzo(a)anthracene	56-55-3	3.64E-01	3.64E+00	0.051	5.4E-01	2.8E-02	2.0E+01	1.0E+00	Invertebrate	7.6E-02	7.6E-01	6.7E-01	6.7E-02
Benzo(a)pyrene	50-32-8	1.19E+00	1.19E+01	0.069	3.3E+00	2.3E-01	2.2E+01	1.5E+00	Invertebrate	2.2E-01	2.2E+00	3.1E-01	3.1E-02
Benzo(b)fluoranthene	205-99-2	1.19E+00	1.19E+01	0.12	4.8E-01	5.8E-02	4.0E+01	4.8E+00	Invertebrate	1.2E-01	1.2E+00	9.8E-01	9.8E-02
Benzo(g,h,i)perylene	191-24-2	5.95E-01	2.97E+00	0.046	1.6E+00	7.4E-02	6.2E+01	2.8E+00	Invertebrate	4.0E-02	2.0E-01	**1.2E+00**	2.3E-01
Benzo(k)fluoranthene	207-08-9	1.31E+01	1.31E+02	0.035	1.0E+00	3.5E-02	3.1E+01	1.1E+00	Invertebrate	1.7E+00	1.7E+01	2.0E-02	2.0E-03
Chrysene	218-01-9	1.80E+01	1.80E+02	0.067	1.1E+00	7.0E-02	2.9E+01	1.9E+00	Invertebrate	2.6E+00	2.6E+01	2.6E-02	2.6E-03
Dibenz(a,h)anthracene	53-70-3	2.43E+00	2.43E+01	0.0093	2.3E-01	2.1E-03	3.5E+01	3.3E-01	Invertebrate	2.9E-01	2.9E+00	3.2E-02	3.2E-03
Fluoranthene	206-44-0	3.64E+01	1.82E+02	0.06	6.0E+00	3.6E-01	7.6E+01	4.6E+00	Invertebrate	2.0E+00	9.9E+00	3.0E-02	6.0E-03
Indeno(1,2,3-cd)pyrene	193-39-5	1.31E+01	1.31E+02	0.036	1.5E-01	5.4E-03	3.9E+01	1.4E+00	Invertebrate	1.4E+00	1.4E+01	2.6E-02	2.6E-03
Phenanthrene	85-01-8	8.32E+00	4.16E+01	0.023	1.1E+01	2.5E-01	1.9E+01	4.3E-01	Invertebrate	1.8E+00	9.2E+00	1.2E-02	2.5E-03
Pyrene	129-00-0	9.51E+00	4.76E+01	0.086	3.7E+00	3.2E-01	6.6E+01	5.7E+00	Invertebrate	6.0E-01	3.0E+00	1.4E-01	2.9E-02

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Short-tailed Shrew Specific Data from Table F.4-9

BW=	0.0125	kg
IR_{food} =	0.003	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00039	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.4-17
SSA 60 - Refined Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Arsenic	7440-38-2	1.50E-01	1.50E+00	12	3.8E-02	4.5E-01	1.16E-01	1.4E+00	4.8E+00	4.8E+01	**2.5E+00**	2.5E-01
Cadmium	7440-43-9	2.11E+00	2.11E+01	1.1	6.0E-01	6.6E-01	8.12E+00	8.9E+00	2.2E+00	2.2E+01	5.0E-01	5.0E-02
Chromium	7440-47-3	7.21E+00	7.21E+01	39	4.1E-02	1.6E+00	3.06E-01	1.2E+01	1.4E+02	1.4E+03	2.9E-01	2.9E-02
Lead	7439-92-1	1.76E+01	1.76E+02	130	3.1E-02	4.1E+00	3.14E-01	4.1E+01	3.3E+02	3.3E+03	4.0E-01	4.0E-02
Selenium	7782-49-2	4.40E-01	7.25E-01	0.66	4.9E-01	3.2E-01	1.04E+00	6.8E-01	3.0E+00	5.0E+00	2.2E-01	1.3E-01
Zinc	7440-66-6	3.52E+02	7.03E+02	130	5.5E-01	7.2E+01	3.25E+00	4.2E+02	8.8E+02	1.8E+03	1.5E-01	7.4E-02
PCBs												
Aroclor 1254	11097-69-1	8.09E-02	8.09E-01	0.089	6.8E-03	6.0E-04	6.67E+00	5.9E-01	1.0E-01	1.0E+00	8.6E-01	8.6E-02
Aroclor 1260	11096-82-5	8.09E-02	8.09E-01	0.05	4.5E-03	2.3E-04	6.67E+00	3.3E-01	1.0E-01	1.0E+00	4.8E-01	4.8E-02

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10
BW = Average Body Weigth of Receptor (kg)
IR_{food} = Average Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor, specific to prey type and chemical
DF = Dietary fraction
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value
BDL = Below Detection Limit
EPC = Exposure Point Concentration
* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level
LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Short-tailed Shrew Specific Data from Table F.4-9
Short-tailed Shrew

BW=	0.015	kg
IR_{food} =	0.002	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.14	unitless
DF_{inv} =	0.86	unitless
IR_{soil} =	0.00026	kg dw/day
IR_{water} =	0.002	L/day
AF =	1.000	unitless

Table F.4-18
SSA 60 - Preliminary Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment											
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics															
Arsenic	7440-38-2	3.59E-02	3.59E-01	12	1.1E+00	1.3E+01	5.2E-01	6.3E+00	1.5E-02	1.8E-01	Plant	2.7E-01	2.7E+00	**4.4E+01**	**4.4E+00**
Cadmium	7440-43-9	5.07E-01	5.07E+00	1.1	3.3E+00	3.6E+00	4.1E+01	4.5E+01	4.0E+00	4.4E+00	Invertebrate	1.1E-01	1.1E+00	**1.0E+01**	**1.0E+00**
Chromium	7440-47-3	1.73E+00	1.73E+01	39	8.4E-02	3.3E+00	3.2E+00	1.2E+02	3.3E-01	1.3E+01	Invertebrate	4.7E+00	4.7E+01	**8.3E+00**	8.3E-01
Copper	7440-50-8	8.02E+00	1.06E+01	51	6.3E-01	3.2E+01	1.5E+00	7.8E+01	1.0E+00	5.3E+01	Invertebrate	4.4E+01	5.8E+01	**1.1E+00**	8.7E-01
Lead	7439-92-1	4.22E+00	4.22E+01	130	4.7E-01	6.1E+01	1.5E+00	2.0E+02	2.9E-01	3.7E+01	Invertebrate	2.3E+01	2.3E+02	**5.5E+00**	5.5E-01
Mercury	7439-97-6	9.05E+00	9.05E+01	0.092	5.0E+00	4.6E-01	2.1E+01	1.9E+00	1.9E-01	1.8E-02	Invertebrate	3.8E+00	3.8E+01	2.4E-02	2.4E-03
Nickel	7440-02-0	2.11E+01	4.22E+01	24	1.4E+00	3.4E+01	4.7E+00	1.1E+02	5.9E-01	1.4E+01	Invertebrate	3.8E+01	7.6E+01	6.3E-01	3.1E-01
Selenium	7782-49-2	1.05E-01	1.74E-01	0.66	3.0E+00	2.0E+00	1.3E+00	8.8E-01	1.2E+00	7.8E-01	Plant	3.0E-01	4.9E-01	**2.2E+00**	**1.3E+00**
Silver	7440-22-4	1.17E+01	1.17E+02	0.12	3.7E-02	4.4E-03	1.5E+01	1.8E+00	5.0E-01	6.0E-02	Invertebrate	6.6E+00	6.6E+01	1.8E-02	1.8E-03
Zinc	7440-66-6	8.44E+01	1.69E+02	130	1.8E+00	2.4E+02	1.3E+01	1.7E+03	2.7E+00	3.5E+02	Invertebrate	5.6E+01	1.1E+02	**2.3E+00**	**1.2E+00**
Pesticides															
4,4'-DDD	72-54-8	4.48E+01	4.48E+02	0.001345	8.0E-02	1.1E-04	1.2E+01	1.6E-02	1.0E+00	1.3E-03	Invertebrate	3.2E+01	3.2E+02	4.3E-05	4.3E-06
4,4'-DDE	72-55-9	1.21E+01	1.21E+02	0.01608	8.0E-02	1.3E-03	2.0E+01	3.2E-01	1.0E+00	1.6E-02	Invertebrate	5.2E+00	5.2E+01	3.1E-03	3.1E-04
Dieldrin	60-57-1	1.05E-02	1.05E-01	0.00058	1.0E+00	5.8E-04	8.0E+01	4.6E-02	1.0E+00	5.8E-04	Invertebrate	1.1E-03	1.1E-02	5.1E-01	5.1E-02
gamma-Chlordane	5103-74-2	1.11E-01	1.11E+00	0.00124	1.0E+00	1.2E-03	4.0E+00	5.0E-03	1.0E+00	1.2E-03	Invertebrate	2.4E-01	2.4E+00	5.2E-03	5.2E-04
Heptachlor Epoxide	1024-57-3	1.32E-02	1.32E-01	0.0022	1.0E+00	2.2E-03	8.4E+00	1.8E-02	1.0E+00	2.2E-03	Invertebrate	1.4E-02	1.4E-01	1.6E-01	1.6E-02
PCBs															
Aroclor 1254	11097-69-1	1.94E-02	1.94E-01	0.089	6.8E-03	6.0E-04	1.6E+01	1.4E+00	1.0E+00	8.9E-02	Invertebrate	1.1E-02	1.1E-01	**8.5E+00**	8.5E-01
Aroclor 1260	11096-82-5	1.94E-02	1.94E-01	0.05	4.5E-03	2.3E-04	1.6E+01	8.0E-01	1.0E+00	5.0E-02	Invertebrate	1.1E-02	1.1E-01	**4.8E+00**	4.8E-01
SVOCs															
Acenaphthene	83-32-9	4.99E+00	2.50E+01	0.0012	4.6E+00	5.5E-03	4.8E+01	5.8E-02	1.0E+00	1.2E-03	Invertebrate	8.9E-01	4.5E+00	1.3E-03	2.7E-04
Acenaphthylene	208-96-8	5.27E+01	2.64E+02	0.0073	4.6E+00	3.4E-02	2.4E+02	1.7E+00	1.0E+00	7.3E-03	Invertebrate	1.9E+00	9.5E+00	3.8E-03	7.7E-04
Anthracene	120-12-7	1.44E+02	1.44E+03	0.0042	4.6E+00	1.9E-02	4.2E+01	1.7E-01	1.0E+00	4.2E-03	Invertebrate	3.0E+01	3.0E+02	1.4E-04	1.4E-05
Benzo(a)anthracene	56-55-3	8.74E-02	8.74E-01	0.051	5.4E-01	2.8E-02	2.0E+01	1.0E+00	1.0E+00	5.1E-02	Invertebrate	3.8E-02	3.8E-01	**1.3E+00**	1.3E-01
Benzo(a)pyrene	50-32-8	2.85E-01	2.85E+00	0.069	3.3E+00	2.3E-01	2.2E+01	1.5E+00	1.0E+00	6.9E-02	Invertebrate	1.1E-01	1.1E+00	6.2E-01	6.2E-02
Benzo(b)fluoranthene	205-99-2	2.85E-01	2.85E+00	0.12	4.8E-01	5.8E-02	4.0E+01	4.8E+00	1.0E+00	1.2E-01	Invertebrate	6.1E-02	6.1E-01	**2.0E+00**	2.0E-01
Benzo(g,h,i)perylene	191-24-2	1.43E-01	7.13E-01	0.046	1.6E+00	7.4E-02	6.2E+01	2.8E+00	1.0E+00	4.6E-02	Invertebrate	2.0E-02	9.9E-02	**2.3E+00**	4.6E-01
Benzo(k)fluoranthene	207-08-9	3.15E+00	3.15E+01	0.035	1.0E+00	3.5E-02	3.1E+01	1.1E+00	1.0E+00	3.5E-02	Invertebrate	8.7E-01	8.7E+00	4.0E-02	4.0E-03
Chrysene	218-01-9	4.32E+00	4.32E+01	0.067	1.1E+00	7.0E-02	2.9E+01	1.9E+00	1.0E+00	6.7E-02	Invertebrate	1.3E+00	1.3E+01	5.1E-02	5.1E-03
Dibenz(a,h)anthracene	53-70-3	5.82E-01	5.82E+00	0.0093	2.3E-01	2.1E-03	3.5E+01	3.3E-01	1.0E+00	9.3E-03	Invertebrate	1.4E-01	1.4E+00	6.5E-02	6.5E-03
Fluoranthene	206-44-0	8.74E+00	4.37E+01	0.06	6.0E+00	3.6E-01	7.6E+01	4.6E+00	1.0E+00	6.0E-02	Invertebrate	9.9E-01	4.9E+00	6.1E-02	1.2E-02
Indeno(1,2,3-cd)pyrene	193-39-5	3.15E+00	3.15E+01	0.036	1.5E-01	5.4E-03	3.9E+01	1.4E+00	1.0E+00	3.6E-02	Invertebrate	6.9E-01	6.9E+00	5.2E-02	5.2E-03
Phenanthrene	85-01-8	2.00E+00	9.98E+00	0.023	1.1E+01	2.5E-01	1.9E+01	4.3E-01	1.0E+00	2.3E-02	Invertebrate	9.2E-01	4.6E+00	2.5E-02	5.0E-03
Pyrene	129-00-0	2.28E+00	1.14E+01	0.086	3.7E+00	3.2E-01	6.6E+01	5.7E+00	1.0E+00	8.6E-02	Invertebrate	3.0E-01	1.5E+00	2.9E-01	5.8E-02

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

Red FoxSpecific Data from Table F.4-9

BW=	2.9500	kg
IR_{food} =	0.342	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00960	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.4-19
SSA 60 - Refined Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment										
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics														
Arsenic	7440-38-2	3.59E-02	3.59E-01	12	3.8E-02	4.5E-01	1.2E-01	1.4E+00	5.0E-03	6.0E-02	2.5E+03	2.5E+04	4.8E-03	4.8E-04
Cadmium	7440-43-9	5.07E-01	5.07E+00	1.1	6.0E-01	6.6E-01	8.1E+00	8.9E+00	2.7E-01	3.0E-01	2.3E+03	2.3E+04	4.8E-04	4.8E-05
Chromium	7440-47-3	1.73E+00	1.73E+01	39	4.1E-02	1.6E+00	3.1E-01	1.2E+01	8.8E-02	3.4E+00	4.5E+04	4.5E+05	8.7E-04	8.7E-05
Copper	7440-50-8	8.02E+00	1.06E+01	51	1.8E-01	9.2E+00	5.2E-01	2.6E+01	2.7E-01	1.4E+01	8.4E+04	1.1E+05	6.1E-04	4.6E-04
Lead	7439-92-1	4.22E+00	4.22E+01	130	3.1E-02	4.1E+00	3.1E-01	4.1E+01	7.1E-02	9.3E+00	1.2E+05	1.2E+06	1.0E-03	1.0E-04
Selenium	7782-49-2	1.05E-01	1.74E-01	0.66	4.9E-01	3.2E-01	1.0E+00	6.8E-01	8.5E-01	5.6E-01	3.8E+02	6.4E+02	1.7E-03	1.0E-03
Zinc	7440-66-6	8.44E+01	1.69E+02	130	5.5E-01	7.2E+01	3.2E+00	4.2E+02	8.5E-01	1.1E+02	2.8E+05	5.5E+05	4.7E-04	2.4E-04
PCBs														
Aroclor 1254	11097-69-1	1.94E-02	1.94E-01	0.089	6.8E-03	6.0E-04	6.7E+00	5.9E-01	1.0E+00	8.9E-02	5.4E+01	5.4E+02	1.6E-03	1.6E-04
Aroclor 1260	11096-82-5	1.94E-02	1.94E-01	0.05	4.5E-03	2.3E-04	6.7E+00	3.3E-01	1.0E+00	5.0E-02	5.4E+01	5.4E+02	9.3E-04	9.3E-05

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red FoxSpecific Data from Table F.4-9

BW=	4.5300	kg
IR_{food} =	0.238	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.17	unitless
DF_{inv} =	0.04	unitless
DF_{mam} =	0.79	unitless
IR_{soil} =	0.00670	kg dw/day
AF =	0.0063	unitless

Table F.4-20
SSA 60 - Preliminary Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	5.14E+00	1.28E+01	12	1.1E+00	1.3E+01	5.2E-01	6.3E+00	Plant	1.4E+01	3.5E+01	8.5E-01	3.4E-01
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.1	3.3E+00	3.6E+00	4.1E+01	4.5E+01	Invertebrate	1.1E-01	1.6E+00	**9.7E+00**	7.1E-01
Chromium	7440-47-3	1.00E+00	5.00E+00	39	8.4E-02	3.3E+00	3.2E+00	1.2E+02	Invertebrate	9.9E-01	4.9E+00	**3.9E+01**	**7.9E+00**
Copper	7440-50-8	4.70E+01	6.17E+01	51	6.3E-01	3.2E+01	1.5E+00	7.8E+01	Invertebrate	9.4E+01	1.2E+02	5.4E-01	4.1E-01
Lead	7439-92-1	1.13E+00	1.13E+01	130	4.7E-01	6.1E+01	1.5E+00	2.0E+02	Invertebrate	2.3E+00	2.3E+01	**5.7E+01**	**5.7E+00**
Mercury	7439-97-6	4.50E-01	9.00E-01	0.092	5.0E+00	4.6E-01	2.1E+01	1.9E+00	Invertebrate	6.9E-02	1.4E-01	**1.3E+00**	6.7E-01
Nickel	7440-02-0	7.74E+01	1.07E+02	24	1.4E+00	3.4E+01	4.7E+00	1.1E+02	Invertebrate	5.1E+01	7.1E+01	4.7E-01	3.4E-01
Selenium	7782-49-2	4.00E-01	8.00E-01	0.66	3.0E+00	2.0E+00	1.3E+00	8.8E-01	Plant	4.1E-01	8.3E-01	**1.6E+00**	8.0E-01
Silver	7440-22-4	1.66E+01	1.24E+02	0.12	3.7E-02	4.4E-03	1.5E+01	1.8E+00	Invertebrate	3.4E+00	2.6E+01	3.5E-02	4.7E-03
Zinc	7440-66-6	1.45E+01	1.31E+02	130	1.8E+00	2.4E+02	1.3E+01	1.7E+03	Invertebrate	3.6E+00	3.2E+01	**3.7E+01**	**4.0E+00**
Pesticides													
4,4'-DDD	72-54-8	2.80E-03	2.80E-02	0.001345	8.0E-02	1.1E-04	1.2E+01	1.6E-02	Invertebrate	7.3E-04	7.3E-03	**1.9E+00**	1.9E-01
4,4'-DDE	72-55-9	5.80E-02	5.80E-01	0.01608	8.0E-02	1.3E-03	2.0E+01	3.2E-01	Invertebrate	9.1E-03	9.1E-02	**1.8E+00**	1.8E-01
Dieldrin	60-57-1	7.70E-02	7.70E-01	0.00058	1.0E+00	5.8E-04	8.0E+01	4.6E-02	Invertebrate	3.1E-03	3.1E-02	1.9E-01	1.9E-02
gamma-Chlordane	5103-74-2	2.14E+00	1.06E+01	0.00124	1.0E+00	1.2E-03	4.0E+00	5.0E-03	Invertebrate	1.7E+00	8.3E+00	7.4E-04	1.5E-04
Heptachlor Epoxide	1024-57-3	9.90E-01	4.95E+00	0.0022	1.0E+00	2.2E-03	8.4E+00	1.8E-02	Invertebrate	3.7E-01	1.9E+00	5.9E-03	1.2E-03
PCBs													
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.089	6.8E-03	6.0E-04	1.6E+01	1.4E+00	Invertebrate	8.2E-02	8.2E-01	**1.1E+00**	1.1E-01
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.05	4.5E-03	2.3E-04	1.6E+01	8.0E-01	Invertebrate	8.2E-02	8.2E-01	6.1E-01	6.1E-02
SVOCs													
Acenaphthene	83-32-9	1.01E+00	5.05E+00	0.0012	4.6E+00	5.5E-03	4.8E+01	5.8E-02	Invertebrate	6.7E-02	3.3E-01	1.8E-02	3.6E-03
Acenaphthylene	208-96-8	NV	NV	0.0073	--	--	--	--	--	--	--	--	--
Anthracene	120-12-7	NV	NV	0.0042	--	--	--	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	NV	NV	0.051	--	--	--	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.069	3.3E+00	2.3E-01	2.2E+01	1.5E+00	Invertebrate	7.2E-02	3.6E-01	9.6E-01	1.9E-01
Benzo(b)fluoranthene	205-99-2	NV	NV	0.12	--	--	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.046	--	--	--	--	--	--	--	--	--
Benzo(k)fluoranthene	207-08-9	NV	NV	0.035	--	--	--	--	--	--	--	--	--
Chrysene	218-01-9	NV	NV	0.067	--	--	--	--	--	--	--	--	--
Dibenz(a,h)anthracene	53-70-3	NV	NV	0.0093	--	--	--	--	--	--	--	--	--
Fluoranthene	206-44-0	NV	NV	0.06	--	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	193-39-5	NV	NV	0.036	--	--	--	--	--	--	--	--	--
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.023	1.1E+01	2.5E-01	1.9E+01	4.3E-01	Invertebrate	1.9E-01	9.6E-01	1.2E-01	2.4E-02
Pyrene	129-00-0	NV	NV	0.086	--	--	--	--	--	--	--	--	--

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

American Robin Specific Data from Table F.4-9

BW=	0.0635	kg
IR_{food} =	0.020	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00100	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.4-21
SSA 60 - Refined Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Arsenic	7440-38-2	5.14E+00	1.28E+01	12	3.8E-02	4.5E-01	1.2E-01	1.4E+00	2.1E+02	5.3E+02	5.7E-02	2.3E-02
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.1	6.0E-01	6.6E-01	8.1E+00	8.9E+00	2.0E+00	2.8E+01	5.5E-01	4.0E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	39	4.1E-02	1.6E+00	3.1E-01	1.2E+01	2.5E+01	1.3E+02	**1.5E+00**	3.1E-01
Lead	7439-92-1	1.13E+00	1.13E+01	130	3.1E-02	4.1E+00	3.1E-01	4.1E+01	2.9E+01	2.9E+02	**4.5E+00**	4.5E-01
Mercury	7439-97-6	4.50E-01	9.00E-01	0.092	1.1E+00	1.0E-01	1.7E+00	1.6E-01	1.6E+00	3.2E+00	5.8E-02	2.9E-02
Selenium	7782-49-2	4.00E-01	8.00E-01	0.66	4.9E-01	3.2E-01	1.0E+00	6.8E-01	2.6E+00	5.2E+00	2.5E-01	1.3E-01
Zinc	7440-66-6	1.45E+01	1.31E+02	130	5.5E-01	7.2E+01	3.2E+00	4.2E+02	4.3E+01	3.9E+02	**3.0E+00**	3.3E-01
Pesticides												
4,4'-DDD	72-54-8	2.80E-03	2.80E-02	0.001345	4.2E-01	5.6E-04	2.0E+01	2.7E-02	1.7E-03	1.7E-02	7.9E-01	7.9E-02
4,4'-DDE	72-55-9	5.80E-02	5.80E-01	0.01608	2.3E-01	3.6E-03	2.0E+01	3.1E-01	3.7E-02	3.7E-01	4.4E-01	4.4E-02
PCBs												
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.089	6.8E-03	6.0E-04	6.7E+00	5.9E-01	7.7E-01	7.7E+00	1.2E-01	1.2E-02

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

American Robin Specific Data from Table F.4-9

BW=	0.0773	kg
IR_{food} =	0.016	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.62	unitless
DF_{inv} =	0.38	unitless
IR_{soil} =	0.0008	kg dw/day
AF =	1.000	unitless

Table F.4-22
SSA 60 - Preliminary Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	5.14E+00	1.28E+01	12	1.5E-02	1.8E-01	5.2E+03	2.1E+03	2.3E-03	9.2E-04
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.1	4.0E+00	4.4E+00	5.5E+00	4.0E-01	2.0E-01	1.4E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	39	3.3E-01	1.3E+01	4.6E+01	9.1E+00	8.5E-01	1.7E-01
Copper	7440-50-8	4.70E+01	6.17E+01	51	1.0E+00	5.3E+01	6.8E+02	5.2E+02	7.5E-02	5.7E-02
Lead	7439-92-1	1.13E+00	1.13E+01	130	2.9E-01	3.7E+01	6.0E+01	6.0E+00	**2.2E+00**	2.2E-01
Mercury	7439-97-6	4.50E-01	9.00E-01	0.092	1.9E-01	1.8E-02	3.6E+01	1.8E+01	2.6E-03	1.3E-03
Nickel	7440-02-0	7.74E+01	1.07E+02	24	5.9E-01	1.4E+01	2.0E+03	1.4E+03	1.2E-02	8.7E-03
Selenium	7782-49-2	4.00E-01	8.00E-01	0.66	1.2E+00	7.8E-01	5.1E+00	2.6E+00	1.3E-01	6.4E-02
Silver	7440-22-4	1.66E+01	1.24E+02	0.12	5.0E-01	6.0E-02	5.0E+02	6.7E+01	2.4E-04	3.2E-05
Zinc	7440-66-6	1.45E+01	1.31E+02	130	2.7E+00	3.5E+02	8.2E+01	9.1E+00	**1.6E+00**	1.8E-01
Pesticides										
4,4'-DDD	72-54-8	2.80E-03	2.80E-02	0.001345	1.0E+00	1.3E-03	4.3E-02	4.3E-03	3.2E-02	3.2E-03
4,4'-DDE	72-55-9	5.80E-02	5.80E-01	0.01608	1.0E+00	1.6E-02	8.8E-01	8.8E-02	1.8E-02	1.8E-03
Dieldrin	60-57-1	7.70E-02	7.70E-01	0.00058	1.0E+00	5.8E-04	1.2E+00	1.2E-01	5.0E-04	5.0E-05
gamma-Chlordane	5103-74-2	2.14E+00	1.06E+01	0.00124	1.0E+00	1.2E-03	3.3E+01	6.6E+00	3.8E-05	7.7E-06
Heptachlor Epoxide	1024-57-3	9.90E-01	4.95E+00	0.0022	1.0E+00	2.2E-03	1.5E+01	3.0E+00	1.5E-04	2.9E-05
PCBs										
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.089	1.0E+00	8.9E-02	6.2E+00	6.2E-01	1.4E-02	1.4E-03
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.05	1.0E+00	5.0E-02	6.2E+00	6.2E-01	8.0E-03	8.0E-04
SVOCs										
Acenaphthene	83-32-9	1.01E+00	5.05E+00	0.0012	1.0E+00	1.2E-03	1.5E+01	3.1E+00	7.8E-05	1.6E-05
Acenaphthylene	208-96-8	NV	NV	0.0073	--	--	--	--	**--**	**--**
Anthracene	120-12-7	NV	NV	0.0042	--	--	--	--	**--**	**--**
Benzo(a)anthracene	56-55-3	NV	NV	0.051	--	--	--	--	**--**	**--**
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.069	1.0E+00	6.9E-02	7.6E+00	1.5E+00	9.1E-03	1.8E-03
Benzo(b)fluoranthene	205-99-2	NV	NV	0.12	--	--	--	--	**--**	**--**
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.046	--	--	--	--	**--**	**--**
Benzo(k)fluoranthene	207-08-9	NV	NV	0.035	--	--	--	--	**--**	**--**
Chrysene	218-01-9	NV	NV	0.067	--	--	--	--	**--**	**--**
Dibenz(a,h)anthracene	53-70-3	NV	NV	0.0093	--	--	--	--	**--**	**--**
Fluoranthene	206-44-0	NV	NV	0.06	--	--	--	--	**--**	**--**
Indeno(1,2,3-cd)pyrene	193-39-5	NV	NV	0.036	--	--	--	--	**--**	**--**
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.023	1.0E+00	2.3E-02	1.7E+01	3.4E+00	1.3E-03	2.7E-04
Pyrene	129-00-0	NV	NV	0.086	--	--	--	--	**--**	**--**

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10
BW_i = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

Red-tailed Hawk Specific Data from Table F.4-9

BW=	0.957	kg
IR_{food} =	0.063	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.00	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screenning levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.4-23
SSA 60 - Refined Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				Soil						
				EPC* (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Soil Screening Level[a] (mg/kg)	Calculated LOAEL-Based Soil Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Lead	7439-92-1	1.13E+00	1.13E+01	130	7.1E-02	9.3E+00	1.3E+05	1.3E+06	1.0E-03	1.0E-04
Zinc	7440-66-6	1.45E+01	1.31E+02	130	8.5E-01	1.1E+02	1.3E+05	1.2E+06	9.7E-04	1.1E-04

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.4-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red-tailed Hawk Specific Data from Table F.4-9

BW=	1.134	kg
IR_{food} =	0.059	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.0	kg dw/day
AF =	0.0024	unitless

Table F.4-24
SSA 60 - Wildlife Summary
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

		Meadow Vole				**Short-tailed Shrew**				**Red Fox**				**American Robin**				**Red-tailed Hawk**			
Chemical	**CAS#**	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ
Inorganics																					
Arsenic	7440-38-2	**6.7E+01**	**6.7E+00**	**1.3E+00**	1.3E-01	**2.4E+01**	**2.4E+00**	**2.5E+00**	2.5E-01	**4.4E+01**	**4.4E+00**	4.8E-03	4.8E-04	8.5E-01	3.4E-01	NC	NC	2.3E-03	9.2E-04	NC	NC
Cadmium	7440-43-9	**1.3E+00**	1.3E-01	8.7E-02	8.7E-03	**5.1E+00**	5.1E-01	5.0E-01	5.0E-02	**1.0E+01**	**1.0E+00**	4.8E-04	4.8E-05	**9.7E+00**	7.1E-01	5.5E-01	4.0E-02	2.0E-01	1.4E-02	NC	NC
Chromium	7440-47-3	4.3E-01	4.3E-02	NC	NC	**4.3E+00**	4.3E-01	2.9E-01	2.9E-02	**8.3E+00**	8.3E-01	8.7E-04	8.7E-05	**3.9E+01**	**7.9E+00**	**1.5E+00**	3.1E-01	8.5E-01	1.7E-01	NC	NC
Copper	7440-50-8	7.3E-01	5.5E-01	NC	NC	6.1E-01	4.6E-01	NC	NC	**1.1E+00**	8.7E-01	6.1E-04	4.6E-04	5.4E-01	4.1E-01	NC	NC	7.5E-02	5.7E-02	NC	NC
Lead	7439-92-1	**2.7E+00**	2.7E-01	1.1E-01	1.1E-02	**2.9E+00**	2.9E-01	4.0E-01	4.0E-02	**5.5E+00**	5.5E-01	1.0E-03	1.0E-04	**5.7E+01**	**5.7E+00**	**4.5E+00**	4.5E-01	**2.2E+00**	2.2E-01	1.0E-03	1.0E-04
Mercury	7439-97-6	9.0E-03	9.0E-04	NC	NC	1.2E-02	1.2E-03	NC	NC	2.4E-02	2.4E-03	NC	NC	**1.3E+00**	6.7E-01	5.8E-02	2.9E-02	2.6E-03	1.3E-03	NC	NC
Nickel	7440-02-0	2.9E-01	1.4E-01	NC	NC	3.2E-01	1.6E-01	NC	NC	6.3E-01	3.1E-01	NC	NC	4.7E-01	3.4E-01	NC	NC	1.2E-02	8.7E-03	NC	NC
Selenium	7782-49-2	**3.4E+00**	**2.0E+00**	2.1E-01	1.3E-01	**1.1E+00**	6.9E-01	2.2E-01	1.3E-01	**2.2E+00**	**1.3E+00**	1.7E-03	1.0E-03	**1.6E+00**	8.0E-01	2.5E-01	1.3E-01	1.3E-01	6.4E-02	NC	NC
Silver	7440-22-4	1.1E-04	1.1E-05	NC	NC	9.1E-03	9.1E-04	NC	NC	1.8E-02	1.8E-03	NC	NC	3.5E-02	4.7E-03	NC	NC	2.4E-04	3.2E-05	NC	NC
Zinc	7440-66-6	5.0E-01	2.5E-01	NC	NC	**1.2E+00**	5.8E-01	1.5E-01	7.4E-02	**2.3E+00**	**1.2E+00**	4.7E-04	2.4E-04	**3.7E+01**	**4.0E+00**	**3.0E+00**	3.3E-01	**1.6E+00**	1.8E-01	9.7E-04	1.1E-04
Pesticides																					
4,4'-DDD	72-54-8	5.5E-07	5.5E-08	NC	NC	2.1E-05	2.1E-06	NC	NC	4.3E-05	4.3E-06	NC	NC	**1.9E+00**	1.9E-01	7.9E-01	7.9E-02	3.2E-02	3.2E-03	NC	NC
4,4'-DDE	72-55-9	2.4E-05	2.4E-06	NC	NC	1.5E-03	1.5E-04	NC	NC	3.1E-03	3.1E-04	NC	NC	**1.8E+00**	1.8E-01	4.4E-01	4.4E-02	1.8E-02	1.8E-03	NC	NC
Dieldrin	60-57-1	1.0E-02	1.0E-03	NC	NC	2.5E-01	2.5E-02	NC	NC	5.1E-01	5.1E-02	NC	NC	1.9E-01	1.9E-02	NC	NC	5.0E-04	5.0E-05	NC	NC
gamma-Chlordane	5103-74-2	2.0E-03	2.0E-04	NC	NC	2.7E-03	2.7E-04	NC	NC	5.2E-03	5.2E-04	NC	NC	7.4E-04	1.5E-04	NC	NC	3.8E-05	7.7E-06	NC	NC
Heptachlor Epoxide	1024-57-3	3.0E-02	3.0E-03	NC	NC	8.2E-02	8.2E-03	NC	NC	1.6E-01	1.6E-02	NC	NC	5.9E-03	1.2E-03	NC	NC	1.5E-04	2.9E-05	NC	NC
PCBs																					
Aroclor 1254	11097-69-1	2.5E-02	2.5E-03	NC	NC	**4.2E+00**	4.2E-01	8.6E-01	8.6E-02	**8.5E+00**	8.5E-01	1.6E-03	1.6E-04	**1.1E+00**	1.1E-01	1.2E-01	1.2E-02	1.4E-02	1.4E-03	NC	NC
Aroclor 1260	11096-82-5	1.3E-02	1.3E-03	NC	NC	**2.4E+00**	2.4E-01	4.8E-01	4.8E-02	**4.8E+00**	4.8E-01	9.3E-04	9.3E-05	6.1E-01	6.1E-02	NC	NC	8.0E-03	8.0E-04	NC	NC
SVOCs																					
Acenaphthene	83-32-9	2.0E-04	3.9E-05	NC	NC	6.7E-04	1.3E-04	NC	NC	1.3E-03	2.7E-04	NC	NC	1.8E-02	3.6E-03	NC	NC	7.8E-05	1.6E-05	NC	NC
Acenaphthylene	208-96-8	1.1E-04	2.3E-05	NC	NC	1.9E-03	3.8E-04	NC	NC	3.8E-03	7.7E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Anthracene	120-12-7	2.4E-05	2.4E-06	NC	NC	7.0E-05	7.0E-06	NC	NC	1.4E-04	1.4E-05	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)anthracene	56-55-3	5.8E-02	5.8E-03	NC	NC	6.7E-01	6.7E-02	NC	NC	**1.3E+00**	1.3E-01	**--**	**--**	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)pyrene	50-32-8	1.4E-01	1.4E-02	NC	NC	3.1E-01	3.1E-02	NC	NC	6.2E-01	6.2E-02	NC	NC	9.6E-01	1.9E-01	NC	NC	9.1E-03	1.8E-03	NC	NC
Benzo(b)fluoranthene	205-99-2	3.7E-02	3.7E-03	NC	NC	9.8E-01	9.8E-02	NC	NC	**2.0E+00**	2.0E-01	**--**	**--**	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(g,h,i)perylene	191-24-2	9.3E-02	1.9E-02	NC	NC	**1.2E+00**	2.3E-01	**--**	**--**	**2.3E+00**	4.6E-01	**--**	**--**	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(k)fluoranthene	207-08-9	2.0E-03	2.0E-04	NC	NC	2.0E-02	2.0E-03	NC	NC	4.0E-02	4.0E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Chrysene	218-01-9	2.9E-03	2.9E-04	NC	NC	2.6E-02	2.6E-03	NC	NC	5.1E-02	5.1E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Dibenz(a,h)anthracene	53-70-3	7.2E-04	7.2E-05	NC	NC	3.2E-02	3.2E-03	NC	NC	6.5E-02	6.5E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Fluoranthene	206-44-0	7.3E-03	1.5E-03	NC	NC	3.0E-02	6.0E-03	NC	NC	6.1E-02	1.2E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Indeno(1,2,3-cd)pyrene	193-39-5	3.5E-04	3.5E-05	NC	NC	2.6E-02	2.6E-03	NC	NC	5.2E-02	5.2E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Phenanthrene	85-01-8	2.2E-02	4.5E-03	NC	NC	1.2E-02	2.5E-03	NC	NC	2.5E-02	5.0E-03	NC	NC	1.2E-01	2.4E-02	NC	NC	1.3E-03	2.7E-04	NC	NC
Pyrene	129-00-0	2.5E-02	5.0E-03	NC	NC	1.4E-01	2.9E-02	NC	NC	2.9E-01	5.8E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:
CAS = Chemical Abstract Services
NC = Not Calculated
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
HQ = Hazard Quotient

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APPENDIX F.5

SSA 77 SLERA

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Table F.5-1
SSA 77 SLERA Occurence/Distribution - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	Units	Location of Maximum Concentration	Total Samples Analyzed	Detection Frequency	Concentration Used for Screening
TAL Metals								
Aluminum	7429-90-5	26,000	37,000	mg/kg	77SB2A	3	3/3	37,000
Antimony	7440-36-0	0.22	1.2	mg/kg	77SB1A	3	3/3	1.2
Arsenic	7440-38-2	1.1	4.6	mg/kg	77SB1A	3	3/3	4.6
Barium	7440-39-3	83	100	mg/kg	77SB1A	3	3/3	100
Beryllium	7440-41-7	1.3	3.3	mg/kg	77SB2A	3	3/3	3.3
Cadmium	7440-43-9	0.76	1.7	mg/kg	77SB1A	3	3/3	1.7
Calcium	7440-70-2	4,000	36,000	mg/kg	77SB3A DUP AVG*	3	3/3	36,000
Chromium	7440-47-3	36	53	mg/kg	77SB2A	3	3/3	53
Cobalt	7440-48-4	10	12	mg/kg	77SB3A DUP AVG*	3	3/3	12.0
Copper	7440-50-8	24	85	mg/kg	77SB1A	3	3/3	85
Iron	7439-89-6	30,000	39,000	mg/kg	77SB2A	3	3/3	39,000
Lead	7439-92-1	17	100	mg/kg	77SB1A	3	3/3	100
Magnesium	7439-95-4	11,000	40,000	mg/kg	77SB3A DUP AVG*	3	3/3	40,000
Manganese	7439-96-5	360	660	mg/kg	77SB1A	3	3/3	660
Mercury	7439-97-6	0.04	1	mg/kg	77SB1A	3	3/3	1
Nickel	7440-02-0	24	37	mg/kg	77SB2A	3	3/3	37
Potassium	7440-09-7	1,800	6,400	mg/kg	77SB2A	3	3/3	6,400
Selenium	7782-49-2	0.34	0.49	mg/kg	77SB3A DUP AVG*	3	3/3	0.49
Silver	7440-22-4	0.12	0.67	mg/kg	77SB3A DUP AVG*	3	3/3	0.67
Sodium	7440-23-5	30	70	mg/kg	77SB3A DUP AVG*	3	3/3	70
Thallium	7440-28-0	0.3	0.32	mg/kg	77SB2A	3	3/3	0.32
Vanadium	7440-62-2	54	66	mg/kg	77SB2A	3	3/3	66
Zinc	7440-66-6	61	170	mg/kg	77SB1A	3	3/3	170
Pesticides								
4,4'-DDE	72-55-9	0.0063	0.0077	mg/kg	77SB1A	3	2/3	0.0077
4,4'-DDT	50-29-3	0.017	0.017	mg/kg	77SB3A DUP AVG*	3	1/3	0.017
alpha-Chlordane	5103-71-9	0.0041	0.0041	mg/kg	77SB3A DUP AVG*	3	1/3	0.0041
Dieldrin	60-57-1	0.0054	0.009	mg/kg	77SB1A	3	2/3	0.009
Endosulfan II	33213-65-9	0.001	0.001	mg/kg	77SB1A	3	1/3	0.001
Endosulfan Sulfate	1031-07-8	0.0022	0.0022	mg/kg	77SB3A DUP AVG*	3	1/3	0.0022
Endrin	72-20-8	0.0015	0.0027	mg/kg	77SB1A	3	2/3	0.0027
Endrin Aldehyde	7421-93-4	0.005	0.0059	mg/kg	77SB3A DUP AVG*	3	2/3	0.0059
gamma-Chlordane	5103-74-2	0.0016	0.0048	mg/kg	77SB3A DUP AVG*	3	2/3	0.0048
Heptachlor Epoxide	1024-57-3	0.00048	0.00048	mg/kg	77SB2A	3	1/3	0.00048
PCBs								
Aroclor 1254	11097-69-1	0.14	0.15	mg/kg	77SB1A	3	2/3	0.15
Aroclor 1260	11096-82-5	0.069	0.28	mg/kg	77SB1A	3	2/3	0.28
TCL VOCs								
Methylene Chloride	75-09-2	0.0027	0.0027	mg/kg	77SB3A DUP AVG*	3	1/3	0.0027
TCL SVOCs								
1,1'-Biphenyl	92-52-4	0.0013	0.0013	mg/kg	77SB1A	3	1/3	0.0013
2,4-Dinitrotoluene	121-14-2	0.036	0.036	mg/kg	77SB1A	3	1/3	0.036
2,6-Dinitrotoluene	606-20-2	0.013	0.013	mg/kg	77SB1A	3	1/3	0.013
2-Methylnaphthalene	91-57-6	0.0019	0.0046	mg/kg	77SB1A	3	2/3	0.0046
Acenaphthene	83-32-9	0.0025	0.0025	mg/kg	77SB1A	3	1/3	0.0025
Acenaphthylene	208-96-8	0.0029	0.0029	mg/kg	77SB1A	3	1/3	0.0029
Anthracene	120-12-7	0.0058	0.0058	mg/kg	77SB1A	3	1/3	0.0058
Benzo(a)anthracene	56-55-3	0.014	0.069	mg/kg	77SB1A	3	2/3	0.069
Benzo(a)pyrene	50-32-8	0.013	0.054	mg/kg	77SB1A	3	2/3	0.054
Benzo(b)fluoranthene	205-99-2	0.027	0.11	mg/kg	77SB1A	3	2/3	0.11
Benzo(g,h,i)perylene	191-24-2	0.035	0.035	mg/kg	77SB1A	3	1/3	0.035
Benzo(k)fluoranthene	207-08-9	0.013	0.058	mg/kg	77SB1A	3	2/3	0.058
Bis(2-ethylhexyl) Phthalate	117-81-7	0.017	0.15	mg/kg	77SB1A	3	3/3	0.15
Butyl Benzyl Phthalate	85-68-7	0.025	0.025	mg/kg	77SB1A	3	1/3	0.025
Chrysene	218-01-9	0.015	0.067	mg/kg	77SB1A	3	2/3	0.067
Di-n-butyl Phthalate	84-74-2	0.23	0.23	mg/kg	77SB1A	3	1/3	0.23
Dibenz(a,h)anthracene	53-70-3	0.017	0.017	mg/kg	77SB1A	3	1/3	0.017
Diethyl Phthalate	84-66-2	0.012	0.14	mg/kg	77SB1A	3	2/3	0.14
Fluoranthene	206-44-0	0.016	0.073	mg/kg	77SB1A	3	2/3	0.073
Indeno(1,2,3-cd)pyrene	193-39-5	0.034	0.034	mg/kg	77SB1A	3	1/3	0.034
Naphthalene	91-20-3	0.0033	0.0033	mg/kg	77SB1A	3	1/3	0.0033
Phenanthrene	85-01-8	0.0094	0.04	mg/kg	77SB1A	3	2/3	0.04
Pyrene	129-00-0	0.025	0.12	mg/kg	77SB1A	3	2/3	0.12
Dioxin/Furans								
2,3,7,8-TCDD TEQ	--	0.000028462	0.000129451	mg/kg	77SB2A	2	2/2	0.000129451
Cyanide								
Cyanide, Total	57-12-5	0.15	0.15	mg/kg	77SB1A	3	1/3	0.15
Total Organic Carbon (TOC)								
Carbon, Total Organic	--	0.29	0.29	mg/kg	77SB2A	1	1/1	0.29

Notes:
CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

Table F.5-2
SSA 77 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Cyanide																		
Cyanide, Total	57-12-5	mg/kg	2	3	0.094	0.096	NV	--	NS	0.9	D	N	--	--	NS	--	--	NS
Pesticides																		
4,4'-DDD	72-54-8	mg/kg	3	3	0.00037	0.00043	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDE	72-55-9	mg/kg	1	3	0.00036	0.00036	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
4,4'-DDT	50-29-3	mg/kg	2	3	0.00032	0.00037	0.1	G	N	0.1	C	N	0.093	A	N	0.021	A	N
Aldrin	309-00-2	mg/kg	3	3	0.0016	0.0018	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
alpha-BHC	319-84-6	mg/kg	3	3	0.00028	0.00032	100	G	N	NV	--	NS	--	--	NS	--	--	NS
alpha-Chlordane	5103-71-9	mg/kg	2	3	0.0005	0.00058	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
beta-BHC	319-85-7	mg/kg	3	3	0.00036	0.00041	100	G	N	NV	--	NS	--	--	NS	--	--	NS
delta-BHC	319-86-8	mg/kg	3	3	0.00033	0.00038	100	G	N	NV	--	NS	--	--	NS	--	--	NS
Dieldrin	60-57-1	mg/kg	1	3	0.00036	0.00036	0.1	G	N	0.1	C	N	0.022	A	N	0.0049	A	N
Endosulfan I	959-98-8	mg/kg	3	3	0.00032	0.00037	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan II	33213-65-9	mg/kg	2	3	0.00039	0.00039	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endosulfan Sulfate	1031-07-8	mg/kg	2	3	0.00041	0.00048	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Endrin	72-20-8	mg/kg	1	3	0.0004	0.0004	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Aldehyde	7421-93-4	mg/kg	1	3	0.0011	0.0011	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Endrin Ketone	53494-70-5	mg/kg	3	3	0.00045	0.00052	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-BHC (Lindane)	58-89-9	mg/kg	3	3	0.00032	0.00037	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
gamma-Chlordane	5103-74-2	mg/kg	1	3	0.00036	0.00036	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor	76-44-8	mg/kg	3	3	0.00054	0.00063	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Heptachlor Epoxide	1024-57-3	mg/kg	2	3	0.00027	0.0003	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Methoxychlor	72-43-5	mg/kg	3	3	0.00046	0.00053	0.1	G	N	0.1	C	N	--	--	NS	--	--	NS
Toxaphene	8001-35-2	mg/kg	3	3	0.0036	0.0042	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
PCBs				3														
Aroclor 1016	12674-11-2	ug/kg	3	3	5.3	6.1	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1221	11104-28-2	ug/kg	3	3	9.8	11	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1232	11141-16-5	ug/kg	3	3	5.6	6.5	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1242	53469-21-9	ug/kg	3	3	5.8	6.6	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1248	12672-29-6	ug/kg	3	3	8.1	9.4	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1254	11097-69-1	ug/kg	1	3	8.5	8.5	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1260	11096-82-5	ug/kg	1	3	7.2	7.2	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1262	37324-23-5	ug/kg	3	3	6.5	7.5	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
Aroclor 1268	11100-14-4	ug/kg	3	3	8.1	9.4	40,000	F	N	--	--	NS	--	--	NS	--	--	NS
TCL VOCs																		
1,1,1-Trichloroethane	71-55-6	ug/kg	3	3	1	1.4	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	3	3	0.98	1.3	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	3	3	0.66	0.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,1,2-Trichloroethane	79-00-5	ug/kg	3	3	1.1	1.6	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethane	75-34-3	ug/kg	3	3	0.39	0.54	300	G	N	300	C	N	--	--	NS	--	--	NS
1,1-Dichloroethene	75-35-4	ug/kg	3	3	0.89	1.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,3-Trichlorobenzene	87-61-6	ug/kg	3	3	0.49	0.67	--	--	NS	--	--	NS	--	--	NS	--	--	NS
1,2,4-Trichlorobenzene	120-82-1	ug/kg	3	3	0.89	1.2	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	3	3	2.6	3.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2-Dibromoethane	106-93-4	ug/kg	3	3	1	1.4	NV	--	NS	5,000	C	N	--	--	NS	--	--	NS
1,2-Dichlorobenzene	95-50-1	ug/kg	3	3	0.32	0.45	100	G	N	100	C	N	--	--	NS	--	--	NS
1,2-Dichloroethane	107-06-2	ug/kg	3	3	0.45	0.62	870,000	G	N	NV	--	NS	--	--	NS	--	--	NS
1,2-Dichloropropane	78-87-5	ug/kg	3	3	0.46	0.64	300	G	N	300	C	N	--	--	NS	--	--	NS
1,3-Dichlorobenzene	541-73-1	ug/kg	3	3	0.48	0.66	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,4-Dichlorobenzene	106-46-7	ug/kg	3	3	0.59	0.81	100	G	N	20,000	B	N	--	--	NS	--	--	NS
2-Butanone	78-93-3	ug/kg	3	3	2.9	3.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Hexanone	591-78-6	ug/kg	3	3	1.3	1.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	3	3	0.22	0.31	100,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Acetone	67-64-1	ug/kg	3	3	3.9	5.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzene	71-43-2	ug/kg	3	3	0.26	0.36	100	G	N	100	C	N	--	--	NS	--	--	NS
Bromochloromethane	74-97-5	ug/kg	3	3	0.55	0.76	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Bromodichloromethane	75-27-4	ug/kg	3	3	1.1	1.5	450,000	G	N	NV	--	NS	--	--	NS	--	--	NS
Bromoform	75-25-2	ug/kg	3	3	0.58	0.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bromomethane	74-83-9	ug/kg	3	3	1.2	1.7	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Disulfide	75-15-0	ug/kg	3	3	0.42	0.58	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbon Tetrachloride	56-23-5	ug/kg	3	3	0.84	1.2	300	G	N	300	C	N	--	--	NS	--	--	NS
Chlorobenzene	108-90-7	ug/kg	3	3	0.99	1.4	100	G	N	40,000	B	N	--	--	NS	--	--	NS
Chloroethane	75-00-3	ug/kg	3	3	0.98	1.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS

Table F.5-2
SSA 77 - Non-detected Chemicals MDL Screening - Surface Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Chloroform	67-66-3	ug/kg	3	3	0.29	0.39	300	G	N	300	C	N	--	--	NS	--	--	NS
Chloromethane	74-87-3	ug/kg	3	3	0.52	0.72	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
cis-1,2-Dichloroethene	156-59-2	ug/kg	3	3	0.36	0.49	300	G	N	300	C	N	--	--	NS	--	--	NS
cis-1,3-Dichloropropene	10061-01-5	ug/kg	3	3	0.53	0.72	300	G	N	300	C	N	--	--	NS	--	--	NS
Cyclohexane	110-82-7	ug/kg	3	3	1	1.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibromochloromethane	124-48-1	ug/kg	3	3	0.58	0.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dichlorodifluoromethane	75-71-8	ug/kg	3	3	0.44	0.61	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Ethylbenzene	100-41-4	ug/kg	3	3	0.19	0.26	100	G	N	100	C	N	--	--	NS	--	--	NS
Isopropylbenzene	98-82-8	ug/kg	3	3	0.24	0.34	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl Acetate	79-20-9	ug/kg	3	3	3	4.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methyl tert-Butyl Ether	1634-04-4	ug/kg	3	3	0.61	0.84	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methylcyclohexane	108-87-2	ug/kg	3	3	1.1	1.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Methylene Chloride	75-09-2	ug/kg	2	3	1.6	1.8	300	G	N	300	C	N	--	--	NS	--	--	NS
Styrene	100-42-5	ug/kg	3	3	0.97	1.3	300,000	F	N	100	C	N	--	--	NS	--	--	NS
Tetrachloroethene	127-18-4	ug/kg	3	3	0.93	1.3	300	G	N	300	C	N	--	--	NS	--	--	NS
Toluene	108-88-3	ug/kg	3	3	0.75	1	200,000	F	N	100	C	N	--	--	NS	--	--	NS
trans-1,2-Dichloroethene	156-60-5	ug/kg	3	3	1	1.4	300	G	N	300	C	N	--	--	NS	--	--	NS
trans-1,3-Dichloropropene	10061-02-6	ug/kg	3	3	0.38	0.52	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichloroethene	79-01-6	ug/kg	3	3	0.54	0.75	300	G	N	300	C	N	--	--	NS	--	--	NS
Trichlorofluoromethane	75-69-4	ug/kg	3	3	0.39	0.54	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Vinyl Chloride	75-01-4	ug/kg	3	3	0.32	0.44	300	G	N	300	C	N	--	--	NS	--	--	NS
Xylenes (Total)	1330-20-7	ug/kg	3	3	1.3	1.8	100	G	N	NV	--	NS	--	--	NS	--	--	NS
TCL SVOCs																		
1,1'-Biphenyl	92-52-4	ug/kg	2	3	1.2	1.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	3	3	2.6	3	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	3	3	12	13	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4,5-Trichlorophenol	95-95-4	ug/kg	3	3	3.1	3.5	4,000	F	N	9,000	B	N	--	--	NS	--	--	NS
2,4,6-Trichlorophenol	88-06-2	ug/kg	3	3	2.6	2.9	100	G	N	10,000	B	N	--	--	NS	--	--	NS
2,4-Dichlorophenol	120-83-2	ug/kg	3	3	4.2	4.9	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dimethylphenol	105-67-9	ug/kg	3	3	1.9	2.1	100	G	N	100	C	N	--	--	NS	--	--	NS
2,4-Dinitrophenol	51-28-5	ug/kg	3	3	130	150	20,000	F	N	100	C	**Y**	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	ug/kg	2	3	27	27	5,300	I	N	19,800	I	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	ug/kg	2	3	3.2	3.3	4,500	I	N	6,900	I	N	--	--	NS	--	--	NS
2-Chloronaphthalene	91-58-7	ug/kg	3	3	2.7	3.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Chlorophenol	95-57-8	ug/kg	3	3	4.7	5.4	7,000	F	N	10,000	B	N	--	--	NS	--	--	NS
2-Methylnaphthalene	91-57-6	ug/kg	1	3	0.65	0.65	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Methylphenol	95-48-7	ug/kg	3	3	6	6.9	100	G	N	100	C	N	--	--	NS	--	--	NS
2-Nitroaniline	88-74-4	ug/kg	3	3	8.9	10	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
2-Nitrophenol	88-75-5	ug/kg	3	3	8.3	9.5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	3	3	35	40	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
3-Nitroaniline	99-09-2	ug/kg	3	3	8.9	10	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	3	3	25	29	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	3	3	1.9	2.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloro-3-methylphenol	59-50-7	ug/kg	3	3	4.1	4.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Chloroaniline	106-47-8	ug/kg	3	3	8.8	10	20,000	F	N	NV	--	NS	--	--	NS	--	--	NS
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	3	3	4.2	4.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Methylphenol	106-44-5	ug/kg	3	3	5.5	6.4	100	G	N	100	C	N	--	--	NS	--	--	NS
4-Nitroaniline	100-01-6	ug/kg	3	3	2	2.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
4-Nitrophenol	100-02-7	ug/kg	3	3	170	190	100	G	**Y**	7,000	B	N	--	--	NS	--	--	NS
Acenaphthene	83-32-9	ug/kg	2	3	1.1	1.1	100	G	N	100	C	N	--	--	NS	--	--	NS
Acenaphthylene	208-96-8	ug/kg	2	3	2.4	2.4	100	G	N	100	C	N	--	--	NS	--	--	NS
Acetophenone	98-86-2	ug/kg	3	3	4.6	5.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Anthracene	120-12-7	ug/kg	2	3	3.6	3.7	100	G	N	100	C	N	--	--	NS	--	--	NS
Atrazine	1912-24-9	ug/kg	3	3	5.6	6.4	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzaldehyde	100-52-7	ug/kg	3	3	7.7	8.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Benzo(a)anthracene	56-55-3	ug/kg	1	3	1.6	1.6	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(a)pyrene	50-32-8	ug/kg	1	3	2	2	100	G	N	NV	--	NS	--	--	NS	--	--	NS
Benzo(b)fluoranthene	205-99-2	ug/kg	1	3	4.2	4.2	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(g,h,i)perylene	191-24-2	ug/kg	2	3	1.3	1.3	100	G	N	100	C	N	--	--	NS	--	--	NS
Benzo(k)fluoranthene	207-08-9	ug/kg	1	3	1.9	1.9	100	G	N	100	C	N	--	--	NS	--	--	NS
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	3	3	1.6	1.8	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	3	3	2.3	2.7	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	3	3	8.3	9.6	--	--	NS	--	--	NS	--	--	NS	--	--	NS

Table F.5-2
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SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Plant SL	Source	Maximum MDL Exceeds SL	Inverte-brate SL	Source	Maximum MDL Exceeds SL	Avian ECO SSL	Source	Maximum MDL Exceeds SL	Mammalian ECO SSL	Source	Maximum MDL Exceeds SL
Butyl Benzyl Phthalate	85-68-7	ug/kg	2	3	6.9	7.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Caprolactam	105-60-2	ug/kg	3	3	16	18	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Carbazole	86-74-8	ug/kg	3	3	100	120	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Chrysene	218-01-9	ug/kg	1	3	5	5	100	G	N	100	C	N	--	--	NS	--	--	NS
Di-n-butylphthalate	84-74-2	ug/kg	2	3	35	36	200,000	F	N	NV	--	NS	--	--	NS	--	--	NS
Di-n-octylphthalate	117-84-0	ug/kg	3	3	6.7	7.7	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	2	3	11	11	100	G	N	100	C	N	--	--	NS	--	--	NS
Dibenzofuran	132-64-9	ug/kg	3	3	11	13	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Diethylphthalate	84-66-2	ug/kg	1	3	5	5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Dimethylphthalate	131-11-3	ug/kg	3	3	1.1	1.3	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Fluoranthene	206-44-0	ug/kg	1	3	1.1	1.1	100	G	N	100	C	N	--	--	NS	--	--	NS
Fluorene	86-73-7	ug/kg	3	3	8.6	9.9	100	G	N	100	C	N	--	--	NS	--	--	NS
Hexachlorobenzene	118-74-1	ug/kg	3	3	5.3	6.2	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorobutadiene	87-68-3	ug/kg	3	3	4.3	5	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachlorocyclopentadiene	77-47-4	ug/kg	3	3	2.5	2.9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Hexachloroethane	67-72-1	ug/kg	3	3	3.1	3.6	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	2	3	5.2	5.3	100	G	N	100	C	N	--	--	NS	--	--	NS
Isophorone	78-59-1	ug/kg	3	3	7.8	9	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	3	3	7	8.1	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
N-Nitroso-diphenylamine	86-30-6	ug/kg	3	3	12	14	NV	--	NS	NV	--	NS	--	--	NS	--	--	NS
Naphthalene	91-20-3	ug/kg	2	3	2.9	3	100	G	N	100	C	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	ug/kg	3	3	6.4	7.4	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Pentachlorophenol	87-86-5	ug/kg	3	3	55	64	5,000	A	N	31,000	A	N	2,100	A	N	2,800	A	N
Phenanthrene	85-01-8	ug/kg	1	3	1.5	1.5	100	G	N	100	C	N	--	--	NS	--	--	NS
Phenol	108-95-2	ug/kg	3	3	56	64	100	G	N	30,000	B	N	--	--	NS	--	--	NS
Pyrene	129-00-0	ug/kg	1	3	1.7	1.7	100	G	N	100	C	N	--	--	NS	--	--	NS
Explosives																		
1,3,5-Trinitrobenzene	99-35-4	mg/kg	3	3	0.12	0.12	8.6	I	N	18.1	I	N	--	--	NS	--	--	NS
1,3-Dinitrobenzene	99-65-0	mg/kg	3	3	0.11	0.11	--	--	NS	--	--	NS	--	--	NS	--	--	NS
2,4-Dinitrotoluene	121-14-2	mg/kg	3	3	0.23	0.23	5.3	I	N	19.8	I	N	--	--	NS	--	--	NS
2,4,6-Trinitrotoluene	118-96-7	mg/kg	3	3	0.16	0.16	2.4	H	N	1.2	H	N	--	--	NS	--	--	NS
2,6-Dinitrotoluene	606-20-2	mg/kg	3	3	0.23	0.23	4.5	I	N	6.9	I	N	--	--	NS	--	--	NS
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	3	3	0.21	0.21	80	J	N	--	--	NS	--	--	NS	--	--	NS
2-Nitrotoluene	88-72-2	mg/kg	3	3	0.14	0.14	--	--	NS	--	--	NS	--	--	NS	--	--	NS
3-Nitrotoluene	99-08-1	mg/kg	3	3	0.25	0.25	--	--	NS	--	--	NS	--	--	NS	--	--	NS
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	3	3	0.16	0.16	80	J	N	--	--	NS	--	--	NS	--	--	NS
4-Nitrotoluene	99-99-0	mg/kg	3	3	0.27	0.27	--	--	NS	--	--	NS	--	--	NS	--	--	NS
HMX	2691-41-0	mg/kg	3	3	0.12	0.12	--	--	NS	6.3	I	N	--	--	NS	--	--	NS
Nitrobenzene	98-95-3	mg/kg	3	3	0.045	0.045	--	--	NS	--	--	NS	--	--	NS	--	--	NS
RDX	121-82-4	mg/kg	3	3	0.039	0.039	100	K	N	98.6	I	N	--	--	NS	--	--	NS
Tetryl	479-45-8	mg/kg	3	3	0.046	0.046	--	--	NS	--	--	NS	--	--	NS	--	--	NS
Nitroglycerin/PETN																		
Nitroglycerin	55-63-0	mg/kg	3	3	0.29	0.29	--	--	NS	--	--	NS	--	--	NS	--	--	NS
PETN	78-11-5	mg/kg	3	3	0.25	0.25	--	--	NS	--	--	NS	--	--	NS	--	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
SL = Screening Level
Eco SSL = Ecological Soil Screening Level

Sources:
A = USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
B = ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
C = BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
D = CCME 2006
E = ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
F = ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
G = BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
H = Best, E.P.H., H.E. Tatem, K.N. Geter, M.L. Wells and B.K. Lane. 2004. Toxicity and Metabolites of 2,4,6 Trinitrotoluene (TNT) in Plants and Worms from Exposure to Aged Soil.
I = Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil.
J = Pennington, Judith C. 1988. Plant Uptake of 2,4,6-Trinitrotoluene, 4-Amino-2,6-Dinitrotoluene, and 2-Amino-4,6-Dinitrotoluene Using 14C-Labeled and Unlabeled Compounds.
K = Simini, M., R.S. Wentsel, R.T. Checkai, C.T. Phillips, N.A. Chester, M.A. Major, and J.C. Amos. 1995. Evaluation of Soil Toxicity at Joliet Army Ammunition Plant.

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

Table F.5-3a
SSA 77 - Summary of Total PCBs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	77SB1A 8/11/2009 0-1		77SB2A 8/11/2009 0-1		77SB3A DUP AVG 8/11/2009 0-1	
		Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
PCBs (ug/kg)							
Aroclor 1254	11097-69-1	150	,L,m	<48	U	140	
Aroclor 1260	11096-82-5	280	,L,m	<97	U	69	J
Total PCBs	--	430		ND		209	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
ft bgs = Feet Below Ground Surface
PBC = Polychlorinated Biphenyl
ND = Not Detected
See Table 8-2 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Table F.5-3b
SSA 77 - Summary of Low and High Molecular Weight PAHs
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	77SB1A 8/11/2009 0-1		77SB2A 8/11/2009 0-1		77SB3A DUP AVG 8/11/2009 0-1	
		Result	LQ, VQ, r	Result	LQ, VQ, r	Result	LQ, VQ, r
TCL PAHs (ug/kg)							
Acenaphthene	83-32-9	2.5	J	<25	U	<24	U
Acenaphthylene	208-96-8	2.9	J	<25	U	<24	U
Anthracene	120-12-7	5.8	J	<25	U	<24	U
Fluorene	86-73-7	<8.6	U	<9.9	U	<9.7	U
Naphthalene	91-20-3	3.3	J	<25	U	<24	U
Phenanthrene	85-01-8	40	,K,m	<25	U	9.4	J
Low Molecular Weight PAHs	--	54.5		ND		9.4	
Benzo(a)anthracene	56-55-3	69	,J,i	<25	U	14	J,J,i
Benzo(a)pyrene	50-32-8	54	,J,i	<25	U	13	J,J,i
Benzo(b)fluoranthene	205-99-2	110	,J,i	<25	U	27	,J,i
Benzo(g,h,i)perylene	191-24-2	35	J,J,i	<97	U	<95	U,UJ,i
Benzo(k)fluoranthene	207-08-9	58	,J,i	<25	U	13	J,J,i
Chrysene	218-01-9	67	,J,i	<25	U	15	J,J,i
Dibenz(a,h)anthracene	53-70-3	17	J,J,i	<97	U	<95	U,UJ,i
Fluoranthene	206-44-0	73		<25	U	16	J
Indeno(1,2,3-cd)pyrene	193-39-5	34	J,J,i	<97	U	<95	U,UJ,i
Pyrene	129-00-0	120	,J,i	<25	U	25	,J,i
High Molecular Weight PAHs	--	637		ND		123	

Notes:

CAS = Chemical Abstract Service
ug/kg = Microgram per kilogram
TCL = Target Compound List
PAH = Polynuclear Aromatic Hydrocarbon
ND = Not Detected
See Table 8-2 for flag definitions

LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Table F.5-4
SSA 77 - Dioxin/Furan 2,3,7,8-TCDD Equivalents Calculation - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date Sample Depth (ft bgs)	CAS #	Mammalian TEF	Avian TEF	77SB2A 8/11/2009 0-1		77SB3A DUP AVG 8/11/2009 0-1	
				Result	LQ, VQ, r	Result	LQ, VQ, r
Dioxin/Furans (pg/g)							
1,2,3,4,6,7,8,9-OCDD (OCDD)	3268-87-9	0.0003	0.0001	12,100	E,J,q	2,965	
1,2,3,4,6,7,8,9-OCDF (OCDF)	39001-02-0	0.0003	0.0001	928		164.5	
1,2,3,4,6,7,8-HpCDD	35822-39-4	0.01	0.001	1,450		342.5	
1,2,3,4,6,7,8-HpCDF	67562-39-4	0.01	0.01	652		99.35	
1,2,3,4,7,8,9-HpCDF	55673-89-7	0.01	0.01	51.7		8.24	A,J,q
1,2,3,4,7,8-HxCDD	39227-28-6	0.1	0.05	37		7.305	A,J,q
1,2,3,4,7,8-HxCDF	70648-26-9	0.1	0.1	98		17.3	
1,2,3,6,7,8-HxCDD	57653-85-7	0.1	0.01	86.8		17.35	
1,2,3,6,7,8-HxCDF	57117-44-9	0.1	0.1	85.4		14.15	
1,2,3,7,8,9-HxCDD	19408-74-3	0.1	0.1	64.3		19.25	
1,2,3,7,8,9-HxCDF	72918-21-9	0.1	0.1	29.1	,J,d	4.995	A,J,q
1,2,3,7,8-PeCDD	40321-76-4	1	1	23.3		7.585	A,J,q
1,2,3,7,8-PeCDF	57117-41-6	0.03	0.1	35.2		6.22	A,J,q
2,3,4,6,7,8-HxCDF	60851-34-5	0.1	0.1	103		15.4	
2,3,4,7,8-PeCDF	57117-31-4	0.3	1	66.6		11.35	A,J,q
2,3,7,8-TCDD	1746-01-6	1	1	5.93		1.495	A,B,z
2,3,7,8-TCDF	51207-31-9	0.1	1	33.8	,L,m	7.76	
Total 2,3,7,8-TCDD Equivalents (Mammalian)	--			1703.354		338.914	
Total 2,3,7,8-TCDD Equivalents (Avian)	--			1975.078		520.437	

Notes:
CAS = Chemical Abstracts Service
pg/g = Picogram per Gram
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Data Qualifiers:
E = Concentration exceeded the upper level of the calibration range of the instrument for that specific analysis.
J = Analyte present. Reported value may not be accurate or precise.
L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
d = MS/MSD or LCS/LCSD RPD imprecision.
m = Internal standard failure.
q = Concentration exceeded the linear range.

-- = No Value Available

Total 2,3,7,8-TCDD Equivalents are calculated by summing the detected concentration times the TEF for each chemical. Non-detects, R-flagged data, and B-flagged data are excluded from summed total.

Table F.5-5
SSA 77 - Plant Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	50	ORNL-Plants
Antimony	7440-36-0	5	ORNL-Plants
Arsenic	7440-38-2	18	ECO SSL
Barium	7440-39-3	500	ORNL-Plants
Beryllium	7440-41-7	10	ORNL-Plants
Cadmium	7440-43-9	32	ECO SSL
Chromium	7440-47-3	1	ORNL-Plants
Cobalt	7440-48-4	13	ECO SSL
Copper	7440-50-8	70	ECO SSL
Iron	7439-89-6	NV	--
Lead	7439-92-1	120	ECO SSL
Manganese	7439-96-5	220	ECO SSL
Mercury	7439-97-6	0.3	ORNL-Plants
Nickel	7440-02-0	38	ECO SSL
Selenium	7782-49-2	0.52	ECO SSL
Silver	7440-22-4	560	ECO SSL
Thallium	7440-28-0	1	ORNL-Plants
Vanadium	7440-62-2	2	ORNL-Plants
Zinc	7440-66-6	160	ECO SSL
Cyanide			
Cyanide, Total	57-12-5	NV	--
Pesticides			
4,4'-DDE	72-55-9	0.1	BTAG - Flora
4,4'-DDT	50-29-3	0.1	BTAG - Flora
alpha-Chlordane	5103-71-9	0.1	BTAG - Flora
Dieldrin	60-57-1	NV	--
Endosulfan II	33213-65-9	NV	--
Endosulfan Sulfate	1031-07-8	NV	--
Endrin	72-20-8	0.1	BTAG - Flora
Endrin Aldehyde	7421-93-4	0.1	BTAG - Flora
gamma-Chlordane	5103-74-2	0.1	BTAG - Flora
Heptachlor Epoxide	1024-57-3	0.1	BTAG - Flora
PCBs			
Aroclor 1254	11097-69-1	NV	--
Aroclor 1260	11096-82-5	NV	--
TCL VOCs			
Methylene Chloride	75-09-2	0.3	BTAG - Flora
TCL SVOCs			
1,1'-Biphenyl	92-52-4	NV	--
2,4-Dinitrotoluene	121-14-2	5.3	Kuperman 2003
2,6-Dinitrotoluene	606-20-2	4.5	Kuperman 2003
2-Methylnaphthalene	91-57-6	NV	--
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Di-n-butyl Phthalate	84-74-2	200	ORNL-Plants
Diethyl Phthalate	84-66-2	NV	--
Naphthalene	91-20-3	0.1	BTAG - Flora
Low Molecular Weight PAHs	--	NV	--
High Molecular Weight PAHs	--	NV	--
Dioxin/Furans			
Total 2,3,7,8-TCDD TEQ	--	NV	--

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
NV = No Value Available
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Plants - Toxilogical Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision Efroymson et al.)
BTAG - Flora - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.5-6
SSA 77 - Plant Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	37,000	50	**7.4E+02**	40,041	N
Antimony	7440-36-0	1.2	5	2.4E-01	--	NBE
Arsenic	7440-38-2	4.6	18	2.6E-01	15.8	N
Barium	7440-39-3	100	500	2.0E-01	209	N
Beryllium	7440-41-7	3.3	10	3.3E-01	1.02	N
Cadmium	7440-43-9	1.7	32	5.3E-02	0.69	N
Chromium	7440-47-3	53	1	**5.3E+01**	65.3	N
Cobalt	7440-48-4	12	13	9.2E-01	72.3	N
Copper	7440-50-8	85	70	**1.2E+00**	53.5	**Y**
Iron	7439-89-6	39,000	NV	NC	50,962	N
Lead	7439-92-1	100	120	8.3E-01	26.8	N
Manganese	7439-96-5	660	220	**3.0E+00**	2,543	N
Mercury	7439-97-6	1	0.3	**3.3E+00**	0.13	**Y**
Nickel	7440-02-0	37	38	9.7E-01	62.8	N
Selenium	7782-49-2	0.49	0.52	9.4E-01	--	NBE
Silver	7440-22-4	0.67	560	1.2E-03	--	NBE
Thallium	7440-28-0	0.32	1	3.2E-01	2.11	N
Vanadium	7440-62-2	66	2	**3.3E+01**	108	N
Zinc	7440-66-6	170	160	**1.1E+00**	202	N
Cyanide						
Cyanide, Total	57-12-5	0.15	NV	NC	NV	NA
Pesticides						
4,4'-DDE	72-55-9	0.0077	0.1	7.7E-02	NV	NA
4,4'-DDT	50-29-3	0.017	0.1	1.7E-01	NV	NA
alpha-Chlordane	5103-71-9	0.0041	0.1	4.1E-02	NV	NA
Dieldrin	60-57-1	0.009	NV	NC	NV	NA
Endosulfan II	33213-65-9	0.001	NV	NC	NV	NA
Endosulfan Sulfate	1031-07-8	0.0022	NV	NC	NV	NA
Endrin	72-20-8	0.0027	0.1	2.7E-02	NV	NA
Endrin Aldehyde	7421-93-4	0.0059	0.1	5.9E-02	NV	NA
gamma-Chlordane	5103-74-2	0.0048	0.1	4.8E-02	NV	NA
Heptachlor Epoxide	1024-57-3	0.00048	0.1	4.8E-03	NV	NA
PCBs						
Aroclor 1254	11097-69-1	0.15	NV	NC	NV	NA
Aroclor 1260	11096-82-5	0.28	NV	NC	NV	NA
Total PCBs	--	0.43	NV	NC	NV	NA
TCL VOCs					NV	NA
Methylene Chloride	75-09-2	0.0027	0.3	9.0E-03	NV	NA
TCL SVOCs						
1,1'-Biphenyl	92-52-4	0.0013	NV	NC	NV	NA
2,4-Dinitrotoluene	121-14-2	0.036	5.3	6.8E-03	NV	NA
2,6-Dinitrotoluene	606-20-2	0.013	4.5	2.9E-03	NV	NA
2-Methylnaphthalene	91-57-6	0.0046	NV	NC	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.15	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.025	NV	NC	NV	NA
Di-n-butyl Phthalate	84-74-2	0.23	200	1.2E-03	NV	NA
Diethyl Phthalate	84-66-2	0.14	NV	NC	NV	NA
Total Low Molecular Weight PAHs	--	0.0545	NV	NC	NV	NA
Total High Molecular Weight PAHs	--	0.637	NV	NC	NV	NA
Dioxin/Furans						
Total 2,3,7,8-TCDD TEQ	--	0.000129451	NV	NC	NV	NA

Notes:
CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
SL = Screening Level
NBE = No Background Point Estimate Available
NV = No Value Available
NC = Not Calculated
NA = Not Applicable
Hazard Quotient = Soil Concentration/Screening Level

See Table F.5-3a for Total PCBs
See Table F.5-3b for Total Low and High Molecular Weight PAHs

Table F.5-7
SSA 77 - Invertebrate and Microbial Screening Level Sources - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS #	Screening Level (mg/kg)	Source
TAL Metals			
Aluminum	7429-90-5	NV	--
Antimony	7440-36-0	78	ECO SSL
Arsenic	7440-38-2	60	ORNL-Earthworm
Barium	7440-39-3	330	ECO SSL
Beryllium	7440-41-7	40	ECO SSL
Cadmium	7440-43-9	140	ECO SSL
Chromium	7440-47-3	0.4	ORNL-Earthworm
Cobalt	7440-48-4	200	BTAG - Fauna
Copper	7440-50-8	80	ECO SSL
Iron	7439-89-6	200	ORNL - Microbial
Lead	7439-92-1	1,700	ECO SSL
Manganese	7439-96-5	450	ECO SSL
Mercury	7439-97-6	0.1	ORNL-Earthworm
Nickel	7440-02-0	280	ECO SSL
Selenium	7782-49-2	4.1	ECO SSL
Silver	7440-22-4	50	ORNL - Microbial
Thallium	7440-28-0	NV	--
Vanadium	7440-62-2	20	ORNL - Microbial
Zinc	7440-66-6	120	Eco SSL
Cyanide			
Cyanide, Total	57-12-5	0.9	CCME-2006
Pesticides			
4,4'-DDE	72-55-9	0.1	BTAG - Fauna
4,4'-DDT	50-29-3	0.1	BTAG - Fauna
alpha-Chlordane	5103-71-9	0.1	BTAG - Fauna
Dieldrin	60-57-1	NV	--
Endosulfan II	33213-65-9	NV	--
Endosulfan Sulfate	1031-07-8	NV	--
Endrin	72-20-8	0.1	BTAG - Fauna
Endrin Aldehyde	7421-93-4	0.1	BTAG - Fauna
gamma-Chlordane	5103-74-2	0.1	BTAG - Fauna
Heptachlor Epoxide	1024-57-3	0.1	BTAG - Fauna
PCBs			
Aroclor 1254	11097-69-1	NV	--
Aroclor 1260	11096-82-5	NV	--
TCL VOCs			
Methylene Chloride	75-09-2	0.3	BTAG - Fauna
TCL SVOCs			
1,1'-Biphenyl	92-52-4	NV	--
2,4-Dinitrotoluene	121-14-2	19.8	Kuperman 2003
2,6-Dinitrotoluene	606-20-2	6.9	Kuperman 2003
2-Methylnaphthalene	91-57-6	NV	--
Bis(2-ethylhexyl) Phthalate	117-81-7	NV	--
Butyl Benzyl Phthalate	85-68-7	NV	--
Di-n-butyl Phthalate	84-74-2	NV	--
Diethyl Phthalate	84-66-2	NV	--
Naphthalene	91-20-3	0.1	BTAG - Fauna
Low Molecular Weight PAHs	--	29	ECO SSL
High Molecular Weight PAHs	--	18	ECO SSL
Dioxin/Furans			
Total 2,3,7,8-TCDD TEQ	--	NV	--

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
NV = No Value Available
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound

USEPA Eco SSL - Soil Invertebrates, Plants, Avian, Mammalian (http://www.epa.gov/ecotox/ecossl)
ORNL - Earthworms - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
ORNL - Microbial Processes - (Toxilogical Benchmarks for Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Process: 1997 Revision, Efroymson et al.)
BTAG - Fauna - (Region III Biological Technical Assistance Group - Draft Screening Levels - 1995)
Kuperman. R. 2003. Development of Ecological Toxicity and Biomagnification Data for Explosives Contaminants in Soil. U.S. Army Edgewood Chemical Biological Center. Final Techinical Report. Project CU-1221.

Table F.5-8
SSA 77 - Invertebrate and Microbial Screening - Soil
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Constituent of Potential Ecological Concern	CAS #	Maximum Soil Concentration (mg/kg)	Screening Level (mg/kg)	Hazard Quotient (unitless)	Facility Background Point Estimate	Max Conc Above SL and Background (Y/N)
Inorganics						
Aluminum	7429-90-5	37,000	NV	NC	40,041	N
Antimony	7440-36-0	1.2	78	1.5E-02	--	N
Arsenic	7440-38-2	4.6	60	7.7E-02	15.8	N
Barium	7440-39-3	100	330	3.0E-01	209	N
Beryllium	7440-41-7	3.3	40	8.3E-02	1.02	N
Cadmium	7440-43-9	1.7	140	1.2E-02	0.69	N
Calcium	7440-70-2	36,000	NV	NC	--	N
Chromium	7440-47-3	53	0.4	**1.3E+02**	65.3	N
Cobalt	7440-48-4	12	200	6.0E-02	72.3	N
Copper	7440-50-8	85	80	**1.1E+00**	53.5	**Y**
Iron	7439-89-6	39,000	200	**2.0E+02**	50,962	N
Lead	7439-92-1	100	1,700	5.9E-02	26.8	N
Magnesium	7439-95-4	40,000	NV	NC	--	N
Manganese	7439-96-5	660	450	**1.5E+00**	2,543	N
Mercury	7439-97-6	1.00	0.1	**1.0E+01**	0.13	**Y**
Nickel	7440-02-0	37	280	1.3E-01	62.8	N
Potassium	7440-09-7	6,400	NV	NC	--	N
Selenium	7782-49-2	0.49	4	1.2E-01	--	N
Silver	7440-22-4	0.67	50	1.3E-02	--	N
Sodium	7440-23-5	70	NV	NC	--	N
Thallium	7440-28-0	0.32	NV	NC	2.11	N
Vanadium	7440-62-2	66	20	**3.3E+00**	108	N
Zinc	7440-66-6	170	120	**1.4E+00**	202	N
Cyanide						
Cyanide, Total	57-12-5	0.15	0.9	1.7E-01	NV	NA
Pesticides						
4,4'-DDE	72-55-9	0.0077	0.1	7.7E-02	NV	NA
4,4'-DDT	50-29-3	0.017	0.1	1.7E-01	NV	NA
alpha-Chlordane	5103-71-9	0.0041	0.1	4.1E-02	NV	NA
Dieldrin	60-57-1	0.009	NV	NC	NV	NA
Endosulfan II	33213-65-9	0.001	NV	NC	NV	NA
Endosulfan Sulfate	1031-07-8	0.0022	NV	NC	NV	NA
Endrin	72-20-8	0.0027	0.1	2.7E-02	NV	NA
Endrin Aldehyde	7421-93-4	0.0059	0.1	5.9E-02	NV	NA
gamma-Chlordane	5103-74-2	0.0048	0.1	4.8E-02	NV	NA
Heptachlor Epoxide	1024-57-3	0.00048	0.1	4.8E-03	NV	NA
PCBs						
Aroclor 1254	11097-69-1	0.15	NV	NC	NV	NA
Aroclor 1260	11096-82-5	0.28	NV	NC	NV	NA
Total PCBs	--	0.43	NV	NC	NV	NA
TCL VOCs						
Methylene Chloride	75-09-2	0.0027	0.3	9.0E-03	NV	NA
TCL SVOCs						
1,1'-Biphenyl	92-52-4	0.0013	NV	NC	NV	NA
2,4-Dinitrotoluene	121-14-2	0.036	19.8	1.8E-03	NV	NA
2,6-Dinitrotoluene	606-20-2	0.013	6.9	1.9E-03	NV	NA
2-Methylnaphthalene	91-57-6	0.0046	NV	NC	NV	NA
Bis(2-ethylhexyl) Phthalate	117-81-7	0.15	NV	NC	NV	NA
Butyl Benzyl Phthalate	85-68-7	0.025	NV	NC	NV	NA
Di-n-butyl Phthalate	84-74-2	0.23	NV	NC	NV	NA
Diethyl Phthalate	84-66-2	0.14	NV	NC	NV	NA
Low Molecular Weight PAHs	--	0.0457	29	1.6E-03	NV	NA
High Molecular Weight PAHs	--	0.444	18	2.5E-02	NV	NA
Dioxin/Furans						
Total 2,3,7,8-TCDD TEQ	--	0.000129451	NV	NC	NV	NA

Notes:

CAS = Chemical Abstract Service
mg/kg = Milligram per Kilogram
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
NV = No Value Available
NC = Not Calculated
NA = Not Applicable
Hazard Quotient = Soil Concentration/Screening Level
See Table F.5-3a for Total PCBs
See Table F.5-3b for Total Low and High Molecular Weight PAHs

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Table F.5-9
SSA 77 - Wildlife Profiles
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment					Refined Assessment					
Representative Species			Composition of Diet [1] (%)				Minimum Body Weight [1]	Maximum Body Weight [1]	Maximum Food Ingestion Rate[2]	Maximum Substrate Ingestion Rate [3]		Average Body Weight [1]	Average Food Ingestion Rate [2]	Average Substrate Ingestion Rate [3]	Home Range (ha)	Proportion of Year Species Active	AUFs
Food-web Classification	Common Name	Scientific Name	Plants (incl. fungi)	Inverte-brates	Small mammals	Fish	kg	kg	kg dw/day	% of dry intake	kg dry wt./day	kg	kg dw/day	kg dry wt./day			Study Area (0.101) hectares
Birds																	
soil-probing invertivore	American robin	*Turdus migratorius*	62%	38%			0.0635	0.103	0.02	5%	0.001	0.077	0.016	0.0008	0.48	1	0.21
large carnivore	Red-tailed hawk	*Buteo jamaicensis*			100%		0.957	1.235	0.063	0%	0	1.134	0.059	0	250	1	0.0004
Mammals																	
small herbivore	Meadow vole	*Microtus pennsylvanicus*	100%				0.017	0.0524	0.01	2.4%	0.00024	0.037	0.008	0.00019	0.037	1	1
medium carnivore	Red fox	*Vulpes vulpes*	17%	4%	79%		2.95	7.04	0.342	2.8%	0.0096	4.53	0.238	0.0067	96	1	0.0011
small invertivore	Short-tailed shrew	*Blarina brevicauda*	14%	86%			0.0125	0.0225	0.003	13%	0.00039	0.015	0.002	0.00026	0.39	1	0.26

Notes:
kg = Kilogram
kg dw/day = Kilogram Dry-weight per Day
L/day = Liter per Day
ha = Hectares
AUF = Area Use Factor

[1]Wildlife Exposure Factors Handbook. U.S. Environmental Protection Agency (EPA). 1993. Office of Research and Development. 2 Volumes. EPA/600/R93/187a&b. December.
[2] Estimated food intake rate (kg [dw]/day) calculated as follows:
FI ((kg/day) = 0.0687 $Wt.^{0.882}$ for mammals (red fox and short-tailed shrew)
FI ((g/day) = 0.577 $Wt.^{0.727}$ for herbivores (meadow vole)
FI ((g/day) = 0.301 $Wt.^{0.751}$ for non-passerine birds (red-tailed hawk)
FI ((g/day) = 0.398 $Wt.^{0.850}$ for passerine birds (american robin)
[3]Estimating Exposure to Terrestrial Wildlife to Contaminants. Sample and Sutter. 1994. ES/ER/TM-125.
The soil ingestion rate for the american robin set equal to 38% of the american woodcock value (0.34*10.4%=4%), based on a robin diet of 38% invertbrates.

Table F.5-10
SSA 77 - Wildlife TRVs
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

	CAS #	AVIAN TEST SPECIES				MAMMALIAN TEST SPECIES					AVIAN RECEPTORS				MAMMALIAN RECEPTORS					
											American Robin		Red-tailed Hawk		Meadow Vole		Red Fox		Short-tailed Shrew	
		Chronic LOAEL	Chronic NOAEL	Test Animal	Source	Chronic LOAEL	Chronic NOAEL	Test Animal	Test Animal Body Weight (kg)	Source	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL	Chronic LOAEL	Chronic NOAEL
		(mg/kg-bw/d)				(mg/kg-bw/d)					(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)		(mg/kg-bw/d)	
Arsenic	7440-38-2	1.28E+01	5.14E+00	mallard duck	ORNL 1996	1.26	0.126	mouse	0.03	ORNL 1996	1.28E+01	5.14E+00	1.28E+01	5.14E+00	1.20E+00	1.20E-01	3.59E-01	3.59E-02	1.50E+00	1.50E-01
Cadmium	7440-43-9	2.00E+01	1.45E+00	mallard duck	ORNL 1996	10	1	rat	0.3	ORNL 1996	2.00E+01	1.45E+00	2.00E+01	1.45E+00	1.69E+01	1.69E+00	5.07E+00	5.07E-01	2.11E+01	2.11E+00
Chromium	7440-47-3	5.00E+00	1.00E+00	black duck	ORNL 1996	32.8	3.28	rat	0.35	ORNL 1996	5.00E+00	1.00E+00	5.00E+00	1.00E+00	5.75E+01	5.75E+00	1.73E+01	1.73E+00	7.21E+01	7.21E+00
Copper	7440-50-8	6.17E+01	4.70E+01	1 day old chicks	ORNL 1996	15.4	11.7	mink	1	ORNL 1996	6.17E+01	4.70E+01	6.17E+01	4.70E+01	3.51E+01	2.67E+01	1.06E+01	8.02E+00	4.40E+01	3.34E+01
Lead	7439-92-1	1.13E+01	1.13E+00	Japanese quail	ORNL 1996	80	8	rat	0.35	ORNL 1996	1.13E+01	1.13E+00	1.13E+01	1.13E+00	1.40E+02	1.40E+01	4.22E+01	4.22E+00	1.76E+02	1.76E+01
Mercury	7439-97-6	9.00E-01	4.50E-01	Japanese Quail	ORNL 1996	132	13.2	mink	1	ORNL 1996	9.00E-01	4.50E-01	9.00E-01	4.50E-01	3.01E+02	3.01E+01	9.05E+01	9.05E+00	3.77E+02	3.77E+01
Nickel	7440-02-0	1.07E+02	7.74E+01	mallard duckling	ORNL 1996	80	40	rat	0.35	ORNL 1996	1.07E+02	7.74E+01	1.07E+02	7.74E+01	1.40E+02	7.01E+01	4.22E+01	2.11E+01	1.76E+02	8.79E+01
Selenium	7782-49-2	8.00E-01	4.00E-01	mallard duck	ORNL 1996	0.33	0.2	rat	0.35	ORNL 1996	8.00E-01	4.00E-01	8.00E-01	4.00E-01	5.79E-01	3.51E-01	1.74E-01	1.05E-01	7.25E-01	4.40E-01
Silver	7440-22-4	1.24E+02	1.66E+01	turkey	Matuk et al. 1981	222	22.2	rat	0.35	Matuk et al. 1981	1.24E+02	1.66E+01	1.24E+02	1.66E+01	3.89E+02	3.89E+01	1.17E+02	1.17E+01	4.88E+02	4.88E+01
Zinc	7440-66-6	1.31E+02	1.45E+01	white leghorn hen	ORNL 1996	320	160	rat	0.35	ORNL 1996	1.31E+02	1.45E+01	1.31E+02	1.45E+01	5.61E+02	2.81E+02	1.69E+02	8.44E+01	7.03E+02	3.52E+02
PAHs																				
Acenaphthene	83-32-9	5.05E+00	1.01E+00	red-winged blackbird	USACE 1998	87.5	17.5	mouse	0.03	USACE 1998	5.05E+00	1.01E+00	5.05E+00	1.01E+00	8.30E+01	1.66E+01	2.50E+01	4.99E+00	1.04E+02	2.08E+01
Acenaphthylene	208-96-8	--	--	--	USACE 1998	500	100	rat	0.35	USACE 1998	NV	NV	NV	NV	8.77E+02	1.75E+02	2.64E+02	5.27E+01	1.10E+03	2.20E+02
Benzo(a)anthracene	56-55-3	--	--	--	USACE 1998	2	0.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	2.91E+00	2.91E-01	8.74E-01	8.74E-02	3.64E+00	3.64E-01
Benzo(a)pyrene	50-32-8	2.50E+00	5.00E-01	duck	ORNL 1996	10	1	mouse	0.03	ORNL 1996	2.50E+00	5.00E-01	2.50E+00	5.00E-01	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(b)fluoranthene	205-99-2	--	--	--	ORNL 1996	10	1	mouse	0.03	ORNL 1996	NV	NV	NV	NV	9.49E+00	9.49E-01	2.85E+00	2.85E-01	1.19E+01	1.19E+00
Benzo(g,h,i)perylene	191-24-2	--	--	--	USACE 1998	2.5	0.5	mouse	0.03	USACE 1998	NV	NV	NV	NV	2.37E+00	4.74E-01	7.13E-01	1.43E-01	2.97E+00	5.95E-01
Benzo(k)fluoranthene	207-08-9	--	--	--	USACE 1998	72	7.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.05E+02	1.05E+01	3.15E+01	3.15E+00	1.31E+02	1.31E+01
Chrysene	218-01-9	--	--	--	USACE 1998	99	9.9	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.44E+02	1.44E+01	4.32E+01	4.32E+00	1.80E+02	1.80E+01
Dibenzo(a,h)anthracene	53-70-3	--	--	--	USACE 1998	13.33	1.333	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.94E+01	1.94E+00	5.82E+00	5.82E-01	2.43E+01	2.43E+00
Fluoranthene	206-44-0	--	--	--	USACE 1998	100	20	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.45E+02	2.91E+01	4.37E+01	8.74E+00	1.82E+02	3.64E+01
Fluorene	86-73-7	5.05E+00	1.01E+00	red-winged blackbird	USACE 1998	2.5	0.5	mouse	0.03	USACE 1998	5.05E+00	1.01E+00	5.05E+00	1.01E+00	2.37E+00	4.74E-01	7.13E-01	1.43E-01	2.97E+00	5.95E-01
Indeno(1,2,3-cd)pyrene	193-39-5	--	--	--	USACE 1998	72	7.2	rodents	0.165	USACE 1998	NV	NV	NV	NV	1.05E+02	1.05E+01	3.15E+01	3.15E+00	1.31E+02	1.31E+01
Phenanthrene	85-01-8	5.65E+00	1.13E+00	red-winged blackbird	USACE 1998	35	7	mouse	0.03	USACE 1998	5.65E+00	1.13E+00	5.65E+00	1.13E+00	3.32E+01	6.64E+00	9.98E+00	2.00E+00	4.16E+01	8.32E+00
Pyrene	129-00-0	--	--	--	USACE 1998	40	8	mouse	0.03	USACE 1998	NV	NV	NV	NV	3.80E+01	7.59E+00	1.14E+01	2.28E+00	4.76E+01	9.51E+00
Pesticides																				
4,4'-DDE	72-55-9	5.80E-01	5.80E-02	mallard duck	Kornbrust et al. 1986	230	23	rat	0.35	Kornbrust et al. 1986	5.80E-01	5.80E-02	5.80E-01	5.80E-02	4.03E+02	4.03E+01	1.21E+02	1.21E+01	5.06E+02	5.06E+01
4,4'-DDT	50-29-3	2.80E-02	2.80E-03	brown pelican	ORNL 1996	4	0.8	rat	0.35	ORNL 1996	2.80E-02	2.80E-03	2.80E-02	2.80E-03	7.01E+00	1.40E+00	2.11E+00	4.22E-01	8.79E+00	1.76E+00
alpha-Chlordane	5103-71-9	1.07E+01	2.14E+00	red-winged blackbird	Chlordane Value	3.9	0.39	mouse	0.03	ATSDR 1994	1.07E+01	2.14E+00	1.07E+01	2.14E+00	3.70E+00	3.70E-01	1.11E+00	1.11E-01	4.64E+00	4.64E-01
Dieldrin	60-57-1	7.70E-01	7.70E-02	barn owl	ORNL 1996	0.2	0.02	rat	0.35	ORNL 1996	7.70E-01	7.70E-02	7.70E-01	7.70E-02	3.51E-01	3.51E-02	1.05E-01	1.05E-02	4.40E-01	4.40E-02
Endosulfan II	33213-65-9	1.00E+02	1.00E+01	gray partridge	Endosulfan Value	1.5	0.15	rat	0.35	Endosulfan Value	1.00E+02	1.00E+01	1.00E+02	1.00E+01	2.63E+00	2.63E-01	7.91E-01	7.91E-02	3.30E+00	3.30E-01
Endosulfan sulfate	1031-07-8	1.00E+02	1.00E+01	gray partridge	Endosulfan Value	0.26	0.026	mouse	0.35	Endosulfan Value	1.00E+02	1.00E+01	1.00E+02	1.00E+01	4.56E-01	4.56E-02	1.37E-01	1.37E-02	5.71E-01	5.71E-02
Endrin	72-20-8	1.70E-01	2.80E-02	mallard duck	ORNL 1996	0.92	0.092	mouse	0.03	ORNL 1996	1.70E-01	2.80E-02	1.70E-01	2.80E-02	8.73E-01	8.73E-02	2.62E-01	2.62E-02	1.09E+00	1.09E-01
Endrin aldehyde	7421-93-4	1.70E-01	2.80E-02	mallard duck	Endrin Value	0.92	0.092	mouse	0.03	Endrin Value	1.70E-01	2.80E-02	1.70E-01	2.80E-02	8.73E-01	8.73E-02	2.62E-01	2.62E-02	1.09E+00	1.09E-01
gamma-Chlordane	5103-74-2	1.06E+01	2.14E+00	red-winged blackbird	Chlordane Value	3.9	0.39	mouse	0.03	ATSDR 1994	1.06E+01	2.14E+00	1.06E+01	2.14E+00	3.70E+00	3.70E-01	1.11E+00	1.11E-01	4.64E+00	4.64E-01
Heptachlor epoxide	1024-57-3	4.95E+00	9.90E-01	Japanese quail	USACE 1998	0.25	0.025	rat	0.35	USACE 1998	4.95E+00	9.90E-01	4.95E+00	9.90E-01	4.38E-01	4.38E-02	1.32E-01	1.32E-02	5.49E-01	5.49E-02
PCBs																				
Aroclor 1254	11097-69-1	1.80E+00	1.80E-01	ring-necked pheasant	ORNL 1996	3.43	1.37	mink	1	Aroclor 1016 Value	1.80E+00	1.80E-01	1.80E+00	1.80E-01	7.82E+00	3.12E+00	2.35E+00	9.39E-01	9.80E+00	3.91E+00
Aroclor 1260	11096-82-5	1.80E+00	1.80E-01	ring-necked pheasant	Aroclor 1254 Value	3.43	1.37	mink	1	Aroclor 1016 Value	1.80E+00	1.80E-01	1.80E+00	1.80E-01	7.82E+00	3.12E+00	2.35E+00	9.39E-01	9.80E+00	3.91E+00
Dioxin/Furans																				
2,3,7,8-TCDD	1746-01-6	1.40E-04	1.40E-05	ring-necked pheasant	ORNL 1996	0.00001	0.000001	mouse	0.03	ORNL 1996	1.40E-04	1.40E-05	1.40E-04	1.40E-05	9.49E-06	9.49E-07	2.85E-06	2.85E-07	1.19E-05	1.19E-06

Notes:

CAS = Chemical Abstract Service
TRV = Toxic Reference Value
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw/d = Body Weight Per Day
kg = kilogram
PAH = Polynuclear Aromatic Hydrocarbon
PCB = Polychlorinated Biphenyl
USACE = U.S. Army Corps of Engineers
ORNL = Oak Ridge National Laboratory
NOAEL and LOAEL values were derived from acute values by applying an uncertainty factor of 150.
LD_{50} = Lethal Dose for 50% of test organisms

Sources:

Matuk et al. 1981. Matuk, Y., M. Gosh and C. McCulloch. 1981. Distribution of silver in the eyes and plasma proteins of the albino rat. Can. J. Ophthalmol. 16: 145-150. (Cited in ATSDR, 1990)
ORNL 1996. Sample, B.E., D.M. Opresko and G.W. Suter II. 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. ES/ER/TM-86/R3. Oak Ridge National Laboratory, Oak Ridge, Tennessee.
USACE 1998. U.S. Army Corps of Engineers (USACE). 1998. Final Ecological Risk Assessment, RCRA Facility Investigation, for Sunflower Army Ammunition Plant, De Soto, Kansas. USACE Kansas City District.
USCHPPM 2007. U.S. Army Center for Health Promotion and Preventive Medicine (USCHPPM) 2007, Wildlife Toxicity Assessment for Nitroglycerine (NG). USACHPPM Document No: 37-EJ-1138-01F. November.
U.S. EPA 1988. Recommendations for and documentation of biological values for use in risk assessment. Environmental Criteria and Assessment Office. Cincinnati, OH. EPA/600/6-87/008.

[4]- Mature rat body weight (average male & female) = 0.325 kg (U.S. EPA, 1988).

Table F.5-11
SSA 77 - Soil Biocaccumulation/Bioconcentration Factors- Soil to Plant Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

					Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected K_{ow}**	**Source**	**BAF**	**Basis**	**$C_{s\ MDC}$ (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	1.103	90th percentile	4.6	0.03752	Median	Bechtel Jacobs 1998
CADMIUM	7440-43-9	-- - --	--	--	3.25	90th percentile	1.7	0.489	$C_p = e^{(0.546*ln(Cs) - 0.475)}$	Bechtel Jacobs 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.084	90th percentile	53	0.041	Median	Bechtel Jacobs 1998
COPPER	7440-50-8	-- - --	--	--	0.625	90th percentile	85	0.132	$C_p = e^{(0.394*ln(Cs) + 0.668)}$	Bechtel Jacobs 1998
LEAD	7439-92-1	-- - --	--	--	0.468	90th percentile	100	0.035	$C_p = e^{(0.561*ln(Cs) - 1.328)}$	Bechtel Jacobs 1998
MERCURY	7439-97-6	-- - --	--	--	5	90th percentile	1	0.370	$C_p = e^{(0.544*ln(Cs) - 0.995)}$	Bechtel Jacobs 1998
NICKEL	7440-02-0	-- - --	--	--	1.411	90th percentile	37	0.044	$C_p = e^{(0.748*ln(Cs) + 2.223)}$	Bechtel Jacobs 1998
SELENIUM	7782-49-2	-- - --	--	--	3.012	90th percentile	0.49	0.472	$C_p = e^{(1.104*ln(Cs) - 0.677)}$	Bechtel Jacobs 1998
SILVER	7440-22-4	-- - --	--	--	0.037	90th percentile	0.67	0.014	Median	Bechtel Jacobs 1998
ZINC	7440-66-6	-- - --	--	--	1.82	90th percentile	170	0.489	$C_p = e^{(0.554*ln(Cs) + 1.575)}$	Bechtel Jacobs 1998
Pesticides										
4,4'-DDE	72-55-9	5.63 - 6.96	6.76	USEPA 1995	0.08	Maximum	0.0077	0.271	$C_p = e^{(0.752*ln(Cs) - 2.512)}$	USEPA 2005
4,4'-DDT	50-29-3	5.56 - 7.01	6.53	USEPA 1995	0.62	Maximum	0.017	0.223	$C_p = e^{(0.752*ln(Cs) - 2.512)}$	USEPA 2005
ALPHA-CHLORDANE	5103-71-9	5.8 - 6.41	6.32	USEPA 1995	1	Default Value	0.0041	0.0086	K_{ow} Regression Eq.	Travis and Arms 1988
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	1	Default Value	0.009	0.41	Median	USEPA 2005
ENDOSULFAN II	33213-65-9	3.62 - 4.52	4.52	USEPA 1995	1	Default Value	0.001	0.0945	K_{ow} Regression Eq.	Travis and Arms 1988
ENDOSULFAN SULFATE	1031-07-8	-- - --	--	--	1	Default Value	0.0022	0.2367	Endosulfan as Surrogate	--
ENDRIN	72-20-8	2.92 - 5.2	5.06	USEPA 1995	1	Default Value	0.0027	0.0461	K_{ow} Regression Eq.	Travis and Arms 1988
ENDRIN ALDEHYDE	7421-93-4	-- - --	--	--	1	Default Value	0.0059	0.0461	Endrin as Surrogate	--
GAMMA-CHLORDANE	5103-74-2	5.8 - 6.41	6.32	USEPA 1995	1	Default Value	0.0048	0.0086	K_{ow} Regression Eq.	Travis and Arms 1988
HEPTACHLOR EPOXIDE	1024-57-3	3.5 - 5.4	5	USEPA 1995	1	Default Value	0.00048	0.0499	K_{ow} Regression Eq.	Travis and Arms 1988
PCBs										
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	0.0068	K_{ow} Regression Eq.	0.15	0.00678	K_{ow} Regression Eq.	Travis and Arms 1988
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	0.0045	K_{ow} Regression Eq.	0.28	0.00455	K_{ow} Regression Eq.	Travis and Arms 1988
VOCs and SVOCs										
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	4.6	Anthracene as Surrogate	0.0025	258.7	$C_p = e^{(-0.8556*ln(Cs) - 5.562)}$	USEPA 2005
ACENAPHTHYLENE	208-96-8	-- - --	4.1	USEPA 1995	4.6	Anthracene as Surrogate	0.0029	1.080	$C_p = e^{(0.791*ln(Cs) - 1.144)}$	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	4.6	Maximum	0.0058	1.165	$C_p = e^{(0.778*ln(Cs) - 0.989)}$	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	0.54	Maximum	0.069	0.197	$C_p = e^{(0.5944*ln(Cs) - 2.708)}$	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	3.3	Maximum	0.054	0.137	$C_p = e^{(0.975*ln(Cs) - 2.0615)}$	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	0.48	Maximum	0.11	0.31	Median BAF	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.6	Maximum	0.035	0.213	$C_p = e^{(1.183*ln(Cs) - 0.931)}$	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Maximum	0.058	0.172	$C_p = e^{(0.860*ln(Cs) - 2.158)}$	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1.05	Maximum	0.067	0.200	$C_p = e^{(0.594*ln(Cs) - 2.708)}$	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	0.23	Maximum	0.017	0.13	Median BAF	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	6	Maximum	0.073	0.5	Median BAF	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.65	USEPA 1995	0.15	Maximum	0.034	0.11	Median BAF	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	11	Maximum	0.04	2.874	$C_p = e^{(0.620*ln(Cs) - 0.167)}$	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	3.7	Maximum	0.12	0.72	Median BAF	USEPA 2005
Dioxin/Furans										
2,3,7,8-TCDD	1746-01-6	6.42 - 7.02	6.53	USEPA 1995	0.0075	K_{ow} Regression Eq.	NC	0.006511184	K_{ow} Regression Eq.	Travis and Arms 1988

Notes:

CAS = Chemical Abstract Services
BAF = Bioaccumulation Factor
K_{ow} = Chemical octanol-water coefficient
NC = Not Calculated
C_s = Chemical Concentration in Soil
C_p = Chemical Concentration in Plant Matter (dry weight)
[1] = BAFs for chemical using Cp regression equation calculated by as follows: $BAF = C_p/C_s$
MDC = Maximum Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. 1995. Karickhoff, S.W. , and J.M. Long. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.

Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision

Bechtel Jacobs 1998: Bechtel Jacobs Company. September 1998. Emperical Models for the Uptake of Inorganic Chemical from Soil by Plants.

USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

Travis and Arms 1988: Travis and Arms. 1988. Bioconcentration of Organics in Beef, Milk, and Vegetation. BAF values calculated for Tier I using lowest Kow value and for Tier II using the selected Kow value.
K_{ow} Regression Equation: BAF =10^((-0.578*K_{ow})+1.588))

Table F.5-12
SSA 77 - Soil Biocaccumulation/Bioconcentration Factors - Soil to Invertebrate Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

							Preliminary Assessment		Refined Assessment			
Chemical	**CAS**	**Log K_{ow} Range**	**Selected Log K_{ow}**	**Reference**	**K_{oc}**	**Reference**	**Value**	**Basis**	**C_s MDC (mg/kg)**	**BAF[1]**	**Basis**	**Source**
Inorganics												
ARSENIC	7440-38-2	-- - --	--	--	--	--	0.523	90th percentile	4.6	0.1542	$C_e = e^{(0.706 \ln(Cs) - 1.421)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	--	--	40.69	90th percentile	1.7	7.428	$C_e = e^{(0.795 \ln(Cs) + 2.114)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	--	--	3.162	90th percentile	53	0.306	Median	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	--	--	1.531	90th percentile	85	0.515	Median	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	--	--	1.522	90th percentile	100	0.3306	$C_e = e^{(0.807 \ln(Cs) - 0.218)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	--	--	20.625	90th percentile	1	1.693	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	--	--	4.73	90th percentile	37	1.059	Median	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	--	--	1.34	90th percentile	0.49	1.122	$C_e = e^{(0.733 \ln(Cs) - 0.073)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	--	--	15.3	90th percentile	0.67	2.045	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	--	--	12.885	90th percentile	170	2.712	$C_e = e^{(0.328 \ln(Cs) + 4.449)}$	Sample et al. 1998
Pesticides												
4,4'-DDE	72-55-9	5.63 - 6.96	6.76	USEPA 1995	--	--	20.1	90th percentile	0.0077	21.31	$C_e = e^{(0.88 \ln(Cs) + 2.4771)}$	USEPA 2005
4,4'-DDT	50-29-3	5.56 - 7.01	6.53	USEPA 1995	--	--	29.4	90th percentile	0.017	10.96	$C_e = e^{(0.8689 \ln(Cs) + 2.1287)}$	USEPA 2005
ALPHA-CHLORDANE	5103-71-9	5.8 - 6.41	6.32	USEPA 1995	5.89E+04	SRC, CF	4	Not Specified	0.0041	4	Not Specified	Edwards and Bohlen 1992
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	--	--	79.58	Maximum	0.009	13.28	$C_e = e^{(0.876 \ln(Cs) + 2.276)}$	USEPA 2005
ENDOSULFAN II	33213-65-9	3.62 - 4.52	4.52	USEPA 1995	6.77E+03	SRC, CF	44.39	Jager Model	0.001	44.39	Jager Model	USEPA 2005
ENDOSULFAN SULFATE	1031-07-8	-- - --	--	--	--	--	2.21	Endosulfan as Surrogate	0.0022	2.12	Endosulfan as Surrogate	--
ENDRIN	72-20-8	2.92 - 5.2	5.06	USEPA 1995	1.14E+04	SRC, CF	3.6	Not Specified	0.0027	3.6	Not Specified	Edwards and Bohlen 1992
ENDRIN ALDEHYDE	7421-93-4	-- - --	--	--	--	--	3.6	Endrin as Surrogate	0.0059	3.6	Endrin as Surrogate	--
GAMMA-CHLORDANE	5103-74-2	5.8 - 6.41	6.32	USEPA 1995	5.89E+04	SRC, CF	4	Not Specified	0.0048	4	Not Specified	Edwards and Bohlen 1992
HEPTACHLOR EPOXIDE	1024-57-3	3.5 - 5.4	5	USEPA 1995	1.06E+01	SRC, CF	8.39	Not Specified	0.00048	8.39	Not Specified	USEPA 1999
PCBs												
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	--	--	15.9	90th percentile	0.15	6.67	Median	Sample et al. 1998
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	--	--	15.9	90th percentile	0.28	6.67	Median	Sample et al. 1998
VOCs and SVOCs												
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	1.09E+04	USEPA 2005	25.96	Jager Model	0.0025	8.288	Jager Model	USEPA 2005
ACENAPHTHYLENE	208-96-8	-- - --	4.07	USEPA 1995	9.47E+02	USEPA 2005	128.83	Jager Model	0.0029	128.8	Jager Model	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	2.35E+04	USEPA 2005	22.41	Jager Model	0.0058	13.58	Jager Model	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	3.58E+05	USEPA 2005	10.69	Jager Model	0.069	8.924	Jager Model	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	9.69E+05	USEPA 2005	11.88	Jager Model	0.054	7.496	Jager Model	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	5.96E+05	USEPA 2005	21.79	Jager Model	0.11	14.60	Jager Model	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1.43E+06	USEPA 2005	33.39	Jager Model	0.035	16.56	Jager Model	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	5.96E+05	USEPA 2005	16.79	Jager Model	0.058	14.60	Jager Model	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	2.48E+05	USEPA 2005	15.43	Jager Model	0.067	12.88	Jager Model	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	1.79E+06	USEPA 2005	18.98	Jager Model	0.017	12.97	Jager Model	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	4.95	USEPA 1995	4.17E+04	USEPA 2005	41.17	Jager Model	0.073	17.05	Jager Model	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.58	USEPA 1995	1.17E+06	USEPA 2005	21.07	Jager Model	0.034	16.05	Jager Model	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	3.30E+04	USEPA 2005	10.07	Jager Model	0.04	9.670	Jager Model	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	4.88	USEPA 1995	6.27E+04	USEPA 2005	35.53	Jager Model	0.12	9.858	Jager Model	USEPA 2005
Dioxin/Furans												
2,3,7,8-TCDD	1746-01-6	6.42 - 7.02	6.53	USEPA 1995	--	--	22.2	90th percentile	NC	11	Median	Sample et al. 1998

Notes:

CAS = Chemical Abstract Services

C_s = Chemical Concentration in Soil

C_e = Chemical Concentration in Earthworm (dry weight)

K_{ow} = Chemical octanol-water coefficient

MDC = Maximum Detected Concentration

K_{oc} = Chemical water to soil partitioning coefficient

K_{ww} = Chemical worm to soil partitioning coefficient

foc = fraction organic content in soil (0.00178 from physical samples)

[1] = BAFs for chemical using Ce regression equation calculated by as follows: BAF = C_e/C_s

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.

Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision

Sample et al. 1998: Sample, B.E., Beauchamp, J.J., Efroymson, R.A., Sutter, G.W., Ashwood, T.L., February 1998. Development and Validation of Bioaccumulation Models for Earthworms.

Jager Model: As presented in USEPA 2005, Guidance for Developing Ecological Screening Levels, Appendix 4-1, Table 5.

BAF = K_{ww}(L/kg worm dw)/K_d (L/kg soil dw)

K_{ww} (dry weight) = 10^(0.87*logK_{ow} - 2.0) / 0.16

Wet weight to dry weight assuming 16% solids

$K_d = f_{oc} * K_{oc}$

foc = 0.00178 from site specific physical soil data

Note: The maximum Kow utilized for the preliminary calculation and the Selected Kow utilized for the refined calculation.

Edwards and Bohlen 1992: Edwards, C.A. and Bohlen, P.J. 1992. The effects of toxic chemicals on earthworms. Reviews of Environmental Contamination and Toxicology, 125: 23-99.

USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

SRC/CF: Syracuse Research Corporation (SRC). Physical Properties Database. http://www.syrres.com/esc/physdemo.htm

Table F.5-13
SSA 77 - Soil Bioaccumulation/Bioconcentration Factors - Soil to Mammal Pathway
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS	Log K_{ow} Range	Selected K_{ow}	Reference	Preliminary Assessment		Refined Assessment			Source
					Value	Basis	C_s MDC (mg/kg)	BAF[1]	Basis	
Inorganics										
ARSENIC	7440-38-2	-- - --	--	--	0.0149	90th percentile	4.6	0.0060	$C_m = e^{(0.819*\ln(Cs) - 4.847)}$	Sample et al. 1998
CADMIUM	7440-43-9	-- - --	--	--	3.991	90th percentile	1.7	0.2150	$C_m = e^{(0.472*\ln(Cs) - 1.257)}$	Sample et al. 1998
CHROMIUM	7440-47-3	-- - --	--	--	0.333	90th percentile	53	0.0807	$C_m = e^{(0.734*\ln(Cs) - 1.46)}$	Sample et al. 1998
COPPER	7440-50-8	-- - --	--	--	1.045	90th percentile	85	0.1722	$C_m = e^{(0.144*\ln(Cs) + 2.042)}$	Sample et al. 1998
LEAD	7439-92-1	-- - --	--	--	0.286	90th percentile	100	0.0827	$C_m = e^{(0.442*\ln(Cs) + 0.0761)}$	Sample et al. 1998
MERCURY	7439-97-6	-- - --	--	--	0.192	90th percentile	1	0.0543	Median	Sample et al. 1998
NICKEL	7440-02-0	-- - --	--	--	0.589	90th percentile	37	0.1136	$C_m = e^{(0.466*\ln(Cs) - 0.246)}$	Sample et al. 1998
SELENIUM	7782-49-2	-- - --	--	--	1.187	90th percentile	0.49	1.0295	$C_m = e^{(0.376*\ln(Cs) -0.416)}$	Sample et al. 1998
SILVER	7440-22-4	-- - --	--	--	0.501	90th percentile	0.67	0.0040	Median	Sample et al. 1998
ZINC	7440-66-6	-- - --	--	--	2.69	90th percentile	170	0.6636	$C_m = e^{(0.071*\ln(Cs) + 4.363)}$	Sample et al. 1998
Pesticides										
4,4'-DDE	72-55-9	5.63 - 6.96	6.76	USEPA 1995	1	Default Value	0.0077	218.59	$C_m = e^{(0.641*\ln(Cd) + 3.640)}$	USEPA 2005
4,4'-DDT	50-29-3	5.56 - 7.01	6.53	USEPA 1995	1	Default Value	NC	NC	$C_m = e^{(0.725*\ln(Cd) + 1.179)}$	USEPA 2005
ALPHA-CHLORDANE	5103-71-9	5.8 - 6.41	6.32	USEPA 1995	1	Default Value	0.0041	1	Default Value	--
DIELDRIN	60-57-1	3.63 - 6.2	5.37	USEPA 1995	1	Default Value	0.009	0.0005	$C_m = e^{(0.6076*\ln(Cs) - 1.9582)}$	USEPA 2005
ENDOSULFAN II	33213-65-9	3.62 - 4.52	4.52	USEPA 1995	1	Default Value	0.001	1	Default Value	--
ENDOSULFAN SULFATE	1031-07-8	-- - --	--	--	1	Default Value	0.0022	1	Default Value	--
ENDRIN	72-20-8	2.92 - 5.2	5.06	USEPA 1995	1	Default Value	0.0027	1	Default Value	--
ENDRIN ALDEHYDE	7421-93-4	-- - --	--	--	1	Default Value	0.0059	1	Default Value	--
GAMMA-CHLORDANE	5103-74-2	5.8 - 6.41	6.32	USEPA 1995	1	Default Value	0.0048	1	Default Value	--
HEPTACHLOR EPOXIDE	1024-57-3	3.5 - 5.4	5	USEPA 1995	1	Default Value	0.00048	1	Default Value	--
PCBs										
AROCLOR-1254	11097-69-1	-- - --	6.5	Jones et al. 1997	1	Default Value	0.15	1	Default Value	--
AROCLOR-1260	11096-82-5	-- - --	6.8	Jones et al. 1997	1	Default Value	0.28	1	Default Value	--
VOCs and SVOCs										
ACENAPHTHENE	83-32-9	3.77 - 4.49	3.92	USEPA 1995	1	Default Value	0.0025	0	--	USEPA 2005
ACENAPHTHYLENE	208-96-8	-- - --	4.07	USEPA 1995	1	Default Value	0.0029	0	--	USEPA 2005
ANTHRACENE	120-12-7	4.44 - 4.8	4.55	USEPA 1995	1	Default Value	0.0058	0	--	USEPA 2005
BENZO(A)ANTHRACENE	56-55-3	5.61 - 5.79	5.7	USEPA 1995	1	Default Value	0.069	0	--	USEPA 2005
BENZO(A)PYRENE	50-32-8	5.98 - 6.34	6.11	USEPA 1995	1	Default Value	0.054	0	--	USEPA 2005
BENZO(B)FLUORANTHENE	205-99-2	5.79 - 6.4	6.2	USEPA 1995	1	Default Value	0.11	0	--	USEPA 2005
BENZO(G,H,I)PERYLENE	191-24-2	6.58 - 7.05	6.7	USEPA 1995	1	Default Value	0.035	0	--	USEPA 2005
BENZO(K)FLUORANTHENE	207-08-9	6.12 - 6.27	6.2	USEPA 1995	1	Default Value	0.058	0	--	USEPA 2005
CHRYSENE	218-01-9	5.41 - 5.79	5.7	USEPA 1995	1	Default Value	0.067	0	--	USEPA 2005
DIBENZO(A,H)ANTHRACENE	53-70-3	6.5 - 6.88	6.69	USEPA 1995	1	Default Value	0.017	0	--	USEPA 2005
FLUORANTHENE	206-44-0	4.84 - 5.39	5.12	USEPA 1995	1	Default Value	0.073	0	--	USEPA 2005
INDENO(1,2,3-CD)PYRENE	193-39-5	6.58 - 6.72	6.65	USEPA 1995	1	Default Value	0.034	0	--	USEPA 2005
PHENANTHRENE	85-01-8	4.37 - 4.57	4.55	USEPA 1995	1	Default Value	0.04	0	--	USEPA 2005
PYRENE	129-00-0	4.76 - 5.52	5.11	USEPA 1995	1	Default Value	0.12	0	--	USEPA 2005
Dioxin/Furans										
2,3,7,8-TCDD	1746-01-6	6.42 - 7.02	6.53	USEPA 1995	2.2	90th percentile	0.00000959	0.7199	$C_m = e^{(0.1089*\ln(Cs) + 0.7044)}$	Sample et al. 1998

Notes:

CAS = Chemical Abstract Services

C_s = Chemical Concentration in Soil

C_d = Chemical Concentration in Prey (assumed to be 100% earthworms (dry weight))

C_m = Chemical Concentration in Mammal (dry weight)

K_{ow} = Chemical octanol to water partitioning coefficient

[1] = BAFs for chemical using Ce regression equation calculated by as follows: BAF = C_m/C_s

MDC = Maximum Detected Concentration

Source(s):

USEPA 1995: United States Environmental Protection Agency. Karickhoff, S.W. , and J.M. Long. 1995. Summary of Measured, Calculated, and Recommended Log K_{ow} Values. Environmental Research Laboratory. Athens, Georgia.

Sample et al. 1998: Sample et al. 1998. Development and Validation of Bioaccumulation Models for Small Mammals.

Jones et al. 1997: Jones et al. 1997. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision

USEPA 2005: United States Environmental Protection Agency (USEPA). February 2005. Guidance for Developing Ecological Soil Screening Levels.

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Table F.5-14
SSA 77 - Preliminary Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	4.6	1.1E+00	5.1E+00	1.8E-01	1.8E+00	**2.55E+01**	**2.6E+00**
Cadmium	7440-43-9	1.69E+00	1.69E+01	1.7	3.3E+00	5.5E+00	8.8E-01	8.8E+00	**1.94E+00**	1.9E-01
Chromium	7440-47-3	5.75E+00	5.75E+01	53	8.4E-02	4.5E+00	9.1E+01	9.1E+02	5.85E-01	5.9E-02
Copper	7440-50-8	2.67E+01	3.51E+01	85	6.3E-01	5.3E+01	7.0E+01	9.2E+01	**1.22E+00**	9.2E-01
Lead	7439-92-1	1.40E+01	1.40E+02	100	4.7E-01	4.7E+01	4.8E+01	4.8E+02	**2.06E+00**	2.1E-01
Mercury	7439-97-6	3.01E+01	3.01E+02	1	5.0E+00	5.0E+00	1.0E+01	1.0E+02	9.82E-02	9.8E-03
Nickel	7440-02-0	7.01E+01	1.40E+02	37	1.4E+00	5.2E+01	8.3E+01	1.7E+02	4.45E-01	2.2E-01
Selenium	7782-49-2	3.51E-01	5.79E-01	0.49	3.0E+00	1.5E+00	2.0E-01	3.2E-01	**2.49E+00**	**1.5E+00**
Silver	7440-22-4	3.89E+01	3.89E+02	0.67	3.7E-02	2.5E-02	1.1E+03	1.1E+04	6.17E-04	6.2E-05
Zinc	7440-66-6	2.81E+02	5.61E+02	170	1.8E+00	3.1E+02	2.6E+02	5.2E+02	6.57E-01	3.3E-01
Dioxin/Furans										
Total 2,3,7,8-TCDD Equivalents	1746-01-6	9.49E-07	9.49E-06	1.7E-03	7.5E-03	1.3E-05	5.1E-05	5.1E-04	**3.3E+01**	**3.3E+00**
Pesticides										
4,4'-DDE	72-55-9	4.03E+01	4.03E+02	0.0077	8.0E-02	6.2E-04	6.6E+02	6.6E+03	1.17E-05	1.2E-06
4,4'-DDT	50-29-3	1.40E+00	7.01E+00	0.017	6.2E-01	1.1E-02	3.7E+00	1.9E+01	4.59E-03	9.2E-04
alpha-Chlordane	5103-71-9	3.70E-01	3.70E+00	0.0041	1.0E+00	4.1E-03	6.1E-01	6.1E+00	6.67E-03	6.7E-04
Dieldrin	60-57-1	3.51E-02	3.51E-01	0.009	1.0E+00	9.0E-03	5.8E-02	5.8E-01	1.55E-01	1.5E-02
Endosulfan II	33213-65-9	2.63E-01	2.63E+00	0.001	1.0E+00	1.0E-03	4.4E-01	4.4E+00	2.29E-03	2.3E-04
Endosulfan Sulfate	1031-07-8	4.56E-02	4.56E-01	0.0022	1.0E+00	2.2E-03	7.6E-02	7.6E-01	2.91E-02	2.9E-03
Endrin	72-20-8	8.73E-02	8.73E-01	0.0027	1.0E+00	2.7E-03	1.4E-01	1.4E+00	1.86E-02	1.9E-03
Endrin Aldehyde	7421-93-4	8.73E-02	8.73E-01	0.0059	1.0E+00	5.9E-03	1.4E-01	1.4E+00	4.07E-02	4.1E-03
gamma-Chlordane	5103-74-2	3.70E-01	3.70E+00	0.0048	1.0E+00	4.8E-03	6.1E-01	6.1E+00	7.81E-03	7.8E-04
Heptachlor Epoxide	1024-57-3	4.38E-02	4.38E-01	0.00048	1.0E+00	4.8E-04	7.3E-02	7.3E-01	6.59E-03	6.6E-04
PCBs										
Aroclor 1254	11097-69-1	6.45E-02	6.45E-01	0.15	6.8E-03	1.0E-03	3.6E+00	3.6E+01	4.21E-02	4.2E-03
Aroclor 1260	11096-82-5	6.45E-02	6.45E-01	0.28	4.5E-03	1.3E-03	3.8E+00	3.8E+01	7.29E-02	7.3E-03
TCL SVOCs										
Acenaphthene	83-32-9	1.66E+01	8.30E+01	0.0025	4.6E+00	1.2E-02	6.1E+00	3.1E+01	4.09E-04	8.2E-05
Acenaphthylene	208-96-8	1.75E+02	8.77E+02	0.0029	4.6E+00	1.3E-02	6.4E+01	3.2E+02	4.50E-05	9.0E-06
Anthracene	120-12-7	4.80E+02	4.80E+03	0.0058	4.6E+00	2.7E-02	1.8E+02	1.8E+03	3.29E-05	3.3E-06
Benzo(a)anthracene	56-55-3	2.91E-01	2.91E+00	0.069	5.4E-01	3.7E-02	8.8E-01	8.8E+00	7.88E-02	7.9E-03
Benzo(a)pyrene	50-32-8	9.49E-01	9.49E+00	0.054	3.3E+00	1.8E-01	4.9E-01	4.9E+00	1.11E-01	1.1E-02
Benzo(b)fluoranthene	205-99-2	9.49E-01	9.49E+00	0.11	4.8E-01	5.3E-02	3.2E+00	3.2E+01	3.44E-02	3.4E-03
Benzo(g,h,i)perylene	191-24-2	4.74E-01	2.37E+00	0.035	1.6E+00	5.6E-02	5.0E-01	2.5E+00	7.05E-02	1.4E-02
Benzo(k)fluoranthene	207-08-9	1.05E+01	1.05E+02	0.058	1.0E+00	5.8E-02	1.7E+01	1.7E+02	3.34E-03	3.3E-04
Chrysene	218-01-9	1.44E+01	1.44E+02	0.067	1.1E+00	7.0E-02	2.3E+01	2.3E+02	2.94E-03	2.9E-04
Dibenz(a,h)anthracene	53-70-3	1.94E+00	1.94E+01	0.017	2.3E-01	3.9E-03	1.3E+01	1.3E+02	1.31E-03	1.3E-04
Fluoranthene	206-44-0	2.91E+01	1.45E+02	0.073	6.0E+00	4.4E-01	8.2E+00	4.1E+01	8.90E-03	1.8E-03
Indeno(1,2,3-cd)pyrene	193-39-5	1.05E+01	1.05E+02	0.034	1.5E-01	5.1E-03	1.0E+02	1.0E+03	3.33E-04	3.3E-05
Phenanthrene	85-01-8	6.64E+00	3.32E+01	0.04	1.1E+01	4.4E-01	1.0E+00	5.1E+00	3.91E-02	7.8E-03
Pyrene	129-00-0	7.59E+00	3.80E+01	0.12	3.7E+00	4.4E-01	3.5E+00	1.7E+01	3.46E-02	6.9E-03

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

Meadow Vole Specific Data from Table F.5-9

BW=	0.017	kg
IR_{food} =	0.010	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00024	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.5-15
SSA 77 - Refined Wildlife Risk Characterization - Meadow Vole
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	1.20E-01	1.20E+00	4.6	3.8E-02	1.7E-01	9.0E+00	9.0E+01	5.1E-01	5.1E-02
Cadmium	7440-43-9	1.69E+00	1.69E+01	1.7	4.9E-01	8.3E-01	1.5E+01	1.5E+02	1.1E-01	1.1E-02
Copper	7440-50-8	2.67E+01	3.51E+01	85	1.3E-01	1.1E+01	7.9E+02	1.0E+03	1.1E-01	8.2E-02
Lead	7439-92-1	1.40E+01	1.40E+02	100	3.5E-02	3.5E+00	1.1E+03	1.1E+04	9.1E-02	9.1E-03
Selenium	7782-49-2	3.51E-01	5.79E-01	0.49	4.7E-01	2.3E-01	3.3E+00	5.4E+00	1.5E-01	9.1E-02
Dioxin/Furans				--						
Total 2,3,7,8-TCDD Equivalents	1746-01-6	9.49E-07	9.49E-06	1.7E-03	6.5E-03	1.1E-05	1.5E-04	1.5E-03	**1.2E+01**	**1.2E+00**

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soi)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Meadow Vole Specific Data from Table F.5-9

BW=	0.037	kg
IR_{food} =	0.008	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	1.00	unitless
IR_{soil} =	0.00019	kg dw/day
AF =	1	unitless

Table F.5-16
SSA 77 - Preliminary Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	1.50E-01	1.50E+00	4.6	1.1E+00	5.1E+00	5.2E-01	2.4E+00	Plant	5.1E-01	5.1E+00	**9.1E+00**	9.1E-01
Cadmium	7440-43-9	2.11E+00	2.11E+01	1.7	3.3E+00	5.5E+00	4.1E+01	6.9E+01	Invertebrate	2.2E-01	2.2E+00	**7.9E+00**	7.9E-01
Chromium	7440-47-3	7.21E+00	7.21E+01	53	8.4E-02	4.5E+00	3.2E+00	1.7E+02	Invertebrate	9.1E+00	9.1E+01	**5.8E+00**	5.8E-01
Copper	7440-50-8	3.34E+01	4.40E+01	85	6.3E-01	5.3E+01	1.5E+00	1.3E+02	Invertebrate	8.4E+01	1.1E+02	**1.0E+00**	7.7E-01
Lead	7439-92-1	1.76E+01	1.76E+02	100	4.7E-01	4.7E+01	1.5E+00	1.5E+02	Invertebrate	4.4E+01	4.4E+02	**2.3E+00**	2.3E-01
Mercury	7439-97-6	3.77E+01	3.77E+02	1	5.0E+00	5.0E+00	2.1E+01	2.1E+01	Invertebrate	7.6E+00	7.6E+01	1.3E-01	1.3E-02
Nickel	7440-02-0	8.79E+01	1.76E+02	37	1.4E+00	5.2E+01	4.7E+00	1.8E+02	Invertebrate	7.5E+01	1.5E+02	4.9E-01	2.5E-01
Selenium	7782-49-2	4.40E-01	7.25E-01	0.49	3.0E+00	1.5E+00	1.3E+00	6.6E-01	Plant	5.8E-01	9.6E-01	8.4E-01	5.1E-01
Silver	7440-22-4	4.88E+01	4.88E+02	0.67	3.7E-02	2.5E-02	1.5E+01	1.0E+01	Invertebrate	1.3E+01	1.3E+02	5.1E-02	5.1E-03
Zinc	7440-66-6	3.52E+02	7.03E+02	170	1.8E+00	3.1E+02	1.3E+01	2.2E+03	Invertebrate	1.1E+02	2.3E+02	**1.5E+00**	7.6E-01
Dioxin/Furans													
Total 2,3,7,8-TCDD Equivalents	1746-01-6	1.19E-06	1.19E-05	1.7E-03	7.5E-03	1.3E-05	2.2E+01	3.8E-02	Invertebrate	2.2E-07	2.2E-06	**7.7E+03**	**7.7E+02**
Pesticides													
4,4'-DDE	72-55-9	5.06E+01	5.06E+02	0.0077	8.0E-02	6.2E-04	2.0E+01	1.5E-01	Invertebrate	1.0E+01	1.0E+02	7.4E-04	7.4E-05
4,4'-DDT	50-29-3	1.76E+00	8.79E+00	0.017	6.2E-01	1.1E-02	2.9E+01	5.0E-01	Invertebrate	2.5E-01	1.2E+00	6.9E-02	1.4E-02
alpha-Chlordane	5103-71-9	4.64E-01	4.64E+00	0.0041	1.0E+00	4.1E-03	4.0E+00	1.6E-02	Invertebrate	4.7E-01	4.7E+00	8.8E-03	8.8E-04
Dieldrin	60-57-1	4.40E-02	4.40E-01	0.009	1.0E+00	9.0E-03	8.0E+01	7.2E-01	Invertebrate	2.3E-03	2.3E-02	**3.9E+00**	3.9E-01
Endosulfan II	33213-65-9	3.30E-01	3.30E+00	0.001	1.0E+00	1.0E-03	4.4E+01	4.4E-02	Invertebrate	3.1E-02	3.1E-01	3.2E-02	3.2E-03
Endosulfan Sulfate	1031-07-8	5.71E-02	5.71E-01	0.0022	1.0E+00	2.2E-03	2.2E+00	4.9E-03	Invertebrate	1.0E-01	1.0E+00	2.2E-02	2.2E-03
Endrin	72-20-8	1.09E-01	1.09E+00	0.0027	1.0E+00	2.7E-03	3.6E+00	9.7E-03	Invertebrate	1.2E-01	1.2E+00	2.2E-02	2.2E-03
Endrin Aldehyde	7421-93-4	1.09E-01	1.09E+00	0.0059	1.0E+00	5.9E-03	3.6E+00	2.1E-02	Invertebrate	1.2E-01	1.2E+00	4.8E-02	4.8E-03
gamma-Chlordane	5103-74-2	4.64E-01	4.64E+00	0.0048	1.0E+00	4.8E-03	4.0E+00	1.9E-02	Invertebrate	4.7E-01	4.7E+00	1.0E-02	1.0E-03
Heptachlor Epoxide	1024-57-3	5.49E-02	5.49E-01	0.00048	1.0E+00	4.8E-04	8.4E+00	4.0E-03	Invertebrate	2.7E-02	2.7E-01	1.8E-02	1.8E-03
PCBs													
Aroclor 1254	11097-69-1	8.09E-02	8.09E-01	0.15	6.8E-03	1.0E-03	1.6E+01	2.4E+00	Invertebrate	2.1E-02	2.1E-01	**7.1E+00**	7.1E-01
Aroclor 1260	11096-82-5	8.09E-02	8.09E-01	0.28	4.5E-03	1.3E-03	1.6E+01	4.5E+00	Invertebrate	2.1E-02	2.1E-01	**1.3E+01**	**1.3E+00**
TCL SVOCs													
Acenaphthene	83-32-9	2.08E+01	1.04E+02	0.0025	4.6E+00	1.2E-02	2.6E+01	6.5E-02	Invertebrate	3.3E+00	1.7E+01	7.5E-04	1.5E-04
Acenaphthylene	208-96-8	2.20E+02	1.10E+03	0.0029	4.6E+00	1.3E-02	1.3E+02	3.7E-01	Invertebrate	7.1E+00	3.6E+01	4.1E-04	8.2E-05
Anthracene	120-12-7	6.01E+02	6.01E+03	0.0058	4.6E+00	2.7E-02	2.2E+01	1.3E-01	Invertebrate	1.1E+02	1.1E+03	5.2E-05	5.2E-06
Benzo(a)anthracene	56-55-3	3.64E-01	3.64E+00	0.069	5.4E-01	3.7E-02	1.1E+01	7.4E-01	Invertebrate	1.4E-01	1.4E+00	4.9E-01	4.9E-02
Benzo(a)pyrene	50-32-8	1.19E+00	1.19E+01	0.054	3.3E+00	1.8E-01	1.2E+01	6.4E-01	Invertebrate	4.1E-01	4.1E+00	1.3E-01	1.3E-02
Benzo(b)fluoranthene	205-99-2	1.19E+00	1.19E+01	0.11	4.8E-01	5.3E-02	2.2E+01	2.4E+00	Invertebrate	2.3E-01	2.3E+00	4.9E-01	4.9E-02
Benzo(g,h,i)perylene	191-24-2	5.95E-01	2.97E+00	0.035	1.6E+00	5.6E-02	3.3E+01	1.2E+00	Invertebrate	7.4E-02	3.7E-01	4.7E-01	9.5E-02
Benzo(k)fluoranthene	207-08-9	1.31E+01	1.31E+02	0.058	1.0E+00	5.8E-02	1.7E+01	9.7E-01	Invertebrate	3.2E+00	3.2E+01	1.8E-02	1.8E-03
Chrysene	218-01-9	1.80E+01	1.80E+02	0.067	1.1E+00	7.0E-02	1.5E+01	1.0E+00	Invertebrate	4.8E+00	4.8E+01	1.4E-02	1.4E-03
Dibenz(a,h)anthracene	53-70-3	2.43E+00	2.43E+01	0.017	2.3E-01	3.9E-03	1.9E+01	3.2E-01	Invertebrate	5.3E-01	5.3E+00	3.2E-02	3.2E-03
Fluoranthene	206-44-0	3.64E+01	1.82E+02	0.073	6.0E+00	4.4E-01	4.1E+01	3.0E+00	Invertebrate	3.7E+00	1.8E+01	2.0E-02	4.0E-03
Indeno(1,2,3-cd)pyrene	193-39-5	1.31E+01	1.31E+02	0.034	1.5E-01	5.1E-03	2.1E+01	7.2E-01	Invertebrate	2.6E+00	2.6E+01	1.3E-02	1.3E-03
Phenanthrene	85-01-8	8.32E+00	4.16E+01	0.04	1.1E+01	4.4E-01	1.0E+01	4.0E-01	Plant	3.1E+00	1.6E+01	1.3E-02	2.6E-03
Pyrene	129-00-0	9.51E+00	4.76E+01	0.12	3.7E+00	4.4E-01	3.6E+01	4.3E+00	Invertebrate	1.1E+00	5.6E+00	1.1E-01	2.2E-02

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

Short-tailed Shrew Specific Data from Table F.5-9

BW=	0.0125	kg
IR_{food} =	0.003	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00039	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.5-17
SSA 77 - Refined Wildlife Risk Characterization - Short-tailed Shrew
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Arsenic	7440-38-2	1.50E-01	1.50E+00	4.6	3.8E-02	1.7E-01	1.54E-01	7.1E-01	1.6E+01	1.6E+02	2.9E-01	2.9E-02
Cadmium	7440-43-9	2.11E+00	2.11E+01	1.7	4.9E-01	8.3E-01	7.43E+00	1.3E+01	9.3E+00	9.3E+01	1.8E-01	1.8E-02
Chromium	7440-47-3	7.21E+00	7.21E+01	53	4.1E-02	2.2E+00	3.06E-01	1.6E+01	5.2E+02	5.2E+03	1.0E-01	1.0E-02
Copper	7440-50-8	3.34E+01	4.40E+01	85	1.3E-01	1.1E+01	5.15E-01	4.4E+01	1.6E+03	2.1E+03	5.2E-02	4.0E-02
Lead	7439-92-1	1.76E+01	1.76E+02	100	3.5E-02	3.5E+00	3.31E-01	3.3E+01	1.2E+03	1.2E+04	8.3E-02	8.3E-03
Zinc	7440-66-6	3.52E+02	7.03E+02	170	4.9E-01	8.3E+01	2.71E+00	4.6E+02	4.0E+03	8.0E+03	4.2E-02	2.1E-02
Dioxin/Furans												
Total 2,3,7,8-TCDD Equivalents	1746-01-6	1.19E-06	1.19E-05	1.7E-03	6.5E-03	1.1E-05	1.10E+01	1.9E-02	3.6E-06	3.6E-05	**4.8E+02**	**4.8E+01**
Pesticides												
Dieldrin	60-57-1	4.40E-02	4.40E-01	0.009	4.1E-01	3.7E-03	1.33E+01	1.2E-01	1.1E-01	1.1E+00	8.2E-02	8.2E-03
PCBs												
Aroclor 1254	11097-69-1	8.09E-02	8.09E-01	0.15	6.8E-03	1.0E-03	6.67E+00	1.0E+00	4.0E-01	4.0E+00	3.8E-01	3.8E-02
Aroclor 1260	11096-82-5	8.09E-02	8.09E-01	0.28	4.5E-03	1.3E-03	6.67E+00	1.9E+00	4.0E-01	4.0E+00	7.0E-01	7.0E-02

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10
BW = Average Body Weigth of Receptor (kg)
IR_{food} = Average Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor, specific to prey type and chemical
DF = Dietary fraction
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value
BDL = Below Detection Limit
EPC = Exposure Point Concentration
* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

Short-tailed Shrew Specific Data from Table F.5-9

BW=	0.015	kg
IR_{food} =	0.002	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.14	unitless
DF_{inv} =	0.86	unitless
IR_{soil} =	0.00026	kg dw/day
AF =	0.260	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level
LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Table F.5-18
SSA 77 - Preliminary Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment											
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics															
Arsenic	7440-38-2	3.59E-02	3.59E-01	4.6	1.1E+00	5.1E+00	5.2E-01	2.4E+00	1.5E-02	6.9E-02	Plant	2.7E-01	2.7E+00	**1.7E+01**	**1.7E+00**
Cadmium	7440-43-9	5.07E-01	5.07E+00	1.7	3.3E+00	5.5E+00	4.1E+01	6.9E+01	4.0E+00	6.8E+00	Invertebrate	1.1E-01	1.1E+00	**1.6E+01**	**1.6E+00**
Chromium	7440-47-3	1.73E+00	1.73E+01	53	8.4E-02	4.5E+00	3.2E+00	1.7E+02	3.3E-01	1.8E+01	Invertebrate	4.7E+00	4.7E+01	**1.1E+01**	**1.1E+00**
Copper	7440-50-8	8.02E+00	1.06E+01	85	6.3E-01	5.3E+01	1.5E+00	1.3E+02	1.0E+00	8.9E+01	Invertebrate	4.4E+01	5.8E+01	**1.9E+00**	**1.5E+00**
Lead	7439-92-1	4.22E+00	4.22E+01	100	4.7E-01	4.7E+01	1.5E+00	1.5E+02	2.9E-01	2.9E+01	Invertebrate	2.3E+01	2.3E+02	**4.3E+00**	4.3E-01
Mercury	7439-97-6	9.05E+00	9.05E+01	1	5.0E+00	5.0E+00	2.1E+01	2.1E+01	1.9E-01	1.9E-01	Invertebrate	3.8E+00	3.8E+01	2.6E-01	2.6E-02
Nickel	7440-02-0	2.11E+01	4.22E+01	37	1.4E+00	5.2E+01	4.7E+00	1.8E+02	5.9E-01	2.2E+01	Invertebrate	3.8E+01	7.6E+01	9.7E-01	4.8E-01
Selenium	7782-49-2	1.05E-01	1.74E-01	0.49	3.0E+00	1.5E+00	1.3E+00	6.6E-01	1.2E+00	5.8E-01	Plant	3.0E-01	4.9E-01	**1.6E+00**	9.9E-01
Silver	7440-22-4	1.17E+01	1.17E+02	0.67	3.7E-02	2.5E-02	1.5E+01	1.0E+01	5.0E-01	3.4E-01	Invertebrate	6.6E+00	6.6E+01	1.0E-01	1.0E-02
Zinc	7440-66-6	8.44E+01	1.69E+02	170	1.8E+00	3.1E+02	1.3E+01	2.2E+03	2.7E+00	4.6E+02	Invertebrate	5.6E+01	1.1E+02	**3.0E+00**	**1.5E+00**
Dioxin/Furans															
Total 2,3,7,8-TCDD Equivalents	1746-01-6	2.85E-07	2.85E-06	1.7E-03	7.5E-03	1.3E-05	2.2E+01	3.8E-02	2.2E+00	3.7E-03	Invertebrate	1.1E-07	1.1E-06	**1.5E+04**	**1.5E+03**
Pesticides															
4,4'-DDE	72-55-9	1.21E+01	1.21E+02	0.0077	8.0E-02	6.2E-04	2.0E+01	1.5E-01	1.0E+00	7.7E-03	Invertebrate	5.2E+00	5.2E+01	1.5E-03	1.5E-04
4,4'-DDT	50-29-3	4.22E-01	2.11E+00	0.017	6.2E-01	1.1E-02	2.9E+01	5.0E-01	1.0E+00	1.7E-02	Invertebrate	1.2E-01	6.2E-01	1.4E-01	2.8E-02
alpha-Chlordane	5103-71-9	1.11E-01	1.11E+00	0.0041	1.0E+00	4.1E-03	4.0E+00	1.6E-02	1.0E+00	4.1E-03	Invertebrate	2.4E-01	2.4E+00	1.7E-02	1.7E-03
Dieldrin	60-57-1	1.05E-02	1.05E-01	0.009	1.0E+00	9.0E-03	8.0E+01	7.2E-01	1.0E+00	9.0E-03	Invertebrate	1.1E-03	1.1E-02	**7.9E+00**	7.9E-01
Endosulfan II	33213-65-9	7.91E-02	7.91E-01	0.001	1.0E+00	1.0E-03	4.4E+01	4.4E-02	1.0E+00	1.0E-03	Invertebrate	1.5E-02	1.5E-01	6.5E-02	6.5E-03
Endosulfan Sulfate	1031-07-8	1.37E-02	1.37E-01	0.0022	1.0E+00	2.2E-03	2.2E+00	4.9E-03	1.0E+00	2.2E-03	Invertebrate	5.3E-02	5.3E-01	4.2E-02	4.2E-03
Endrin	72-20-8	2.62E-02	2.62E-01	0.0027	1.0E+00	2.7E-03	3.6E+00	9.7E-03	1.0E+00	2.7E-03	Invertebrate	6.2E-02	6.2E-01	4.3E-02	4.3E-03
Endrin Aldehyde	7421-93-4	2.62E-02	2.62E-01	0.0059	1.0E+00	5.9E-03	3.6E+00	2.1E-02	1.0E+00	5.9E-03	Invertebrate	6.2E-02	6.2E-01	9.5E-02	9.5E-03
gamma-Chlordane	5103-74-2	1.11E-01	1.11E+00	0.0048	1.0E+00	4.8E-03	4.0E+00	1.9E-02	1.0E+00	4.8E-03	Invertebrate	2.4E-01	2.4E+00	2.0E-02	2.0E-03
Heptachlor Epoxide	1024-57-3	1.32E-02	1.32E-01	0.00048	1.0E+00	4.8E-04	8.4E+00	4.0E-03	1.0E+00	4.8E-04	Invertebrate	1.4E-02	1.4E-01	3.6E-02	3.6E-03
PCBs															
Aroclor 1254	11097-69-1	1.94E-02	1.94E-01	0.15	6.8E-03	1.0E-03	1.6E+01	2.4E+00	1.0E+00	1.5E-01	Invertebrate	1.1E-02	1.1E-01	**1.4E+01**	**1.4E+00**
Aroclor 1260	11096-82-5	1.94E-02	1.94E-01	0.28	4.5E-03	1.3E-03	1.6E+01	4.5E+00	1.0E+00	2.8E-01	Invertebrate	1.1E-02	1.1E-01	**2.7E+01**	**2.7E+00**
TCL SVOCs															
Acenaphthene	83-32-9	4.99E+00	2.50E+01	0.0025	4.6E+00	1.2E-02	2.6E+01	6.5E-02	1.0E+00	2.5E-03	Invertebrate	1.7E+00	8.3E+00	1.5E-03	3.0E-04
Acenaphthylene	208-96-8	5.27E+01	2.64E+02	0.0029	4.6E+00	1.3E-02	1.3E+02	3.7E-01	1.0E+00	2.9E-03	Invertebrate	3.5E+00	1.8E+01	8.2E-04	1.6E-04
Anthracene	120-12-7	1.44E+02	1.44E+03	0.0058	4.6E+00	2.7E-02	2.2E+01	1.3E-01	1.0E+00	5.8E-03	Invertebrate	5.5E+01	5.5E+02	1.0E-04	1.0E-05
Benzo(a)anthracene	56-55-3	8.74E-02	8.74E-01	0.069	5.4E-01	3.7E-02	1.1E+01	7.4E-01	1.0E+00	6.9E-02	Invertebrate	7.0E-02	7.0E-01	9.8E-01	9.8E-02
Benzo(a)pyrene	50-32-8	2.85E-01	2.85E+00	0.054	3.3E+00	1.8E-01	1.2E+01	6.4E-01	1.0E+00	5.4E-02	Invertebrate	2.1E-01	2.1E+00	2.6E-01	2.6E-02
Benzo(b)fluoranthene	205-99-2	2.85E-01	2.85E+00	0.11	4.8E-01	5.3E-02	2.2E+01	2.4E+00	1.0E+00	1.1E-01	Invertebrate	1.1E-01	1.1E+00	9.8E-01	9.8E-02
Benzo(g,h,i)perylene	191-24-2	1.43E-01	7.13E-01	0.035	1.6E+00	5.6E-02	3.3E+01	1.2E+00	1.0E+00	3.5E-02	Invertebrate	3.7E-02	1.8E-01	9.5E-01	1.9E-01
Benzo(k)fluoranthene	207-08-9	3.15E+00	3.15E+01	0.058	1.0E+00	5.8E-02	1.7E+01	9.7E-01	1.0E+00	5.8E-02	Invertebrate	1.6E+00	1.6E+01	3.6E-02	3.6E-03
Chrysene	218-01-9	4.32E+00	4.32E+01	0.067	1.1E+00	7.0E-02	1.5E+01	1.0E+00	1.0E+00	6.7E-02	Invertebrate	2.4E+00	2.4E+01	2.8E-02	2.8E-03
Dibenz(a,h)anthracene	53-70-3	5.82E-01	5.82E+00	0.017	2.3E-01	3.9E-03	1.9E+01	3.2E-01	1.0E+00	1.7E-02	Invertebrate	2.6E-01	2.6E+00	6.4E-02	6.4E-03
Fluoranthene	206-44-0	8.74E+00	4.37E+01	0.073	6.0E+00	4.4E-01	4.1E+01	3.0E+00	1.0E+00	7.3E-02	Invertebrate	1.8E+00	9.1E+00	4.0E-02	8.0E-03
Indeno(1,2,3-cd)pyrene	193-39-5	3.15E+00	3.15E+01	0.034	1.5E-01	5.1E-03	2.1E+01	7.2E-01	1.0E+00	3.4E-02	Invertebrate	1.3E+00	1.3E+01	2.6E-02	2.6E-03
Phenanthrene	85-01-8	2.00E+00	9.98E+00	0.04	1.1E+01	4.4E-01	1.0E+01	4.0E-01	1.0E+00	4.0E-02	Plant	1.6E+00	7.8E+00	2.6E-02	5.1E-03
Pyrene	129-00-0	2.28E+00	1.14E+01	0.12	3.7E+00	4.4E-01	3.6E+01	4.3E+00	1.0E+00	1.2E-01	Invertebrate	5.5E-01	2.8E+00	2.2E-01	4.3E-02

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10
BW = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

Red FoxSpecific Data from Table F.5-9

BW=	2.9500	kg
IR_{food} =	0.342	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00960	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Screening Level
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Screening Level

Table F.5-19
SSA 77 - Refined Wildlife Risk Characterization - Red Fox
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment										
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics														
Arsenic	7440-38-2	3.59E-02	3.59E-01	4.6	3.8E-02	1.7E-01	1.5E-01	7.1E-01	6.0E-03	2.7E-02	1.4E+04	1.4E+05	3.4E-04	3.4E-05
Cadmium	7440-43-9	5.07E-01	5.07E+00	1.7	4.9E-01	8.3E-01	7.4E+00	1.3E+01	2.2E-01	3.7E-01	1.5E+04	1.5E+05	1.1E-04	1.1E-05
Chromium	7440-47-3	1.73E+00	1.73E+01	53	4.1E-02	2.2E+00	3.1E-01	1.6E+01	8.1E-02	4.3E+00	2.7E+05	2.7E+06	2.0E-04	2.0E-05
Copper	7440-50-8	8.02E+00	1.06E+01	85	1.3E-01	1.1E+01	5.2E-01	4.4E+01	1.7E-01	1.5E+01	6.7E+05	8.8E+05	1.3E-04	9.6E-05
Lead	7439-92-1	4.22E+00	4.22E+01	100	3.5E-02	3.5E+00	3.3E-01	3.3E+01	8.3E-02	8.3E+00	6.5E+05	6.5E+06	1.5E-04	1.5E-05
Selenium	7782-49-2	1.05E-01	1.74E-01	0.49	4.7E-01	2.3E-01	1.1E+00	5.5E-01	1.0E+00	5.0E-01	1.9E+03	3.1E+03	2.6E-04	1.6E-04
Zinc	7440-66-6	8.44E+01	1.69E+02	170	4.9E-01	8.3E+01	2.7E+00	4.6E+02	6.6E-01	1.1E+02	2.0E+06	3.9E+06	8.7E-05	4.3E-05
Dioxin/Furans														
Total 2,3,7,8-TCDD Equivalents	1746-01-6	2.85E-07	2.85E-06	1.7E-03	6.5E-03	1.1E-05	1.1E+01	1.9E-02	7.2E-01	1.2E-03	4.8E-03	4.8E-02	3.6E-01	3.6E-02
Pesticides														
Dieldrin	60-57-1	1.05E-02	1.05E-01	0.009	4.1E-01	3.7E-03	1.3E+01	1.2E-01	5.0E-04	4.5E-06	2.9E+02	2.9E+03	3.1E-05	3.1E-06
PCBs														
Aroclor 1254	11097-69-1	1.94E-02	1.94E-01	0.15	6.8E-03	1.0E-03	6.7E+00	1.0E+00	1.0E+00	1.5E-01	3.1E+02	3.1E+03	4.9E-04	4.9E-05
Aroclor 1260	11096-82-5	1.94E-02	1.94E-01	0.28	4.5E-03	1.3E-03	6.7E+00	1.9E+00	1.0E+00	2.8E-01	3.1E+02	3.1E+03	9.1E-04	9.1E-05

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red FoxSpecific Data from Table F.5-9

BW=	4.5300	kg
IR_{food} =	0.238	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.17	unitless
DF_{inv} =	0.04	unitless
DF_{mam} =	0.79	unitless
IR_{soil} =	0.00670	kg dw/day
AF =	0.0011	unitless

Table F.5-20
SSA 77 - Preliminary Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment									
				Maximum Detected Concentration (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Most Contaminated Dietary Component	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics													
Arsenic	7440-38-2	5.14E+00	1.28E+01	4.6	1.1E+00	5.1E+00	5.2E-01	2.4E+00	Plant	1.4E+01	3.5E+01	3.2E-01	1.3E-01
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.7	3.3E+00	5.5E+00	4.1E+01	6.9E+01	Invertebrate	1.1E-01	1.6E+00	**1.5E+01**	**1.1E+00**
Chromium	7440-47-3	1.00E+00	5.00E+00	53	8.4E-02	4.5E+00	3.2E+00	1.7E+02	Invertebrate	9.9E-01	4.9E+00	**5.4E+01**	**1.1E+01**
Copper	7440-50-8	4.70E+01	6.17E+01	85	6.3E-01	5.3E+01	1.5E+00	1.3E+02	Invertebrate	9.4E+01	1.2E+02	9.0E-01	6.9E-01
Lead	7439-92-1	1.13E+00	1.13E+01	100	4.7E-01	4.7E+01	1.5E+00	1.5E+02	Invertebrate	2.3E+00	2.3E+01	**4.4E+01**	**4.4E+00**
Mercury	7439-97-6	4.50E-01	9.00E-01	1	5.0E+00	5.0E+00	2.1E+01	2.1E+01	Invertebrate	6.9E-02	1.4E-01	**1.4E+01**	**7.2E+00**
Nickel	7440-02-0	7.74E+01	1.07E+02	37	1.4E+00	5.2E+01	4.7E+00	1.8E+02	Invertebrate	5.1E+01	7.1E+01	7.2E-01	5.2E-01
Selenium	7782-49-2	4.00E-01	8.00E-01	0.49	3.0E+00	1.5E+00	1.3E+00	6.6E-01	Plant	4.1E-01	8.3E-01	**1.2E+00**	5.9E-01
Silver	7440-22-4	1.66E+01	1.24E+02	0.67	3.7E-02	2.5E-02	1.5E+01	1.0E+01	Invertebrate	3.4E+00	2.6E+01	2.0E-01	2.6E-02
Zinc	7440-66-6	1.45E+01	1.31E+02	170	1.8E+00	3.1E+02	1.3E+01	2.2E+03	Invertebrate	3.6E+00	3.2E+01	**4.8E+01**	**5.3E+00**
Dioxin/Furans													
Total 2,3,7,8-TCDD Equivalents	1746-01-6	1.40E-05	1.40E-04	1.98E-03	7.5E-03	1.5E-05	2.2E+01	4.4E-02	Invertebrate	2.0E-06	2.0E-05	**9.9E+02**	**9.9E+01**
Pesticides													
4,4'-DDE	72-55-9	5.80E-02	5.80E-01	0.0077	8.0E-02	6.2E-04	2.0E+01	1.5E-01	Invertebrate	9.1E-03	9.1E-02	8.4E-01	8.4E-02
4,4'-DDT	50-29-3	2.80E-03	2.80E-02	0.017	6.2E-01	1.1E-02	2.9E+01	5.0E-01	Invertebrate	3.0E-04	3.0E-03	**5.6E+01**	**5.6E+00**
alpha-Chlordane	5103-71-9	2.14E+00	1.07E+01	0.0041	1.0E+00	4.1E-03	4.0E+00	1.6E-02	Invertebrate	1.7E+00	8.4E+00	2.4E-03	4.9E-04
Dieldrin	60-57-1	7.70E-02	7.70E-01	0.009	1.0E+00	9.0E-03	8.0E+01	7.2E-01	Invertebrate	3.1E-03	3.1E-02	**2.9E+00**	2.9E-01
Endosulfan II	33213-65-9	1.00E+01	1.00E+02	0.001	1.0E+00	1.0E-03	4.4E+01	4.4E-02	Invertebrate	7.1E-01	7.1E+00	1.4E-03	1.4E-04
Endosulfan Sulfate	1031-07-8	1.00E+01	1.00E+02	0.0022	1.0E+00	2.2E-03	2.2E+00	4.9E-03	Invertebrate	1.4E+01	1.4E+02	1.6E-04	1.6E-05
Endrin	72-20-8	2.80E-02	1.70E-01	0.0027	1.0E+00	2.7E-03	3.6E+00	9.7E-03	Invertebrate	2.4E-02	1.5E-01	1.1E-01	1.8E-02
Endrin Aldehyde	7421-93-4	2.80E-02	1.70E-01	0.0059	1.0E+00	5.9E-03	3.6E+00	2.1E-02	Invertebrate	2.4E-02	1.5E-01	2.4E-01	4.0E-02
gamma-Chlordane	5103-74-2	2.14E+00	1.06E+01	0.0048	1.0E+00	4.8E-03	4.0E+00	1.9E-02	Invertebrate	1.7E+00	8.3E+00	2.9E-03	5.8E-04
Heptachlor Epoxide	1024-57-3	9.90E-01	4.95E+00	0.00048	1.0E+00	4.8E-04	8.4E+00	4.0E-03	Invertebrate	3.7E-01	1.9E+00	1.3E-03	2.6E-04
PCBs													
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.15	6.8E-03	1.0E-03	1.6E+01	2.4E+00	Invertebrate	8.2E-02	8.2E-01	**1.8E+00**	1.8E-01
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.28	4.5E-03	1.3E-03	1.6E+01	4.5E+00	Invertebrate	8.2E-02	8.2E-01	**3.4E+00**	3.4E-01
TCL SVOCs													
Acenaphthene	83-32-9	1.01E+00	5.05E+00	0.0025	4.6E+00	1.2E-02	2.6E+01	6.5E-02	Invertebrate	1.2E-01	6.2E-01	2.0E-02	4.1E-03
Acenaphthylene	208-96-8	NV	NV	0.0029	--	--	--	--	--	--	--	**--**	**--**
Anthracene	120-12-7	NV	NV	0.0058	--	--	--	--	--	--	--	**--**	**--**
Benzo(a)anthracene	56-55-3	NV	NV	0.069	--	--	--	--	--	--	--	**--**	**--**
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.054	3.3E+00	1.8E-01	1.2E+01	6.4E-01	Invertebrate	1.3E-01	6.7E-01	4.1E-01	8.1E-02
Benzo(b)fluoranthene	205-99-2	NV	NV	0.11	--	--	--	--	--	--	--	**--**	**--**
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.035	--	--	--	--	--	--	--	**--**	**--**
Benzo(k)fluoranthene	207-08-9	NV	NV	0.058	--	--	--	--	--	--	--	**--**	**--**
Chrysene	218-01-9	NV	NV	0.067	--	--	--	--	--	--	--	**--**	**--**
Dibenz(a,h)anthracene	53-70-3	NV	NV	0.017	--	--	--	--	--	--	--	**--**	**--**
Fluoranthene	206-44-0	NV	NV	0.073	--	--	--	--	--	--	--	**--**	**--**
Indeno(1,2,3-cd)pyrene	193-39-5	NV	NV	0.034	--	--	--	--	--	--	--	**--**	**--**
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.04	1.1E+01	4.4E-01	1.0E+01	4.0E-01	Plant	3.2E-01	1.6E+00	1.2E-01	2.5E-02
Pyrene	129-00-0	NV	NV	0.12	--	--	--	--	--	--	--	**--**	**--**

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10

BW = Minimum Body Weigth of Receptor (kg)

IR_{food} = Maximum Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)

DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = 100% Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

American Robin Specific Data from Table F.5-9

BW=	0.0635	kg
IR_{food} =	0.020	kg dw/day
BAF_{food}=	Chem Specific	unitless
IR_{soil} =	0.00100	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate soil screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration

LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.5-21
SSA 77 - Refined Wildlife Risk Characterization - American Robin
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment								
				EPC* (mg/kg)	Plant BAF (unitless)	Plant Concentration (mg/kg)	Invertebrate BAF (unitless)	Invertebrate Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics												
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.7	4.9E-01	8.3E-01	7.4E+00	1.3E+01	1.1E+01	1.4E+02	1.6E-01	1.2E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	53	4.1E-02	2.2E+00	3.1E-01	1.6E+01	1.2E+02	6.0E+02	4.4E-01	8.8E-02
Lead	7439-92-1	1.13E+00	1.13E+01	100	3.5E-02	3.5E+00	3.3E-01	3.3E+01	1.3E+02	1.3E+03	7.6E-01	7.6E-02
Mercury	7439-97-6	4.50E-01	9.00E-01	1	3.7E-01	3.7E-01	1.7E+00	1.7E+00	1.1E+01	2.2E+01	8.9E-02	4.5E-02
Selenium	7782-49-2	4.00E-01	8.00E-01	0.49	4.7E-01	2.3E-01	1.1E+00	5.5E-01	1.2E+01	2.4E+01	4.1E-02	2.0E-02
Zinc	7440-66-6	1.45E+01	1.31E+02	170	4.9E-01	8.3E+01	2.7E+00	4.6E+02	2.4E+02	2.2E+03	7.1E-01	7.8E-02
Dioxin/Furans												
Total 2,3,7,8-TCDD Equivalents	1746-01-6	1.40E-05	1.40E-04	1.98E-03	6.5E-03	1.3E-05	1.1E+01	2.2E-02	7.6E-05	7.6E-04	**2.6E+01**	**2.6E+00**
Pesticides												
4,4'-DDT	50-29-3	2.80E-03	2.80E-02	0.017	2.2E-01	3.8E-03	1.1E+01	1.9E-01	1.5E-02	1.5E-01	**1.1E+00**	1.1E-01
Dieldrin	60-57-1	7.70E-02	7.70E-01	0.009	4.1E-01	3.7E-03	1.3E+01	1.2E-01	3.3E-01	3.3E+00	2.7E-02	2.7E-03
PCBs												
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.15	6.8E-03	1.0E-03	6.7E+00	1.0E+00	3.6E+00	3.6E+01	4.1E-02	4.1E-03
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.28	4.5E-03	1.3E-03	6.7E+00	1.9E+00	3.6E+00	3.6E+01	7.7E-02	7.7E-03

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10
BW = Average Body Weigth of Receptor (kg)
IR_{food} = Average Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor, specific to prey type and chemical
DF = Dietary fraction
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value
BDL = Below Detection Limit
EPC = Exposure Point Concentration
* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level
LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

American Robin Specific Data from Table F.5-9

BW=	0.0773	kg
IR_{food} =	0.016	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{plants} =	0.62	unitless
DF_{inv} =	0.38	unitless
IR_{soil} =	0.0008	kg dw/day
AF =	0.210	unitless

Table F.5-22
SSA 77 - Preliminary Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Preliminary Assessment						
				Maximum Detected Concentration (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Screening Level[a] (mg/kg)	Calculated LOAEL-Based Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Arsenic	7440-38-2	5.14E+00	1.28E+01	4.6	1.5E-02	6.9E-02	5.2E+03	2.1E+03	8.8E-04	3.5E-04
Cadmium	7440-43-9	1.45E+00	2.00E+01	1.7	4.0E+00	6.8E+00	5.5E+00	4.0E-01	3.1E-01	2.2E-02
Chromium	7440-47-3	1.00E+00	5.00E+00	53	3.3E-01	1.8E+01	4.6E+01	9.1E+00	**1.2E+00**	2.3E-01
Copper	7440-50-8	4.70E+01	6.17E+01	85	1.0E+00	8.9E+01	6.8E+02	5.2E+02	1.2E-01	9.5E-02
Lead	7439-92-1	1.13E+00	1.13E+01	100	2.9E-01	2.9E+01	6.0E+01	6.0E+00	**1.7E+00**	1.7E-01
Mercury	7439-97-6	4.50E-01	9.00E-01	1	1.9E-01	1.9E-01	3.6E+01	1.8E+01	2.8E-02	1.4E-02
Nickel	7440-02-0	7.74E+01	1.07E+02	37	5.9E-01	2.2E+01	2.0E+03	1.4E+03	1.9E-02	1.3E-02
Selenium	7782-49-2	4.00E-01	8.00E-01	0.49	1.2E+00	5.8E-01	5.1E+00	2.6E+00	9.6E-02	4.8E-02
Silver	7440-22-4	1.66E+01	1.24E+02	0.67	5.0E-01	3.4E-01	5.0E+02	6.7E+01	1.3E-03	1.8E-04
Zinc	7440-66-6	1.45E+01	1.31E+02	170	2.7E+00	4.6E+02	8.2E+01	9.1E+00	**2.1E+00**	2.3E-01
Dioxin/Furans										
Total 2,3,7,8-TCDD Equivalents	1746-01-6	1.40E-05	1.40E-04	1.98E-03	2.2E+00	4.3E-03	9.7E-05	9.7E-06	**2.0E+01**	**2.0E+00**
Pesticides										
4,4'-DDE	72-55-9	5.80E-02	5.80E-01	0.0077	1.0E+00	7.7E-03	8.8E-01	8.8E-02	8.7E-03	8.7E-04
4,4'-DDT	50-29-3	2.80E-03	2.80E-02	0.017	1.0E+00	1.7E-02	4.3E-02	4.3E-03	4.0E-01	4.0E-02
alpha-Chlordane	5103-71-9	2.14E+00	1.07E+01	0.0041	1.0E+00	4.1E-03	3.3E+01	6.5E+00	1.3E-04	2.5E-05
Dieldrin	60-57-1	7.70E-02	7.70E-01	0.009	1.0E+00	9.0E-03	1.2E+00	1.2E-01	7.7E-03	7.7E-04
Endosulfan II	33213-65-9	1.00E+01	1.00E+02	0.001	1.0E+00	1.0E-03	1.5E+02	1.5E+01	6.6E-06	6.6E-07
Endosulfan Sulfate	1031-07-8	1.00E+01	1.00E+02	0.0022	1.0E+00	2.2E-03	1.5E+02	1.5E+01	1.4E-05	1.4E-06
Endrin	72-20-8	2.80E-02	1.70E-01	0.0027	1.0E+00	2.7E-03	4.3E-01	7.0E-02	6.3E-03	1.0E-03
Endrin Aldehyde	7421-93-4	2.80E-02	1.70E-01	0.0059	1.0E+00	5.9E-03	4.3E-01	7.0E-02	1.4E-02	2.3E-03
gamma-Chlordane	5103-74-2	2.14E+00	1.06E+01	0.0048	1.0E+00	4.8E-03	3.3E+01	6.6E+00	1.5E-04	3.0E-05
Heptachlor Epoxide	1024-57-3	9.90E-01	4.95E+00	0.00048	1.0E+00	4.8E-04	1.5E+01	3.0E+00	3.2E-05	6.4E-06
PCBs										
Aroclor 1254	11097-69-1	4.10E-01	4.10E+00	0.15	1.0E+00	1.5E-01	6.2E+00	6.2E-01	2.4E-02	2.4E-03
Aroclor 1260	11096-82-5	4.10E-01	4.10E+00	0.28	1.0E+00	2.8E-01	6.2E+00	6.2E-01	4.5E-02	4.5E-03
TCL SVOCs										
Acenaphthene	83-32-9	1.01E+00	5.05E+00	0.0025	1.0E+00	2.5E-03	1.5E+01	3.1E+00	1.6E-04	3.3E-05
Acenaphthylene	208-96-8	NV	NV	0.0029	--	--	--	--	--	--
Anthracene	120-12-7	NV	NV	0.0058	--	--	--	--	--	--
Benzo(a)anthracene	56-55-3	NV	NV	0.069	--	--	--	--	--	--
Benzo(a)pyrene	50-32-8	5.00E-01	2.50E+00	0.054	1.0E+00	5.4E-02	7.6E+00	1.5E+00	7.1E-03	1.4E-03
Benzo(b)fluoranthene	205-99-2	NV	NV	0.11	--	--	--	--	--	--
Benzo(g,h,i)perylene	191-24-2	NV	NV	0.035	--	--	--	--	--	--
Benzo(k)fluoranthene	207-08-9	NV	NV	0.058	--	--	--	--	--	--
Chrysene	218-01-9	NV	NV	0.067	--	--	--	--	--	--
Dibenz(a,h)anthracene	53-70-3	NV	NV	0.017	--	--	--	--	--	--
Fluoranthene	206-44-0	NV	NV	0.073	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	193-39-5	NV	NV	0.034	--	--	--	--	--	--
Phenanthrene	85-01-8	1.13E+00	5.65E+00	0.04	1.0E+00	4.0E-02	1.7E+01	3.4E+00	2.3E-03	4.7E-04
Pyrene	129-00-0	NV	NV	0.12	--	--	--	--	--	--

Notes:

CAS = Chemical Abstract Services
C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)
ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10
BW_s = Minimum Body Weigth of Receptor (kg)
IR_{food} = Maximum Ingestion Rate for Food
BAF_{food} = Bioaccumulation factor (Most contaminated dietary component BSAF used)
DF = Dietary fraction (Most contaminated dietary component assumed to be 100% of diet)
IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)
AF = 100% Area Use Factor
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
mg/kg = Milligram Per Kilogram
bw - day = Body Weight - Day
HQ = Hazard Quotient
TRV = Toxicity Reference Value

Red-tailed Hawk Specific Data from Table F.5-9

BW=	0.957	kg
IR_{food} =	0.063	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.00	kg dw/day
AF =	1	unitless

[a] = The following equation was used to calculate screenning levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food}(BAF_{food} \cdot DF) + IR_s)AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = Maximum Detected Concentration/Calculated NOAEL-Based Concentration
LOAEL HQ = Maximum Detected Concentration/Calculated LOAEL-Based Concentration

Table F.5-23
SSA 77 - Refined Wildlife Risk Characterization - Red-tailed Hawk
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

PARAMETER	CAS #	NOAEL (mg/kg bw-day)	LOAEL (mg/kg bw-day)	Refined Assessment						
				EPC* (mg/kg)	Mammal BAF (unitless)	Mammal Concentration (mg/kg)	Calculated NOAEL-Based Soil Screening Level[a] (mg/kg)	Calculated LOAEL-Based Soil Screening Level[a] (mg/kg)	NOAEL HQ (unitless)	LOAEL HQ (unitless)
Inorganics										
Chromium	7440-47-3	1.00E+00	5.00E+00	53	8.1E-02	4.3E+00	6.0E+05	3.0E+06	8.9E-05	1.8E-05
Lead	7439-92-1	1.13E+00	1.13E+01	100	8.3E-02	8.3E+00	6.6E+05	6.6E+06	1.5E-04	1.5E-05
Zinc	7440-66-6	1.45E+01	1.31E+02	170	6.6E-01	1.1E+02	1.0E+06	9.5E+06	1.6E-04	1.8E-05
Dioxin/Furans										
Total 2,3,7,8-TCDD Equivalents	1746-01-6	1.40E-05	1.40E-04	1.98E-03	7.2E-01	1.4E-03	9.3E-01	9.3E+00	2.1E-03	2.1E-04

Notes:

CAS = Chemical Abstract Services

C_{TRV}= NOAEL-based screening level (mg chemical/kg soil)

ADD = NOAEL or LOAEL (mg chemical/kg body weight-day) from Table F.5-10

BW = Average Body Weigth of Receptor (kg)

IR_{food} = Average Ingestion Rate for Food

BAF_{food} = Bioaccumulation factor, specific to prey type and chemical

DF = Dietary fraction

IRs = Incidental Ingestion Rate of soil (kg soil ingested per day, dry weight)

AF = Area Use Factor

NOAEL = No observable adverse effects level

LOAEL = Lowest observable adverse effects level

mg/kg = Milligram Per Kilogram

bw - day = Body Weight - Day

HQ = Hazard Quotient

TRV = Toxicity Reference Value

BDL = Below Detection Limit

EPC = Exposure Point Concentration

* = Due to the number of samples at the site, the EPC defaults to the MDC (maximum detected concentration)

[a] = The following equation was used to calculate screening levels:

$$C_{TRV} = \frac{ADD \cdot BW}{(IR_{food} \sum (BAF_{food} \cdot DF) + (IR_s)) \cdot AF}$$

See Appendix F.1 for an example C_{TRV} calculation.

NOAEL HQ = EPC/Calculated NOAEL-Based Screening Level

LOAEL HQ = EPC/Calculated LOAEL-Based Screening Level

Red-tailed Hawk Specific Data from Table F.5-9

BW=	1.134	kg
IR_{food} =	0.059	kg dw/day
BAF_{food}=	Chem Specific	unitless
DF_{mam} =	1.00	unitless
IR_{soil} =	0.0	kg dw/day
AF =	0.0004	unitless

Table F.5-24
SSA 77 - Wildlife Summary
Screening Level Ecological Risk Assessment
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Chemical	CAS#	Meadow Vole				Short-tailed Shrew				Red Fox				American Robin				Red-tailed Hawk			
		Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ	Preliminary NOAEL-based HQ	Preliminary LOAEL-based HQ	Refined NOAEL-based HQ	Refined LOAEL-based HQ
Inorganics																					
Arsenic	7440-38-2	**2.6E+01**	**2.6E+00**	5.1E-01	5.1E-02	**9.1E+00**	9.1E-01	2.9E-01	2.9E-02	**1.7E+01**	**1.7E+00**	3.4E-04	3.4E-05	3.2E-01	1.3E-01	NC	NC	8.8E-04	3.5E-04	NC	NC
Cadmium	7440-43-9	**1.9E+00**	1.9E-01	1.1E-01	1.1E-02	**7.9E+00**	7.9E-01	1.8E-01	1.8E-02	**1.6E+01**	**1.6E+00**	1.1E-04	1.1E-05	**1.5E+01**	**1.1E+00**	1.6E-01	1.2E-02	3.1E-01	2.2E-02	NC	NC
Chromium	7440-47-3	5.9E-01	5.9E-02	NC	NC	**5.8E+00**	5.8E-01	1.0E-01	1.0E-02	**1.1E+01**	**1.1E+00**	2.0E-04	2.0E-05	**5.4E+01**	**1.1E+01**	4.4E-01	8.8E-02	**1.2E+00**	2.3E-01	8.9E-05	1.8E-05
Copper	7440-50-8	**1.2E+00**	9.2E-01	1.1E-01	8.2E-02	**1.0E+00**	7.7E-01	5.2E-02	4.0E-02	**1.9E+00**	**1.5E+00**	1.3E-04	9.6E-05	9.0E-01	6.9E-01	NC	NC	1.2E-01	9.5E-02	NC	NC
Lead	7439-92-1	**2.1E+00**	2.1E-01	9.1E-02	9.1E-03	**2.3E+00**	2.3E-01	8.3E-02	8.3E-03	**4.3E+00**	4.3E-01	1.5E-04	1.5E-05	**4.4E+01**	**4.4E+00**	7.6E-01	7.6E-02	**1.7E+00**	1.7E-01	1.5E-04	1.5E-05
Mercury	7439-97-6	9.8E-02	9.8E-03	NC	NC	1.3E-01	1.3E-02	NC	NC	2.6E-01	2.6E-02	NC	NC	**1.4E+01**	**7.2E+00**	8.9E-02	4.5E-02	2.8E-02	1.4E-02	NC	NC
Nickel	7440-02-0	4.5E-01	2.2E-01	NC	NC	4.9E-01	2.5E-01	NC	NC	9.7E-01	4.8E-01	NC	NC	7.2E-01	5.2E-01	NC	NC	1.9E-02	1.3E-02	NC	NC
Selenium	7782-49-2	**2.5E+00**	**1.5E+00**	1.5E-01	9.1E-02	8.4E-01	5.1E-01	NC	NC	**1.6E+00**	9.9E-01	2.6E-04	1.6E-04	**1.2E+00**	5.9E-01	4.1E-02	2.0E-02	9.6E-02	4.8E-02	NC	NC
Silver	7440-22-4	6.2E-04	6.2E-05	NC	NC	5.1E-02	5.1E-03	NC	NC	1.0E-01	1.0E-02	NC	NC	2.0E-01	2.6E-02	NC	NC	1.3E-03	1.8E-04	NC	NC
Zinc	7440-66-6	6.6E-01	3.3E-01	NC	NC	**1.5E+00**	7.6E-01	4.2E-02	2.1E-02	**3.0E+00**	**1.5E+00**	8.7E-05	4.3E-05	**4.8E+01**	**5.3E+00**	7.1E-01	7.8E-02	**2.1E+00**	2.3E-01	1.6E-04	1.8E-05
Dioxin/Furans																					
Total 2,3,7,8-TCDD Equivalents	1746-01-6	**3.3E+01**	**3.3E+00**	**1.2E+01**	**1.2E+00**	**7.7E+03**	**7.7E+02**	**4.8E+02**	**4.8E+01**	**1.5E+04**	**1.5E+03**	3.6E-01	3.6E-02	**9.9E+02**	**9.9E+01**	**2.6E+01**	**2.6E+00**	**2.0E+01**	**2.0E+00**	2.1E-03	2.1E-04
Pesticides																					
4,4'-DDE	72-55-9	1.2E-05	1.2E-06	NC	NC	7.4E-04	7.4E-05	NC	NC	1.5E-03	1.5E-04	NC	NC	8.4E-01	8.4E-02	NC	NC	8.7E-03	8.7E-04	NC	NC
4,4'-DDT	50-29-3	4.6E-03	9.2E-04	NC	NC	6.9E-02	1.4E-02	NC	NC	1.4E-01	2.8E-02	NC	NC	**5.6E+01**	**5.6E+00**	**1.1E+00**	1.1E-01	4.0E-01	4.0E-02	NC	NC
alpha-Chlordane	5103-71-9	6.7E-03	6.7E-04	NC	NC	8.8E-03	8.8E-04	NC	NC	1.7E-02	1.7E-03	NC	NC	2.4E-03	4.9E-04	NC	NC	1.3E-04	2.5E-05	NC	NC
Dieldrin	60-57-1	1.5E-01	1.5E-02	NC	NC	**3.9E+00**	3.9E-01	8.2E-02	8.2E-03	**7.9E+00**	7.9E-01	3.1E-05	3.1E-06	**2.9E+00**	2.9E-01	2.7E-02	2.7E-03	7.7E-03	7.7E-04	NC	NC
Endosulfan II	33213-65-9	2.3E-03	2.3E-04	NC	NC	3.2E-02	3.2E-03	NC	NC	6.5E-02	6.5E-03	NC	NC	1.4E-03	1.4E-04	NC	NC	6.6E-06	6.6E-07	NC	NC
Endosulfan Sulfate	1031-07-8	2.9E-02	2.9E-03	NC	NC	2.2E-02	2.2E-03	NC	NC	4.2E-02	4.2E-03	NC	NC	1.6E-04	1.6E-05	NC	NC	1.4E-05	1.4E-06	NC	NC
Endrin	72-20-8	1.9E-02	1.9E-03	NC	NC	2.2E-02	2.2E-03	NC	NC	4.3E-02	4.3E-03	NC	NC	1.1E-01	1.8E-02	NC	NC	6.3E-03	1.0E-03	NC	NC
Endrin Aldehyde	7421-93-4	4.1E-02	4.1E-03	NC	NC	4.8E-02	4.8E-03	NC	NC	9.5E-02	9.5E-03	NC	NC	2.4E-01	4.0E-02	NC	NC	1.4E-02	2.3E-03	NC	NC
gamma-Chlordane	5103-74-2	7.8E-03	7.8E-04	NC	NC	1.0E-02	1.0E-03	NC	NC	2.0E-02	2.0E-03	NC	NC	2.9E-03	5.8E-04	NC	NC	1.5E-04	3.0E-05	NC	NC
Heptachlor Epoxide	1024-57-3	6.6E-03	6.6E-04	NC	NC	1.8E-02	1.8E-03	NC	NC	3.6E-02	3.6E-03	NC	NC	1.3E-03	2.6E-04	NC	NC	3.2E-05	6.4E-06	NC	NC
PCBs																					
Aroclor 1254	11097-69-1	4.2E-02	4.2E-03	NC	NC	**7.1E+00**	7.1E-01	3.8E-01	3.8E-02	**1.4E+01**	**1.4E+00**	4.9E-04	4.9E-05	**1.8E+00**	1.8E-01	4.1E-02	4.1E-03	2.4E-02	2.4E-03	NC	NC
Aroclor 1260	11096-82-5	7.3E-02	7.3E-03	NC	NC	**1.3E+01**	**1.3E+00**	7.0E-01	7.0E-02	**2.7E+01**	**2.7E+00**	9.1E-04	9.1E-05	**3.4E+00**	3.4E-01	7.7E-02	7.7E-03	4.5E-02	4.5E-03	NC	NC
TCL SVOCs																					
Acenaphthene	83-32-9	4.1E-04	8.2E-05	NC	NC	7.5E-04	1.5E-04	NC	NC	1.5E-03	3.0E-04	NC	NC	2.0E-02	4.1E-03	NC	NC	1.6E-04	3.3E-05	NC	NC
Acenaphthylene	208-96-8	4.5E-05	9.0E-06	NC	NC	4.1E-04	8.2E-05	NC	NC	8.2E-04	1.6E-04	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Anthracene	120-12-7	3.3E-05	3.3E-06	NC	NC	5.2E-05	5.2E-06	NC	NC	1.0E-04	1.0E-05	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)anthracene	56-55-3	7.9E-02	7.9E-03	NC	NC	4.9E-01	4.9E-02	NC	NC	9.8E-01	9.8E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(a)pyrene	50-32-8	1.1E-01	1.1E-02	NC	NC	1.3E-01	1.3E-02	NC	NC	2.6E-01	2.6E-02	NC	NC	4.1E-01	8.1E-02	NC	NC	7.1E-03	1.4E-03	NC	NC
Benzo(b)fluoranthene	205-99-2	3.4E-02	3.4E-03	NC	NC	4.9E-01	4.9E-02	NC	NC	9.8E-01	9.8E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(g,h,i)perylene	191-24-2	7.0E-02	1.4E-02	NC	NC	4.7E-01	9.5E-02	NC	NC	9.5E-01	1.9E-01	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Benzo(k)fluoranthene	207-08-9	3.3E-03	3.3E-04	NC	NC	1.8E-02	1.8E-03	NC	NC	3.6E-02	3.6E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Chrysene	218-01-9	2.9E-03	2.9E-04	NC	NC	1.4E-02	1.4E-03	NC	NC	2.8E-02	2.8E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Dibenz(a,h)anthracene	53-70-3	1.3E-03	1.3E-04	NC	NC	3.2E-02	3.2E-03	NC	NC	6.4E-02	6.4E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Fluoranthene	206-44-0	8.9E-03	1.8E-03	NC	NC	2.0E-02	4.0E-03	NC	NC	4.0E-02	8.0E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Indeno(1,2,3-cd)pyrene	193-39-5	3.3E-04	3.3E-05	NC	NC	1.3E-02	1.3E-03	NC	NC	2.6E-02	2.6E-03	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Phenanthrene	85-01-8	3.9E-02	7.8E-03	NC	NC	1.3E-02	2.6E-03	NC	NC	2.6E-02	5.1E-03	NC	NC	1.2E-01	2.5E-02	NC	NC	2.3E-03	4.7E-04	NC	NC
Pyrene	129-00-0	3.5E-02	6.9E-03	NC	NC	1.1E-01	2.2E-02	NC	NC	2.2E-01	4.3E-02	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Notes:
CAS = Chemical Abstract Services
NC = Not Calculated
NOAEL = No observable adverse effects level
LOAEL = Lowest observable adverse effects level
HQ = Hazard Quotient

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APPENDIX G

ANALYTICAL DATA EVALUATION

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APPENDIX G.1

DATA QUALITY OBJECTIVES

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TABLE G.1-1
DATA USABILITY WORKSHEET
SITE: SSAs 18, 72, 30, 79, 60, and 77
MEDIUM: Soil

Activity	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	There were no problems identified during field sampling that affected data usability.
Are samples representative of receptor exposure for this medium (e.g., sample depth, grab vs. composite, filtered vs. unfiltered, low flow, etc.)?	Yes. Samples are representative of receptor exposure. Surface soil samples and subsurface soil samples were collected from discrete intervals.
Assess the effect of field QC results on data usability.	Field duplicate samples were collected at the rate of 1 per 10 soil samples. The average concentration of the soil sample and its duplicate sample were used in the risk assessments. Equipment rinsate blank samples were collected at the rate of 1 per 20 soil samples. Low-level detections at concentrations below the laboratory reporting limit were reported in one or more of the equipment blank samples for selected metals, pesticides, VOCs, SVOCs, and explosives (Table G.1-1.1). No significant impact on data usability resulted from these detections. Matrix spike (MS)/matrix spike duplicate (MSD) samples were at the rate of 1 per 20 soil samples. No significant impact on data usability was identified based on the matrix spike results.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No significant sampling issues were noted. Sections 4.0 through 8.0 of the SSP Report discuss the uncertainty analysis for the human health and ecological risk assessments for sampling and analysis.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Yes. Low-level SW-846 analytical methods were used for soil analysis in accordance with the MWP and WPA 028. Soil samples were analyzed for VOCs by SW-846 Method 8260B, SVOCs by SW-846 Method 8270C, explosives by SW-846 Methods 8330 and 8332, pesticides by SW-846 Method 8081A, PCBs by SW-846 Method 8082, metals by SW-846 Methods 6010B, 6020, 7471A, and 9012A, dioxin/furans by SW-846 8290, and asbestos by CARB Method 435.
Were detection limits adequate?	Low-level SW-846 Methods were used. The detection limits were adequate for screening against adjusted RSLs as noted in Tables G.1-1.2 through G.1-1.6. As discussed in the uncertainties in Sections 4.0 through 8.0, the lack of sensitivity could lead to an underestimation of risk at the site.

TABLE G.1-1
DATA USABILITY WORKSHEET
SITE: SSAs 18, 72, 30, 79, 60, and 77
MEDIUM: Soil

Activity	Comment
Summarize the effect of analytical technique issues on risk assessment, if applicable.	There were no analytical technical issues which significantly affected the risk assessments. Sections 4.0 through 8.0 of the SSP Report discuss the uncertainty analysis for the human health and ecological risk assessments for sampling and analysis.
Data Quality Objectives	
Precision – How were duplicates handled?	Field duplicate samples were collected at the rate of 1 per 10 soil samples. The average concentration of the soil sample and its duplicate sample were used in the risk assessments.
Accuracy – How were split samples handled?	Split samples were not collected.
Representativeness – Indicate any problems associated with data representativeness (e.g., trip blank or rinsate blank contamination, COC problems, etc.).	No significant issues regarding data representativeness were noted.
Completeness – Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	No significant issues regarding completeness of the data were noted. The overall completeness goal of 90±2% for field activities was exceeded for analytical analysis and field data collection.
Comparability – Indicate any problems associated with data comparability.	No significant issues regarding comparability of the data were noted.
Were the DQOs specified in the QAPP satisfied?	Yes, the DQOs specified in the QAPP were satisfied.
Summarize the effect of DQO issues on the risk assessment, if applicable.	Not applicable.
Data Validation and Interpretation	
What are the data validation requirements for this region?	EPA Region III modifications to the National Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	EPA Region III National Functional Guidelines for Data Validation.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	Yes, there were no discrepancies.
Were all data qualifiers defined? Discuss those which were not.	Yes, they were defined in the guidance document, data validation reports included in Appendix G.2 of the SSP Report, and in the data tables included in Sections 4.0 through 8.0 of the SSP Report.
Which qualifiers represent usable data?	B, E, J, K, L, U, UJ, UL
Which qualifiers represent unusable data?	R

TABLE G.1-1
DATA USABILITY WORKSHEET
SITE: SSAs 18, 72, 30, 79, 60, and 77
MEDIUM: Soil

Activity	Comment
How are tentatively identified compounds handled?	Detected tentatively identified compounds are qualified NJ. These compounds are not used in the risk assessments.
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Sections 4.0 through 8.0 of the SSP Report discuss uncertainties associated with qualified data.
Additional notes:	None.

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Table G.1-1.1
Detected Analytes in Soil Field Blanks
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID / Sample Date	Units	EQBK-1 8/11/2009		MDL	RL	EQBK-2 8/12/2009		MDL	RL	EQBK-3 8/13/2009		MDL	RL	Trip Blank 1 8/11/2009		MDL	RL	Trip Blank 2 8/12/2009		MDL	RL	Trip Blank 3 8/13/2009		MDL	RL
		Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r			Result	LQ, VQ, r		
TAL Metals																									
Barium	ug/L	0.34	J	0.32	2	<2	U	0.32	2	0.61	J	0.32	2	NT				NT				NT			
Calcium	ug/L	<500	U	58	500	<500	U	58	500	110	J	58	500	NT				NT				NT			
Chromium	ug/L	0.76	J	0.34	2	0.58	J	0.34	2	0.91	J	0.34	2	NT				NT				NT			
Cobalt	ug/L	0.063	J,L,o	0.036	1	<1	U,UL,o	0.036	1	0.037	J,L,o	0.036	1	NT				NT				NT			
Copper	ug/L	<1	U	0.26	1	<1	U	0.26	1	0.42	J	0.26	1	NT				NT				NT			
Iron	ug/L	13	J	8	25	9.4	J	8	25	18	J	8	25	NT				NT				NT			
Manganese	ug/L	0.65	J	0.58	3	<3	U	0.58	3	0.95	J	0.58	3	NT				NT				NT			
Selenium	ug/L	<3	U,UL,o	0.4	3	0.74	J,L,o	0.4	3	<3	U,UL,o	0.4	3	NT				NT				NT			
Sodium	ug/L	<500	U	82	500	<500	U	82	500	260	J	82	500	NT				NT				NT			
Zinc	ug/L	11		2	6	6.9	,B,p	2	6	16		2	6	NT				NT				NT			
TCL Pesticides																									
gamma-BHC (Lindane)	ug/L	0.0022	J,J,g	0.00064	0.05	<0.05	U	0.00064	0.05	<0.05	U	0.00064	0.05	NT				NT				NT			
Heptachlor Epoxide	ug/L	0.0016	J,J,g	0.00056	0.05	<0.05	U	0.00056	0.05	<0.05	U	0.00056	0.05	NT				NT				NT			
TCL VOCs																									
Acetone	ug/L	4.2	J	2.5	20	2.6	J	2.5	20	<20	U	2.5	20	4.5	J	2.5	20	4.7	J	2.5	20	5.2	J	2.5	20
Chloroform	ug/L	<1	U	0.074	1	<1	U	0.074	1	2.6		0.074	1	<1	U	0.074	1	<1	U	0.074	1	<1	U	0.074	1
Chloromethane	ug/L	<1	U	0.12	1	0.22	J	0.12	1	0.38	J	0.12	1	<1	U	0.12	1	<1	U	0.12	1	<1	U	0.12	1
Toluene	ug/L	<1	U	0.22	1	0.33	J	0.22	1	<1	U	0.22	1	<1	U	0.22	1	<1	U	0.22	1	<1	U	0.22	1
TCL SVOCs																									
Acetophenone	ug/L	0.081	J	0.068	5	<5	U	0.068	5	<5	U	0.068	5	NT				NT				NT			
Bis(2-ethylhexyl) Phthalate	ug/L	0.3	J	0.24	5	0.26	J	0.24	5	<5	U	0.24	5	NT				NT				NT			
Butyl Benzyl Phthalate	ug/L	0.39	J,B,z	0.058	5	0.51	J,B,z	0.058	5	0.4	J,B,z	0.058	5	NT				NT				NT			
Di-n-butyl Phthalate	ug/L	0.71	J,B,z	0.27	5	0.66	J,B,z	0.27	5	0.52	J,B,z	0.27	5	NT				NT				NT			
Diethyl Phthalate	ug/L	0.081	J,B,z	0.043	5	0.081	J,B,z	0.043	5	0.071	J,J,l	0.043	5	NT				NT				NT			
Explosives																									
2-Nitrotoluene	ug/L	<5	U	0.22	5	0.35	J,J,g	0.22	5	<5	U	0.22	5	NT				NT				NT			
Tetryl	ug/L	<5	U	0.084	5	0.22	J,J,c	0.084	5	<5	U	0.084	5	NT				NT				NT			

Notes:

CAS = Chemical Abstracts Service
µg/L = Microgram Per Liter
TAL = Target Analyte List
TCL = Target Compound List
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Data Qualifiers

B = Analyte found in associated blank as well as in the sample.
J = Analyte present. Reported value may not be accurate or precise.
,J = Estimated value. The result is less than the reporting limit, but greater than the method detection limit.
L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.
U = The compound was analyzed for but not detected. The reporting limit will be adjusted to reflect any dilution, and for soil, the percent moisture.
UL = Not detected, quantitation limit is probably higher.
c = Calibration failure.
g = Dual column confirmation imprecision.
l = MS/MSD recovery failure.
o = Calibration blank contamination.
p = Preparation blank contamination.
z = Method blank and/or storage blank contamination.

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Table G.1-1.2
SSA 18 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Cyanide								
Cyanide, Total	57-12-5	mg/kg	3	12	0.08	0.082	160	N
Pesticides								
4,4'-DDD	72-54-8	mg/kg	12	12	0.00034	0.00037	2	N
4,4'-DDE	72-55-9	mg/kg	12	12	0.00028	0.00031	1.4	N
4,4'-DDT	50-29-3	mg/kg	11	12	0.00029	0.00032	1.7	N
Aldrin	309-00-2	mg/kg	12	12	0.0014	0.0015	0.029	N
alpha-BHC	319-84-6	mg/kg	12	12	0.00025	0.00027	0.077	N
alpha-Chlordane [1]	5103-71-9	mg/kg	12	12	0.00045	0.00049	1.6	N
beta-BHC	319-85-7	mg/kg	12	12	0.00032	0.00035	0.27	N
delta-BHC [2]	319-86-8	mg/kg	12	12	0.0003	0.00033	0.077	N
Dieldrin	60-57-1	mg/kg	12	12	0.00029	0.00031	0.03	N
Endosulfan I [3]	959-98-8	mg/kg	12	12	0.00029	0.00031	37	N
Endosulfan II [3]	33213-65-9	mg/kg	12	12	0.00031	0.00034	37	N
Endosulfan Sulfate [3]	1031-07-8	mg/kg	12	12	0.00038	0.00041	37	N
Endrin	72-20-8	mg/kg	11	12	0.00032	0.00034	1.8	N
Endrin Aldehyde [4]	7421-93-4	mg/kg	11	12	0.001	0.0011	1.8	N
Endrin Ketone [4]	53494-70-5	mg/kg	12	12	0.00041	0.00044	1.8	N
gamma-BHC (Lindane)	58-89-9	mg/kg	12	12	0.00029	0.00032	0.52	N
gamma-Chlordane [1]	5103-74-2	mg/kg	12	12	0.00032	0.00035	1.6	N
Heptachlor	76-44-8	mg/kg	12	12	0.00049	0.00053	0.11	N
Heptachlor Epoxide	1024-57-3	mg/kg	12	12	0.00024	0.00026	0.053	N
Methoxychlor	72-43-5	mg/kg	12	12	0.00041	0.00045	31	N
Toxaphene	8001-35-2	mg/kg	12	12	0.0033	0.0036	0.44	N
PCBs								
Aroclor 1016	12674-11-2	ug/kg	12	12	4.8	5.2	3.9E+02	N
Aroclor 1221	11104-28-2	ug/kg	12	12	8.8	9.6	1.7E+02	N
Aroclor 1232	11141-16-5	ug/kg	12	12	5.1	5.5	1.7E+02	N
Aroclor 1242	53469-21-9	ug/kg	12	12	5.2	5.7	2.2E+02	N
Aroclor 1248	12672-29-6	ug/kg	12	12	7.4	8	2.2E+02	N
Aroclor 1254 [5]	11097-69-1	ug/kg	12	12	6.7	7.3	1.1E+02	N
Aroclor 1260	11096-82-5	ug/kg	10	12	5.9	6.1	2.2E+02	N
Aroclor 1262	37324-23-5	ug/kg	12	12	5.9	6.4	--	NS
Aroclor 1268	11100-14-4	ug/kg	12	12	7.4	8	--	NS
TCL VOCs								
1,1,1-Trichloroethane	71-55-6	ug/kg	12	12	0.89	1.2	9.0E+05	N
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	12	12	0.83	1.1	5.9E+02	N
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	12	12	0.56	0.75	4.3E+06	N
1,1,2-Trichloroethane	79-00-5	ug/kg	12	12	0.98	1.3	1.1E+03	N
1,1-Dichloroethane	75-34-3	ug/kg	12	12	0.33	0.44	3.4E+03	N
1,1-Dichloroethene	75-35-4	ug/kg	12	12	0.76	1	2.5E+04	N
1,2,3-Trichlorobenzene	87-61-6	ug/kg	12	12	0.42	0.56	8.7E+03	N
1,2,4-Trichlorobenzene	120-82-1	ug/kg	12	12	0.76	1	8.7E+03	N
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	12	12	2.2	2.9	5.6E+00	N
1,2-Dibromoethane	106-93-4	ug/kg	12	12	0.88	1.2	3.4E+01	N
1,2-Dichlorobenzene	95-50-1	ug/kg	12	12	0.28	0.37	2.0E+05	N
1,2-Dichloroethane	107-06-2	ug/kg	12	12	0.39	0.52	4.5E+02	N
1,2-Dichloropropane	78-87-5	ug/kg	12	12	0.39	0.53	9.3E+02	N
1,3-Dichlorobenzene	541-73-1	ug/kg	12	12	0.41	0.55	2.6E+03	N
1,4-Dichlorobenzene	106-46-7	ug/kg	12	12	0.5	0.67	2.6E+03	N
2-Butanone	78-93-3	ug/kg	12	12	2.4	3.3	2.8E+06	N
2-Hexanone	591-78-6	ug/kg	12	12	1.1	1.5	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	12	12	0.19	0.26	5.3E+05	N
Acetone	67-64-1	ug/kg	12	12	3.3	4.4	6.1E+06	N
Benzene	71-43-2	ug/kg	12	12	0.22	0.3	1.1E+03	N
Bromochloromethane	74-97-5	ug/kg	12	12	0.47	0.63	2.8E+02	N
Bromodichloromethane	75-27-4	ug/kg	12	12	0.93	1.2	2.8E+02	N
Bromoform	75-25-2	ug/kg	12	12	0.49	0.66	6.1E+04	N
Bromomethane	74-83-9	ug/kg	12	12	1	1.4	7.9E+02	N
Carbon Disulfide	75-15-0	ug/kg	12	12	0.36	0.48	6.7E+04	N
Carbon Tetrachloride	56-23-5	ug/kg	12	12	0.72	0.96	2.5E+02	N
Chlorobenzene	108-90-7	ug/kg	12	12	0.84	1.1	3.1E+04	N
Chloroethane	75-00-3	ug/kg	12	12	0.84	1.1	1.5E+06	N
Chloroform	67-66-3	ug/kg	6	12	0.24	0.32	3.0E+02	N
Chloromethane	74-87-3	ug/kg	12	12	0.44	0.59	1.2E+04	N
cis-1,2-Dichloroethene	156-59-2	ug/kg	12	12	0.3	0.4	7.8E+04	N
cis-1,3-Dichloropropene [6]	10061-01-5	ug/kg	12	12	0.45	0.6	1.7E+03	N
Cyclohexane	110-82-7	ug/kg	12	12	0.88	1.2	7.2E+05	N
Dibromochloromethane	124-48-1	ug/kg	12	12	0.5	0.66	7.0E+02	N
Dichlorodifluoromethane	75-71-8	ug/kg	12	12	0.38	0.5	1.9E+04	N
Ethylbenzene	100-41-4	ug/kg	12	12	0.16	0.22	5.7E+03	N
Isopropylbenzene	98-82-8	ug/kg	12	12	0.21	0.28	2.2E+05	N
Methyl Acetate	79-20-9	ug/kg	12	12	2.6	3.4	7.8E+06	N
Methyl tert-Butyl Ether	1634-04-4	ug/kg	12	12	0.52	0.7	3.9E+04	N
Methylcyclohexane	108-87-2	ug/kg	12	12	0.93	1.2	--	NS

Table G.1-1.2
SSA 18 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Styrene	100-42-5	ug/kg	12	12	0.83	1.1	6.5E+05	N
Tetrachloroethene	127-18-4	ug/kg	12	12	0.8	1.1	5.7E+02	N
Toluene	108-88-3	ug/kg	12	12	0.64	0.86	5.0E+05	N
trans-1,2-Dichloroethene	156-60-5	ug/kg	12	12	0.87	1.2	1.1E+04	N
trans-1,3-Dichloropropene [6]	10061-02-6	ug/kg	12	12	0.32	0.43	1.7E+03	N
Trichloroethene	79-01-6	ug/kg	12	12	0.46	0.62	2.8E+03	N
Trichlorofluoromethane	75-69-4	ug/kg	12	12	0.33	0.44	8.0E+04	N
Vinyl Chloride	75-01-4	ug/kg	12	12	0.27	0.37	6.0E+01	N
Xylenes (Total)	1330-20-7	ug/kg	12	12	1.1	1.5	6.0E+04	N
TCL SVOCs								
1,1'-Biphenyl	92-52-4	ug/kg	12	12	0.94	1	3.9E+05	N
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	12	12	2.4	2.6	1.8E+03	N
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	12	12	11	11	1.8E+05	N
2,4,5-Trichlorophenol	95-95-4	ug/kg	12	12	2.8	3	6.1E+05	N
2,4,6-Trichlorophenol [7]	88-06-2	ug/kg	12	12	2.3	2.5	6.1E+03	N
2,4-Dichlorophenol	120-83-2	ug/kg	12	12	3.8	4.2	1.8E+04	N
2,4-Dimethylphenol	105-67-9	ug/kg	12	12	1.7	1.8	1.2E+05	N
2,4-Dinitrophenol	51-28-5	ug/kg	12	12	120	130	1.2E+04	N
2,4-Dinitrotoluene	121-14-2	ug/kg	12	12	21	23	1.6E+03	N
2,6-Dinitrotoluene	606-20-2	ug/kg	12	12	2.6	2.8	6.1E+03	N
2-Chloronaphthalene	91-58-7	ug/kg	12	12	2.5	2.7	6.3E+05	N
2-Chlorophenol	95-57-8	ug/kg	12	12	4.3	4.6	3.9E+04	N
2-Methylnaphthalene	91-57-6	ug/kg	11	12	0.52	0.56	3.1E+04	N
2-Methylphenol	95-48-7	ug/kg	12	12	5.4	5.9	3.1E+05	N
2-Nitroaniline	88-74-4	ug/kg	12	12	8	8.7	1.8E+04	N
2-Nitrophenol	88-75-5	ug/kg	12	12	7.5	8.1	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	12	12	32	34	1.1E+03	N
3-Nitroaniline	99-09-2	ug/kg	12	12	8	8.7	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	12	12	23	25	6.1E+02	N
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	12	12	1.7	1.8	--	NS
4-Chloro-3-methylphenol [8]	59-50-7	ug/kg	12	12	3.7	4.1	3.1E+05	N
4-Chloroaniline	106-47-8	ug/kg	12	12	8	8.7	2.4E+03	N
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	12	12	3.8	4.1	--	NS
4-Methylphenol	106-44-5	ug/kg	12	12	5	5.4	3.1E+04	N
4-Nitroaniline	100-01-6	ug/kg	12	12	1.8	2	2.4E+04	N
4-Nitrophenol	100-02-7	ug/kg	12	12	150	160	--	NS
Acenaphthene	83-32-9	ug/kg	12	12	0.88	0.96	3.4E+05	N
Acenaphthylene [9]	208-96-8	ug/kg	11	12	1.9	2.1	1.7E+05	N
Acetophenone	98-86-2	ug/kg	12	12	4.2	4.5	7.8E+05	N
Anthracene	120-12-7	ug/kg	12	12	2.9	3.1	1.7E+06	N
Atrazine	1912-24-9	ug/kg	12	12	5.1	5.5	2.1E+03	N
Benzaldehyde	100-52-7	ug/kg	12	12	7	7.6	7.8E+05	N
Benzo(a)anthracene	56-55-3	ug/kg	4	12	1.4	1.4	1.5E+02	N
Benzo(a)pyrene	50-32-8	ug/kg	6	12	1.7	1.7	1.5E+01	N
Benzo(b)fluoranthene	205-99-2	ug/kg	7	12	3.5	3.6	1.5E+02	N
Benzo(g,h,i)perylene [9]	191-24-2	ug/kg	8	12	1.1	1.1	1.7E+05	N
Benzo(k)fluoranthene	207-08-9	ug/kg	7	12	1.5	1.6	1.5E+03	N
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	12	12	1.4	1.5	1.8E+04	N
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	12	12	2.1	2.3	1.9E+02	N
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	12	12	7.5	8.2	--	NS
Butylbenzylphthalate	85-68-7	ug/kg	7	12	5.7	6	2.6E+05	N
Caprolactam	105-60-2	ug/kg	12	12	14	15	3.1E+06	N
Carbazole	86-74-8	ug/kg	12	12	95	100	--	NS
Chrysene	218-01-9	ug/kg	8	12	3.9	4.3	1.5E+04	N
Di-n-butyl Phthalate	84-74-2	ug/kg	4	12	29	30	6.1E+05	N
Di-n-octyl Phthalate	117-84-0	ug/kg	12	12	6	6.5	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	12	12	8.7	9.5	1.5E+01	N
Dibenzofuran	132-64-9	ug/kg	12	12	9.9	11	--	NS
Diethylphthalate	84-66-2	ug/kg	12	12	3.9	4.3	4.9E+06	N
Dimethylphthalate	131-11-3	ug/kg	12	12	0.98	1.1	--	NS
Fluoranthene	206-44-0	ug/kg	5	12	0.91	0.94	2.3E+05	N
Fluorene	86-73-7	ug/kg	12	12	7.8	8.4	2.3E+05	N
Hexachlorobenzene	118-74-1	ug/kg	12	12	4.8	5.2	3.0E+02	N
Hexachlorobutadiene [10]	87-68-3	ug/kg	12	12	3.9	4.2	6.1E+03	N
Hexachlorocyclopentadiene	77-47-4	ug/kg	12	12	2.3	2.5	3.7E+04	N
Hexachloroethane [11]	67-72-1	ug/kg	12	12	2.8	3	6.1E+03	N
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	12	12	4.2	4.5	1.5E+02	N
Isophorone	78-59-1	ug/kg	12	12	7	7.6	5.1E+05	N
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	12	12	6.4	6.9	6.9E+01	N
N-Nitroso-diphenylamine	86-30-6	ug/kg	12	12	11	12	9.9E+04	N
Naphthalene	91-20-3	ug/kg	12	12	2.4	2.6	3.9E+03	N
Nitrobenzene	98-95-3	ug/kg	12	12	5.8	6.3	4.4E+03	N
Pentachlorophenol	87-86-5	ug/kg	12	12	50	54	3.0E+03	N
Phenanthrene [9]	85-01-8	ug/kg	7	12	1.2	1.3	1.7E+05	N
Phenol	108-95-2	ug/kg	12	12	51	55	1.8E+06	N
Pyrene	129-00-0	ug/kg	5	12	1.4	1.5	1.7E+05	N

Table G.1-1.2
SSA 18 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Explosives								
1,3,5-Trinitrobenzene	99-35-4	mg/kg	12	12	0.12	0.12	220	N
1,3-Dinitrobenzene	99-65-0	mg/kg	12	12	0.11	0.11	0.61	N
2,4-Dinitrotoluene	121-14-2	mg/kg	12	12	0.23	0.23	1.6	N
2,4,6-Trinitrotoluene [12]	118-96-7	mg/kg	12	12	0.16	0.16	3.6	N
2,6-Dinitrotoluene	606-20-2	mg/kg	12	12	0.23	0.23	6.1	N
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	12	12	0.21	0.21	15	N
2-Nitrotoluene	88-72-2	mg/kg	12	12	0.14	0.14	2.9	N
3-Nitrotoluene	99-08-1	mg/kg	12	12	0.25	0.25	120	N
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	12	12	0.16	0.16	--	NS
4-Nitrotoluene [13]	99-99-0	mg/kg	12	12	0.27	0.27	24	N
HMX	2691-41-0	mg/kg	12	12	0.12	0.12	380	N
Nitrobenzene	98-95-3	mg/kg	12	12	0.045	0.045	4.4	N
RDX	121-82-4	mg/kg	12	12	0.039	0.039	5.5	N
Tetryl	479-45-8	mg/kg	12	12	0.046	0.046	24	N
Nitroglycerin/PETN								
Nitroglycerin	55-63-0	mg/kg	12	12	0.29	0.58	0.61	N
PETN	78-11-5	mg/kg	12	12	0.25	0.51	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Screening Level Available
R-RSL = Residential RSL
SL = Screening Level

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

[1] = Chlordane RSL value was used
[2] = Alpha-BHC RSL value was used
[3] = Endosulfan RSL value was used
[4] = Endrin RSL value was used
[5] = Noncarcinogenic RSL value for Aroclor 1254 was used
[6] = 1,3-Dichloropropene RSL value was used
[7] = Noncarcinogenic RSL value for 2,4,6-Trichlorophenol was used
[8] = 3-Methylphenol RSL value was used
[9] = Pyrene RSL value was used
[10] = Noncarcinogenic RSL value for Hexachlorobutadiene was used
[11] = Noncarcinogenic RSL value for Hexachloroethane was used
[12] = Noncarcinogenic RSl value for 2,4,6-Trinitrotoluene was used
[13] = Noncarcinogenic RSL value for 4-Nitrotoluene was used

Table G.1-1.3
SSA 72 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
TAL Metals								
Selenium	7782-49-2	mg/kg	2	4	0.045	0.049	39	N
Cyanide								
Cyanide, Total	57-12-5	mg/kg	1	4	0.085	0.085	160	N
Pesticides								
4,4'-DDD	72-54-8	mg/kg	4	4	0.00034	0.00038	2	N
4,4'-DDE	72-55-9	mg/kg	3	4	0.00028	0.00032	1.4	N
4,4'-DDT	50-29-3	mg/kg	4	4	0.00029	0.00033	1.7	N
Aldrin	309-00-2	mg/kg	4	4	0.0014	0.0016	0.029	N
alpha-BHC	319-84-6	mg/kg	4	4	0.00025	0.00028	0.077	N
alpha-Chlordane [1]	5103-71-9	mg/kg	4	4	0.00045	0.00051	1.6	N
beta-BHC	319-85-7	mg/kg	4	4	0.00032	0.00036	0.27	N
delta-BHC [2]	319-86-8	mg/kg	4	4	0.0003	0.00034	0.077	N
Dieldrin	60-57-1	mg/kg	4	4	0.00028	0.00032	0.03	N
Endosulfan I [3]	959-98-8	mg/kg	4	4	0.00029	0.00033	37	N
Endosulfan II [3]	33213-65-9	mg/kg	4	4	0.00031	0.00035	37	N
Endosulfan Sulfate [3]	1031-07-8	mg/kg	4	4	0.00037	0.00042	37	N
Endrin	72-20-8	mg/kg	4	4	0.00031	0.00035	1.8	N
Endrin Aldehyde [4]	7421-93-4	mg/kg	4	4	0.001	0.0012	1.8	N
Endrin Ketone [4]	53494-70-5	mg/kg	4	4	0.00041	0.00046	1.8	N
gamma-BHC (Lindane)	58-89-9	mg/kg	4	4	0.00029	0.00033	0.52	N
gamma-Chlordane [1]	5103-74-2	mg/kg	4	4	0.00032	0.00036	1.6	N
Heptachlor	76-44-8	mg/kg	4	4	0.00049	0.00055	0.11	N
Heptachlor Epoxide	1024-57-3	mg/kg	4	4	0.00024	0.00027	0.053	N
Methoxychlor	72-43-5	mg/kg	4	4	0.00041	0.00047	31	N
Toxaphene	8001-35-2	mg/kg	4	4	0.0033	0.0037	0.44	N
PCBs								
Aroclor 1016	12674-11-2	ug/kg	4	4	4.7	5.4	3.9E+02	N
Aroclor 1221	11104-28-2	ug/kg	4	4	8.8	9.9	1.7E+02	N
Aroclor 1232	11141-16-5	ug/kg	4	4	5.1	5.7	1.7E+02	N
Aroclor 1242	53469-21-9	ug/kg	4	4	5.2	5.9	2.2E+02	N
Aroclor 1248	12672-29-6	ug/kg	4	4	7.4	8.3	2.2E+02	N
Aroclor 1254 [5]	11097-69-1	ug/kg	3	4	6.7	7.5	1.1E+02	N
Aroclor 1260	11096-82-5	ug/kg	4	4	5.7	6.4	2.2E+02	N
Aroclor 1262	37324-23-5	ug/kg	4	4	5.9	6.6	--	NS
Aroclor 1268	11100-14-4	ug/kg	4	4	7.4	8.3	--	NS
TCL VOCs								
1,1,1-Trichloroethane	71-55-6	ug/kg	3	3	0.9	1.1	9.0E+05	N
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	3	3	0.84	1	5.9E+02	N
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	3	3	0.56	0.67	4.3E+06	N
1,1,2-Trichloroethane	79-00-5	ug/kg	3	3	0.98	1.2	1.1E+03	N
1,1-Dichloroethane	75-34-3	ug/kg	3	3	0.34	0.4	3.4E+03	N
1,1-Dichloroethene	75-35-4	ug/kg	3	3	0.76	0.9	2.5E+04	N
1,2,3-Trichlorobenzene	87-61-6	ug/kg	3	3	0.42	0.5	8.7E+03	N
1,2,4-Trichlorobenzene	120-82-1	ug/kg	3	3	0.76	0.91	8.7E+03	N
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	3	3	2.2	2.6	5.6E+00	N
1,2-Dibromoethane	106-93-4	ug/kg	3	3	0.89	1.1	3.4E+01	N
1,2-Dichlorobenzene	95-50-1	ug/kg	3	3	0.28	0.33	2.0E+05	N
1,2-Dichloroethane	107-06-2	ug/kg	3	3	0.39	0.46	4.5E+02	N
1,2-Dichloropropane	78-87-5	ug/kg	3	3	0.4	0.47	9.3E+02	N
1,3-Dichlorobenzene	541-73-1	ug/kg	3	3	0.41	0.49	2.6E+03	N
1,4-Dichlorobenzene	106-46-7	ug/kg	3	3	0.51	0.6	2.6E+03	N
2-Butanone	78-93-3	ug/kg	3	3	2.5	2.9	2.8E+06	N
2-Hexanone	591-78-6	ug/kg	3	3	1.1	1.3	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	3	3	0.19	0.23	5.3E+05	N
Acetone	67-64-1	ug/kg	2	3	3.4	3.9	6.1E+06	N
Benzene	71-43-2	ug/kg	3	3	0.22	0.27	1.1E+03	N
Bromochloromethane	74-97-5	ug/kg	3	3	0.48	0.56	2.8E+02	N
Bromodichloromethane	75-27-4	ug/kg	3	3	0.94	1.1	2.8E+02	N
Bromoform	75-25-2	ug/kg	3	3	0.5	0.59	6.1E+04	N
Bromomethane	74-83-9	ug/kg	3	3	1	1.2	7.9E+02	N
Carbon Disulfide	75-15-0	ug/kg	3	3	0.36	0.43	6.7E+04	N
Carbon Tetrachloride	56-23-5	ug/kg	3	3	0.73	0.86	2.5E+02	N
Chlorobenzene	108-90-7	ug/kg	3	3	0.85	1	3.1E+04	N
Chloroethane	75-00-3	ug/kg	3	3	0.85	1	1.5E+06	N
Chloroform	67-66-3	ug/kg	3	3	0.25	0.29	3.0E+02	N
Chloromethane	74-87-3	ug/kg	3	3	0.45	0.53	1.2E+04	N
cis-1,2-Dichloroethene	156-59-2	ug/kg	3	3	0.31	0.36	7.8E+04	N
cis-1,3-Dichloropropene [6]	10061-01-5	ug/kg	3	3	0.45	0.54	1.7E+03	N
Cyclohexane	110-82-7	ug/kg	3	3	0.89	1.1	7.2E+05	N
Dibromochloromethane	124-48-1	ug/kg	3	3	0.5	0.59	7.0E+02	N
Dichlorodifluoromethane	75-71-8	ug/kg	3	3	0.38	0.45	1.9E+04	N
Ethylbenzene	100-41-4	ug/kg	3	3	0.16	0.2	5.7E+03	N
Isopropylbenzene	98-82-8	ug/kg	3	3	0.21	0.25	2.2E+05	N
Methyl Acetate	79-20-9	ug/kg	3	3	2.6	3.1	7.8E+06	N
Methyl tert-Butyl Ether	1634-04-4	ug/kg	3	3	0.52	0.62	3.9E+04	N
Methylcyclohexane	108-87-2	ug/kg	3	3	0.94	1.1	--	NS

Table G.1-1.3
SSA 72 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Methylene Chloride	75-09-2	ug/kg	2	3	1.3	1.6	1.1E+04	N
Styrene	100-42-5	ug/kg	3	3	0.84	0.99	6.5E+05	N
Tetrachloroethene	127-18-4	ug/kg	3	3	0.8	0.95	5.7E+02	N
Toluene	108-88-3	ug/kg	3	3	0.64	0.76	5.0E+05	N
trans-1,2-Dichloroethene	156-60-5	ug/kg	3	3	0.87	1	1.1E+04	N
trans-1,3-Dichloropropene [6]	10061-02-6	ug/kg	3	3	0.32	0.38	1.7E+03	N
Trichloroethene	79-01-6	ug/kg	3	3	0.47	0.55	2.8E+03	N
Trichlorofluoromethane	75-69-4	ug/kg	3	3	0.34	0.4	8.0E+04	N
Vinyl Chloride	75-01-4	ug/kg	3	3	0.28	0.33	6.0E+01	N
Xylenes	1330-20-7	ug/kg	3	3	1.1	1.3	6.0E+04	N
TCL SVOCs								
1,1'-Biphenyl	92-52-4	ug/kg	3	3	0.98	1.1	3.9E+05	N
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	3	3	2.5	2.7	1.8E+03	N
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	3	3	11	12	1.8E+05	N
2,4,5-Trichlorophenol	95-95-4	ug/kg	3	3	2.9	3.1	6.1E+05	N
2,4,6-Trichlorophenol [7]	88-06-2	ug/kg	3	3	2.4	2.6	6.1E+03	N
2,4-Dichlorophenol	120-83-2	ug/kg	3	3	4	4.3	1.8E+04	N
2,4-Dimethylphenol	105-67-9	ug/kg	3	3	1.8	1.9	1.2E+05	N
2,4-Dinitrophenol	51-28-5	ug/kg	3	3	120	130	1.2E+04	N
2,4-Dinitrotoluene	121-14-2	ug/kg	3	3	22	24	1.6E+03	N
2,6-Dinitrotoluene	606-20-2	ug/kg	3	3	2.7	2.9	6.1E+03	N
2-Chloronaphthalene	91-58-7	ug/kg	3	3	2.6	2.8	6.3E+05	N
2-Chlorophenol	95-57-8	ug/kg	3	3	4.4	4.8	3.9E+04	N
2-Methylnaphthalene	91-57-6	ug/kg	3	3	0.54	0.58	3.1E+04	N
2-Methylphenol	95-48-7	ug/kg	3	3	5.6	6.1	3.1E+05	N
2-Nitroaniline	88-74-4	ug/kg	3	3	8.4	9	1.8E+04	N
2-Nitrophenol	88-75-5	ug/kg	3	3	7.8	8.4	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	3	3	33	35	1.1E+03	N
3-Nitroaniline	99-09-2	ug/kg	3	3	8.4	9	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	3	3	24	26	6.1E+02	N
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	3	3	1.8	1.9	--	NS
4-Chloro-3-methylphenol [8]	59-50-7	ug/kg	3	3	3.9	4.2	3.1E+05	N
4-Chloroaniline	106-47-8	ug/kg	3	3	8.4	9	2.4E+03	N
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	3	3	4	4.3	--	NS
4-Methylphenol	106-44-5	ug/kg	3	3	5.2	5.6	3.1E+04	N
4-Nitroaniline	100-01-6	ug/kg	3	3	1.9	2	2.4E+04	N
4-Nitrophenol	100-02-7	ug/kg	3	3	160	170	--	NS
Acenaphthene	83-32-9	ug/kg	3	3	0.92	0.99	3.4E+05	N
Acenaphthylene [9]	208-96-8	ug/kg	2	3	2.1	2.1	1.7E+05	N
Acetophenone	98-86-2	ug/kg	3	3	4.4	4.7	7.8E+05	N
Anthracene	120-12-7	ug/kg	2	3	3.1	3.3	1.7E+06	N
Atrazine	1912-24-9	ug/kg	3	3	5.3	5.7	2.1E+03	N
Benzaldehyde	100-52-7	ug/kg	2	3	7.6	7.9	7.8E+05	N
Benzo(a)anthracene	56-55-3	ug/kg	1	3	1.4	1.4	1.5E+02	N
Benzo(a)pyrene	50-32-8	ug/kg	2	3	1.7	1.8	1.5E+01	N
Benzo(b)fluoranthene	205-99-2	ug/kg	2	3	3.6	3.7	1.5E+02	N
Benzo(g,h,i)perylene [9]	191-24-2	ug/kg	2	3	1.2	1.2	1.7E+05	N
Benzo(k)fluoranthene	207-08-9	ug/kg	2	3	1.6	1.6	1.5E+03	N
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	3	3	1.5	1.6	1.8E+04	N
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	3	3	2.2	2.4	1.9E+02	N
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	3	3	7.9	8.5	--	NS
Butyl Benzyl Phthalate	85-68-7	ug/kg	2	3	5.8	6.2	2.6E+05	N
Caprolactam	105-60-2	ug/kg	3	3	15	16	3.1E+06	N
Carbazole	86-74-8	ug/kg	3	3	99	110	--	NS
Chrysene	218-01-9	ug/kg	2	3	4.3	4.4	1.5E+04	N
Di-n-butylphthalate	84-74-2	ug/kg	3	3	29	32	6.1E+05	N
Di-n-octylphthalate	117-84-0	ug/kg	3	3	6.3	6.8	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	2	3	9.5	9.8	1.5E+01	N
Dibenzofuran	132-64-9	ug/kg	3	3	10	11	--	NS
Diethylphthalate	84-66-2	ug/kg	3	3	4.1	4.4	4.9E+06	N
Dimethylphthalate	131-11-3	ug/kg	3	3	1	1.1	--	NS
Fluoranthene	206-44-0	ug/kg	2	3	0.94	0.97	2.3E+05	N
Fluorene	86-73-7	ug/kg	2	3	8.5	8.8	2.3E+05	N
Hexachlorobenzene	118-74-1	ug/kg	3	3	5	5.4	3.0E+02	N
Hexachlorobutadiene [10]	87-68-3	ug/kg	3	3	4.1	4.4	6.1E+03	N
Hexachlorocyclopentadiene	77-47-4	ug/kg	3	3	2.4	2.6	3.7E+04	N
Hexachloroethane [11]	67-72-1	ug/kg	3	3	2.9	3.1	6.1E+03	N
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	2	3	4.5	4.7	1.5E+02	N
Isophorone	78-59-1	ug/kg	3	3	7.3	7.9	5.1E+05	N
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	3	3	6.6	7.2	6.9E+01	N
N-Nitroso-diphenylamine	86-30-6	ug/kg	3	3	11	12	9.9E+04	N
Naphthalene	91-20-3	ug/kg	3	3	2.5	2.7	3.9E+03	N
Nitrobenzene	98-95-3	ug/kg	3	3	6.1	6.6	4.4E+03	N
Pentachlorophenol	87-86-5	ug/kg	3	3	52	56	3.0E+03	N
Phenanthrene [9]	85-01-8	ug/kg	2	3	1.3	1.3	1.7E+05	N
Phenol	108-95-2	ug/kg	3	3	53	57	1.8E+06	N
Pyrene	129-00-0	ug/kg	2	3	1.5	1.5	1.7E+05	N

Table G.1-1.3
SSA 72 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Explosives								
1,3,5-Trinitrobenzene	99-35-4	mg/kg	3	3	0.12	0.12	220	N
1,3-Dinitrobenzene	99-65-0	mg/kg	3	3	0.11	0.11	0.61	N
2,4-Dinitrotoluene	121-14-2	mg/kg	3	3	0.23	0.23	1.6	N
2,4,6-Trinitrotoluene [12]	118-96-7	mg/kg	3	3	0.16	0.16	3.6	N
2,6-Dinitrotoluene	606-20-2	mg/kg	3	3	0.23	0.23	6.1	N
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	3	3	0.21	0.21	15	N
2-Nitrotoluene	88-72-2	mg/kg	3	3	0.14	0.14	2.9	N
3-Nitrotoluene	99-08-1	mg/kg	3	3	0.25	0.25	120	N
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	3	3	0.16	0.16	--	NS
4-Nitrotoluene [13]	99-99-0	mg/kg	3	3	0.27	0.27	24	N
HMX	2691-41-0	mg/kg	3	3	0.12	0.12	380	N
Nitrobenzene	98-95-3	mg/kg	1	3	0.045	0.045	4.4	N
RDX	121-82-4	mg/kg	3	3	0.039	0.039	5.5	N
Tetryl	479-45-8	mg/kg	3	3	0.046	0.046	24	N
Nitroglycerin/PETN								
Nitroglycerin	55-63-0	mg/kg	3	3	0.29	0.29	0.61	N
PETN	78-11-5	mg/kg	3	3	0.25	0.25	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Screening Level Available
R-RSL = Residential RSL
SL = Screening Level

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

[1] = Chlordane RSL value was used
[2] = Alpha-BHC RSL value was used
[3] = Endosulfan RSL value was used
[4] = Endrin RSL value was used
[5] = Noncarcinogenic RSL value for Aroclor 1254 was used
[6] = 1,3-Dichloropropene RSL value was used
[7] = Noncarcinogenic RSL value for 2,4,6-Trichlorophenol was used
[8] = 3-Methylphenol RSL value was used
[9] = Pyrene RSL value was used
[10] = Noncarcinogenic RSL value for Hexachlorobutadiene was used
[11] = Noncarcinogenic RSL value for Hexachloroethane was used
[12] = Noncarcinogenic RSl value for 2,4,6-Trinitrotoluene was used
[13] = Noncarcinogenic RSL value for 4-Nitrotoluene was used

Table G.1-1.4
SSAs 30 and 79 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
TAL Metals								
Antimony	7440-36-0	mg/kg	1	14	0.037	0.037	3.1	N
Beryllium	7440-41-7	mg/kg	1	14	0.035	0.035	16	N
Calcium	7440-70-2	mg/kg	1	14	8.7	8.7	--	NS
Mercury [1]	7439-97-6	mg/kg	1	14	0.0093	0.0093	2.3	N
Selenium	7782-49-2	mg/kg	2	14	0.049	0.049	39	N
Sodium	7440-23-5	mg/kg	1	14	5.4	5.4	--	NS
Cyanide								
Cyanide, Total	57-12-5	mg/kg	8	14	0.076	0.097	160	N
Pesticides								
4,4'-DDD	72-54-8	mg/kg	14	14	0.00033	0.00043	2	N
4,4'-DDE	72-55-9	mg/kg	14	14	0.00027	0.00036	1.4	N
4,4'-DDT	50-29-3	mg/kg	14	14	0.00028	0.00038	1.7	N
Aldrin	309-00-2	mg/kg	14	14	0.0014	0.0018	0.029	N
alpha-BHC	319-84-6	mg/kg	14	14	0.00024	0.00032	0.077	N
alpha-Chlordane [2]	5103-71-9	mg/kg	14	14	0.00044	0.00058	1.6	N
beta-BHC	319-85-7	mg/kg	14	14	0.00031	0.00042	0.27	N
delta-BHC [3]	319-86-8	mg/kg	14	14	0.00029	0.00039	0.077	N
Dieldrin	60-57-1	mg/kg	13	14	0.00028	0.00037	0.03	N
Endosulfan I [4]	959-98-8	mg/kg	14	14	0.00028	0.00037	37	N
Endosulfan II [4]	33213-65-9	mg/kg	14	14	0.0003	0.0004	37	N
Endosulfan Sulfate [4]	1031-07-8	mg/kg	14	14	0.00036	0.00048	37	N
Endrin	72-20-8	mg/kg	14	14	0.0003	0.0004	1.8	N
Endrin Aldehyde [5]	7421-93-4	mg/kg	14	14	0.00099	0.0013	1.8	N
Endrin Ketone [5]	53494-70-5	mg/kg	14	14	0.0004	0.00053	1.8	N
gamma-BHC (Lindane)	58-89-9	mg/kg	14	14	0.00028	0.00037	0.52	N
gamma-Chlordane [2]	5103-74-2	mg/kg	14	14	0.00031	0.00041	1.6	N
Heptachlor	76-44-8	mg/kg	14	14	0.00048	0.00063	0.11	N
Heptachlor Epoxide	1024-57-3	mg/kg	14	14	0.00023	0.00031	0.053	N
Methoxychlor	72-43-5	mg/kg	14	14	0.0004	0.00053	31	N
Toxaphene	8001-35-2	mg/kg	14	14	0.0032	0.0042	0.44	N
PCBs								
Aroclor 1016	12674-11-2	ug/kg	14	14	4.6	6.1	3.9E+02	N
Aroclor 1221	11104-28-2	ug/kg	14	14	8.6	11	1.7E+02	N
Aroclor 1232	11141-16-5	ug/kg	14	14	4.9	6.5	1.7E+02	N
Aroclor 1242	53469-21-9	ug/kg	14	14	5	6.7	2.2E+02	N
Aroclor 1248	12672-29-6	ug/kg	14	14	7.1	9.5	2.2E+02	N
Aroclor 1254 [6]	11097-69-1	ug/kg	12	14	6.7	8.6	1.1E+02	N
Aroclor 1260	11096-82-5	ug/kg	13	14	5.7	7.3	2.2E+02	N
Aroclor 1262	37324-23-5	ug/kg	14	14	5.7	7.6	--	NS
Aroclor 1268	11100-14-4	ug/kg	14	14	7.1	9.5	--	NS
TCL VOCs								
1,1,1-Trichloroethane	71-55-6	ug/kg	14	14	1.1	1.6	9.0E+05	N
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	14	14	1	1.5	5.9E+02	N
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	14	14	0.67	1	4.3E+06	N
1,1,2-Trichloroethane	79-00-5	ug/kg	14	14	1.2	1.8	1.1E+03	N
1,1-Dichloroethane	75-34-3	ug/kg	14	14	0.4	0.6	3.4E+03	N
1,1-Dichloroethene	75-35-4	ug/kg	14	14	0.91	1.4	2.5E+04	N
1,2,3-Trichlorobenzene	87-61-6	ug/kg	14	14	0.5	0.75	8.7E+03	N
1,2,4-Trichlorobenzene	120-82-1	ug/kg	14	14	0.91	1.4	8.7E+03	N
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	14	14	2.6	3.9	5.6E+00	N
1,2-Dibromoethane	106-93-4	ug/kg	14	14	1.1	1.6	3.4E+01	N
1,2-Dichlorobenzene	95-50-1	ug/kg	14	14	0.33	0.5	2.0E+05	N
1,2-Dichloroethane	107-06-2	ug/kg	14	14	0.46	0.69	4.5E+02	N
1,2-Dichloropropane	78-87-5	ug/kg	14	14	0.47	0.71	9.3E+02	N
1,3-Dichlorobenzene	541-73-1	ug/kg	14	14	0.49	0.74	2.6E+03	N
1,4-Dichlorobenzene	106-46-7	ug/kg	14	14	0.6	0.9	2.6E+03	N
2-Butanone	78-93-3	ug/kg	13	14	2.9	4.4	2.8E+06	N
2-Hexanone	591-78-6	ug/kg	14	14	1.3	2	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	14	14	0.23	0.34	5.3E+05	N
Acetone	67-64-1	ug/kg	9	14	4	4.8	6.1E+06	N
Benzene	71-43-2	ug/kg	14	14	0.27	0.4	1.1E+03	N
Bromochloromethane	74-97-5	ug/kg	14	14	0.56	0.85	2.8E+02	N
Bromodichloromethane	75-27-4	ug/kg	14	14	1.1	1.7	2.8E+02	N
Bromoform	75-25-2	ug/kg	14	14	0.59	0.88	6.1E+04	N
Bromomethane	74-83-9	ug/kg	14	14	1.2	1.8	7.9E+02	N
Carbon Disulfide	75-15-0	ug/kg	13	14	0.43	0.65	6.7E+04	N
Carbon Tetrachloride	56-23-5	ug/kg	14	14	0.86	1.3	2.5E+02	N
Chlorobenzene	108-90-7	ug/kg	14	14	1	1.5	3.1E+04	N
Chloroethane	75-00-3	ug/kg	14	14	1	1.5	1.5E+06	N
Chloroform	67-66-3	ug/kg	14	14	0.29	0.44	3.0E+02	N
Chloromethane	74-87-3	ug/kg	14	14	0.53	0.8	1.2E+04	N
cis-1,2-Dichloroethene	156-59-2	ug/kg	14	14	0.36	0.54	7.8E+04	N
cis-1,3-Dichloropropene [7]	10061-01-5	ug/kg	14	14	0.54	0.81	1.7E+03	N
Cyclohexane	110-82-7	ug/kg	14	14	1.1	1.6	7.2E+05	N

Table G.1-1.4
SSAs 30 and 79 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Dibromochloromethane	124-48-1	ug/kg	14	14	0.6	0.89	7.0E+02	N
Dichlorodifluoromethane	75-71-8	ug/kg	14	14	0.45	0.67	1.9E+04	N
Ethylbenzene	100-41-4	ug/kg	14	14	0.2	0.29	5.7E+03	N
Isopropylbenzene	98-82-8	ug/kg	14	14	0.25	0.37	2.2E+05	N
Methyl Acetate	79-20-9	ug/kg	14	14	3.1	4.6	7.8E+06	N
Methyl tert-Butyl Ether	1634-04-4	ug/kg	14	14	0.62	0.93	3.9E+04	N
Methylcyclohexane	108-87-2	ug/kg	14	14	1.1	1.7	--	NS
Methylene Chloride	75-09-2	ug/kg	14	14	1.6	2.4	1.1E+04	N
Styrene	100-42-5	ug/kg	14	14	0.99	1.5	6.5E+05	N
Tetrachloroethene	127-18-4	ug/kg	14	14	0.95	1.4	5.7E+02	N
Toluene	108-88-3	ug/kg	14	14	0.77	1.1	5.0E+05	N
trans-1,2-Dichloroethene	156-60-5	ug/kg	14	14	1	1.6	1.1E+04	N
trans-1,3-Dichloropropene [7]	10061-02-6	ug/kg	14	14	0.39	0.58	1.7E+03	N
Trichloroethene	79-01-6	ug/kg	14	14	0.55	0.83	2.8E+03	N
Trichlorofluoromethane	75-69-4	ug/kg	14	14	0.4	0.6	8.0E+04	N
Vinyl Chloride	75-01-4	ug/kg	14	14	0.33	0.49	6.0E+01	N
Xylenes (Total)	1330-20-7	ug/kg	14	14	1.3	2	6.0E+04	N
TCL SVOCs								
1,1'-Biphenyl	92-52-4	ug/kg	12	14	0.91	1.2	3.9E+05	N
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	14	14	2.3	3	1.8E+03	N
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	14	14	10	14	1.8E+05	N
2,4,5-Trichlorophenol	95-95-4	ug/kg	14	14	2.7	3.6	6.1E+05	N
2,4,6-Trichlorophenol [8]	88-06-2	ug/kg	14	14	2.2	3	6.1E+03	N
2,4-Dichlorophenol	120-83-2	ug/kg	14	14	3.7	4.9	1.8E+04	N
2,4-Dimethylphenol	105-67-9	ug/kg	14	14	1.6	2.2	1.2E+05	N
2,4-Dinitrophenol	51-28-5	ug/kg	14	14	120	150	1.2E+04	N
2,4-Dinitrotoluene	121-14-2	ug/kg	14	14	21	27	1.6E+03	N
2,6-Dinitrotoluene	606-20-2	ug/kg	14	14	2.5	3.3	6.1E+03	N
2-Chloronaphthalene	91-58-7	ug/kg	14	14	2.4	3.2	6.3E+05	N
2-Chlorophenol	95-57-8	ug/kg	14	14	4.1	5.5	3.9E+04	N
2-Methylnaphthalene	91-57-6	ug/kg	8	14	0.52	0.66	3.1E+04	N
2-Methylphenol	95-48-7	ug/kg	14	14	5.2	6.9	3.1E+05	N
2-Nitroaniline	88-74-4	ug/kg	14	14	7.8	10	1.8E+04	N
2-Nitrophenol	88-75-5	ug/kg	14	14	7.3	9.6	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	14	14	31	40	1.1E+03	N
3-Nitroaniline	99-09-2	ug/kg	14	14	7.8	10	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	14	14	22	30	6.1E+02	N
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	14	14	1.6	2.2	--	NS
4-Chloro-3-methylphenol [9]	59-50-7	ug/kg	14	14	3.6	4.8	3.1E+05	N
4-Chloroaniline	106-47-8	ug/kg	14	14	7.8	10	2.4E+03	N
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	14	14	3.7	4.9	--	NS
4-Methylphenol	106-44-5	ug/kg	13	14	4.9	6.4	3.1E+04	N
4-Nitroaniline	100-01-6	ug/kg	14	14	1.8	2.3	2.4E+04	N
4-Nitrophenol	100-02-7	ug/kg	14	14	150	190	--	NS
Acenaphthene	83-32-9	ug/kg	13	14	0.86	1.1	3.4E+05	N
Acenaphthylene [10]	208-96-8	ug/kg	14	14	1.8	2.4	1.7E+05	N
Acetophenone	98-86-2	ug/kg	14	14	4	5.4	7.8E+05	N
Anthracene	120-12-7	ug/kg	13	14	2.8	3.7	1.7E+06	N
Atrazine	1912-24-9	ug/kg	14	14	4.9	6.5	2.1E+03	N
Benzaldehyde	100-52-7	ug/kg	14	14	6.8	9	7.8E+05	N
Benzo(a)anthracene	56-55-3	ug/kg	5	14	1.3	1.6	1.5E+02	N
Benzo(a)pyrene	50-32-8	ug/kg	9	14	1.6	2	1.5E+01	N
Benzo(b)fluoranthene	205-99-2	ug/kg	9	14	3.3	4.2	1.5E+02	N
Benzo(g,h,i)perylene [10]	191-24-2	ug/kg	8	14	1.1	1.4	1.7E+05	N
Benzo(k)fluoranthene	207-08-9	ug/kg	9	14	1.5	1.9	1.5E+03	N
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	14	14	1.4	1.8	1.8E+04	N
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	14	14	2.1	2.7	1.9E+02	N
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	14	14	7.3	9.7	--	NS
Butyl Benzyl Phthalate	85-68-7	ug/kg	9	14	5.4	7.1	2.6E+05	N
Caprolactam	105-60-2	ug/kg	14	14	14	18	3.1E+06	N
Carbazole	86-74-8	ug/kg	14	14	92	120	--	NS
Chrysene	218-01-9	ug/kg	10	14	3.8	5.1	1.5E+04	N
Di-n-butyl Phthalate	84-74-2	ug/kg	8	14	27	36	6.1E+05	N
Di-n-octyl Phthalate	117-84-0	ug/kg	14	14	5.8	7.7	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	13	14	8.5	11	1.5E+01	N
Dibenzofuran	132-64-9	ug/kg	13	14	9.6	13	--	NS
Diethylphthalate	84-66-2	ug/kg	12	14	3.8	5	4.9E+06	N
Dimethylphthalate	131-11-3	ug/kg	14	14	0.95	1.3	--	NS
Fluoranthene	206-44-0	ug/kg	4	14	0.87	1.1	2.3E+05	N
Fluorene	86-73-7	ug/kg	13	14	7.5	10	2.3E+05	N
Hexachlorobenzene	118-74-1	ug/kg	14	14	4.7	6.2	3.0E+02	N
Hexachlorobutadiene [11]	87-68-3	ug/kg	14	14	3.8	5	6.1E+03	N
Hexachlorocyclopentadiene	77-47-4	ug/kg	14	14	2.2	2.9	3.7E+04	N
Hexachloroethane [12]	67-72-1	ug/kg	14	14	2.7	3.6	6.1E+03	N
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	13	14	4	5.3	1.5E+02	N

Table G.1-1.4
SSAs 30 and 79 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Isophorone	78-59-1	ug/kg	14	14	6.8	9	5.1E+05	N
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	14	14	6.2	8.2	6.9E+01	N
N-Nitroso-diphenylamine	86-30-6	ug/kg	14	14	11	14	9.9E+04	N
Naphthalene	91-20-3	ug/kg	11	14	2.3	3	3.9E+03	N
Nitrobenzene	98-95-3	ug/kg	14	14	5.7	7.5	4.4E+03	N
Pentachlorophenol	87-86-5	ug/kg	14	14	48	64	3.0E+03	N
Phenanthrene [10]	85-01-8	ug/kg	6	14	1.2	1.5	1.7E+05	N
Phenol	108-95-2	ug/kg	14	14	49	65	1.8E+06	N
Pyrene	129-00-0	ug/kg	6	14	1.4	1.7	1.7E+05	N
Explosives								
1,3,5-Trinitrobenzene	99-35-4	mg/kg	14	14	0.12	0.12	220	N
1,3-Dinitrobenzene	99-65-0	mg/kg	14	14	0.11	0.11	0.61	N
2,4-Dinitrotoluene	121-14-2	mg/kg	14	14	0.23	0.23	1.6	N
2,4,6-Trinitrotoluene [13]	118-96-7	mg/kg	14	14	0.16	0.16	3.6	N
2,6-Dinitrotoluene	606-20-2	mg/kg	14	14	0.23	0.23	6.1	N
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	14	14	0.21	0.21	15	N
2-Nitrotoluene	88-72-2	mg/kg	14	14	0.14	0.14	2.9	N
3-Nitrotoluene	99-08-1	mg/kg	14	14	0.25	0.25	120	N
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	14	14	0.16	0.16	--	NS
4-Nitrotoluene [14]	99-99-0	mg/kg	14	14	0.27	0.27	24	N
HMX	2691-41-0	mg/kg	14	14	0.12	0.12	380	N
Nitrobenzene	98-95-3	mg/kg	12	14	0.045	0.045	4.4	N
RDX	121-82-4	mg/kg	14	14	0.039	0.039	5.5	N
Tetryl	479-45-8	mg/kg	14	14	0.046	0.046	24	N
Nitroglycerin/PETN								
Nitroglycerin	55-63-0	mg/kg	14	14	0.29	0.58	0.61	N
PETN	78-11-5	mg/kg	14	14	0.25	0.51	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Screening Level Available
R-RSL = Residential RSL
SL = Screening Level

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

[1] = Mercuric Chloride RSL value was used
[2] = Chlordane RSL value was used
[3] = Alpha-BHC RSL value was used
[4] = Endosulfan RSL value was used
[5] = Endrin RSL value was used
[6] = Noncarcinogenic RSL value for Aroclor 1254 was used
[7] = 1,3-Dichloropropene RSL value was used
[8] = Noncarcinogenic RSL value for 2,4,6-Trichlorophenol was used
[9] = 3-Methylphenol RSL value was used
[10] = Pyrene RSL value was used
[11] = Noncarcinogenic RSL value for Hexachlorobutadiene was used
[12] = Noncarcinogenic RSL value for Hexachloroethane was used
[13] = Noncarcinogenic RSl value for 2,4,6-Trinitrotoluene was used
[14] = Noncarcinogenic RSL value for 4-Nitrotoluene was used

Table G.1-1.5
SSA 60 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Cyanide								
Cyanide, Total	57-12-5	mg/kg	5	9	0.072	0.094	160	N
Pesticides								
4,4'-DDD	72-54-8	mg/kg	8	9	0.00032	0.0005	2	N
4,4'-DDE	72-55-9	mg/kg	7	9	0.00029	0.00042	1.4	N
4,4'-DDT	50-29-3	mg/kg	9	9	0.00028	0.00043	1.7	N
Aldrin	309-00-2	mg/kg	9	9	0.0014	0.0021	0.029	N
alpha-BHC	319-84-6	mg/kg	9	9	0.00024	0.00037	0.077	N
alpha-Chlordane [1]	5103-71-9	mg/kg	9	9	0.00043	0.00067	1.6	N
beta-BHC	319-85-7	mg/kg	9	9	0.00031	0.00048	0.27	N
delta-BHC [2]	319-86-8	mg/kg	9	9	0.00029	0.00044	0.077	N
Dieldrin	60-57-1	mg/kg	8	9	0.00027	0.00042	0.03	N
Endosulfan I [3]	959-98-8	mg/kg	9	9	0.00028	0.00043	37	N
Endosulfan II [3]	33213-65-9	mg/kg	9	9	0.0003	0.00046	37	N
Endosulfan Sulfate [3]	1031-07-8	mg/kg	9	9	0.00036	0.00055	37	N
Endrin	72-20-8	mg/kg	9	9	0.0003	0.00046	1.8	N
Endrin Aldehyde [4]	7421-93-4	mg/kg	9	9	0.00098	0.0015	1.8	N
Endrin Ketone [4]	53494-70-5	mg/kg	9	9	0.00039	0.0006	1.8	N
gamma-BHC (Lindane)	58-89-9	mg/kg	9	9	0.00028	0.00043	0.52	N
gamma-Chlordane [1]	5103-74-2	mg/kg	8	9	0.00031	0.00048	1.6	N
Heptachlor	76-44-8	mg/kg	9	9	0.00047	0.00073	0.11	N
Heptachlor Epoxide	1024-57-3	mg/kg	6	9	0.00023	0.00031	0.053	N
Methoxychlor	72-43-5	mg/kg	9	9	0.0004	0.00061	31	N
Toxaphene	8001-35-2	mg/kg	9	9	0.0032	0.0049	0.44	N
PCBs								
Aroclor 1016	12674-11-2	ug/kg	9	9	4.6	7	3.9E+02	N
Aroclor 1221	11104-28-2	ug/kg	9	9	8.5	13	1.7E+02	N
Aroclor 1232	11141-16-5	ug/kg	9	9	4.9	7.5	1.7E+02	N
Aroclor 1242	53469-21-9	ug/kg	9	9	5	7.7	2.2E+02	N
Aroclor 1248	12672-29-6	ug/kg	9	9	7.1	11	2.2E+02	N
Aroclor 1254 [5]	11097-69-1	ug/kg	3	9	7.3	7.8	1.1E+02	N
Aroclor 1260	11096-82-5	ug/kg	3	9	6.1	6.6	2.2E+02	N
Aroclor 1262	37324-23-5	ug/kg	9	9	5.6	8.7	--	NS
Aroclor 1268	11100-14-4	ug/kg	9	9	7.1	11	--	NS
TCL VOCs								
1,1,1-Trichloroethane	71-55-6	ug/kg	9	9	1	1.6	9.0E+05	N
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	9	9	0.95	1.5	5.9E+02	N
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	9	9	0.63	0.98	4.3E+06	N
1,1,2-Trichloroethane	79-00-5	ug/kg	9	9	1.1	1.7	1.1E+03	N
1,1-Dichloroethane	75-34-3	ug/kg	9	9	0.38	0.58	3.4E+03	N
1,1-Dichloroethene	75-35-4	ug/kg	9	9	0.86	1.3	2.5E+04	N
1,2,3-Trichlorobenzene	87-61-6	ug/kg	9	9	0.47	0.73	8.7E+03	N
1,2,4-Trichlorobenzene	120-82-1	ug/kg	9	9	0.86	1.3	8.7E+03	N
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	9	9	2.5	3.8	5.6E+00	N
1,2-Dibromoethane	106-93-4	ug/kg	9	9	0.99	1.5	3.4E+01	N
1,2-Dichlorobenzene	95-50-1	ug/kg	9	9	0.31	0.48	2.0E+05	N
1,2-Dichloroethane	107-06-2	ug/kg	9	9	0.44	0.68	4.5E+02	N
1,2-Dichloropropane	78-87-5	ug/kg	9	9	0.45	0.69	9.3E+02	N
1,3-Dichlorobenzene	541-73-1	ug/kg	9	9	0.46	0.71	2.6E+03	N
1,4-Dichlorobenzene	106-46-7	ug/kg	9	9	0.57	0.87	2.6E+03	N
2-Butanone	78-93-3	ug/kg	9	9	2.8	4.3	2.8E+06	N
2-Hexanone	591-78-6	ug/kg	9	9	1.3	2	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	9	9	0.22	0.33	5.3E+05	N
Acetone	67-64-1	ug/kg	6	9	3.8	5.8	6.1E+06	N
Benzene	71-43-2	ug/kg	9	9	0.25	0.39	1.1E+03	N
Bromochloromethane	74-97-5	ug/kg	9	9	0.53	0.82	2.8E+02	N
Bromodichloromethane	75-27-4	ug/kg	9	9	1.1	1.6	2.8E+02	N
Bromoform	75-25-2	ug/kg	9	9	0.56	0.86	6.1E+04	N
Bromomethane	74-83-9	ug/kg	9	9	1.2	1.8	7.9E+02	N
Carbon Disulfide	75-15-0	ug/kg	9	9	0.41	0.63	6.7E+04	N
Carbon Tetrachloride	56-23-5	ug/kg	9	9	0.81	1.3	2.5E+02	N
Chlorobenzene	108-90-7	ug/kg	9	9	0.95	1.5	3.1E+04	N
Chloroethane	75-00-3	ug/kg	9	9	0.95	1.5	1.5E+06	N
Chloroform	67-66-3	ug/kg	9	9	0.28	0.43	3.0E+02	N
Chloromethane	74-87-3	ug/kg	9	9	0.5	0.78	1.2E+04	N
cis-1,2-Dichloroethene	156-59-2	ug/kg	9	9	0.34	0.53	7.8E+04	N
cis-1,3-Dichloropropene [6]	10061-01-5	ug/kg	9	9	0.51	0.78	1.7E+03	N
Cyclohexane	110-82-7	ug/kg	9	9	1	1.5	7.2E+05	N
Dibromochloromethane	124-48-1	ug/kg	9	9	0.56	0.87	7.0E+02	N
Dichlorodifluoromethane	75-71-8	ug/kg	9	9	0.42	0.66	1.9E+04	N
Ethylbenzene	100-41-4	ug/kg	9	9	0.18	0.28	5.7E+03	N
Isopropylbenzene	98-82-8	ug/kg	9	9	0.24	0.36	2.2E+05	N
Methyl Acetate	79-20-9	ug/kg	9	9	2.9	4.5	7.8E+06	N
Methyl tert-Butyl Ether	1634-04-4	ug/kg	9	9	0.59	0.91	3.9E+04	N
Methylcyclohexane	108-87-2	ug/kg	9	9	1.1	1.6	--	NS
Methylene Chloride	75-09-2	ug/kg	8	9	1.5	2.3	1.1E+04	N

Table G.1-1.5
SSA 60 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Styrene	100-42-5	ug/kg	9	9	0.94	1.4	6.5E+05	N
Tetrachloroethene	127-18-4	ug/kg	9	9	0.9	1.4	5.7E+02	N
Toluene	108-88-3	ug/kg	7	9	0.72	1.1	5.0E+05	N
trans-1,2-Dichloroethene	156-60-5	ug/kg	9	9	0.98	1.5	1.1E+04	N
trans-1,3-Dichloropropene [6]	10061-02-6	ug/kg	9	9	0.36	0.56	1.7E+03	N
Trichloroethene	79-01-6	ug/kg	9	9	0.52	0.81	2.8E+03	N
Trichlorofluoromethane	75-69-4	ug/kg	9	9	0.38	0.58	8.0E+04	N
Vinyl Chloride	75-01-4	ug/kg	9	9	0.31	0.48	6.0E+01	N
Xylenes (Total)	1330-20-7	ug/kg	9	9	1.2	1.9	6.0E+04	N
TCL SVOCs								
1,1'-Biphenyl	92-52-4	ug/kg	9	9	0.9	1.4	3.9E+05	N
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	9	9	2.3	3.5	1.8E+03	N
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	9	9	10	16	1.8E+05	N
2,4,5-Trichlorophenol	95-95-4	ug/kg	9	9	2.7	4.1	6.1E+02	N
2,4,6-Trichlorophenol [7]	88-06-2	ug/kg	9	9	2.2	3.4	6.1E+03	N
2,4-Dichlorophenol	120-83-2	ug/kg	9	9	3.7	5.7	1.8E+04	N
2,4-Dimethylphenol	105-67-9	ug/kg	9	9	1.6	2.5	1.2E+05	N
2,4-Dinitrophenol	51-28-5	ug/kg	9	9	110	180	1.2E+04	N
2,4-Dinitrotoluene	121-14-2	ug/kg	9	9	20	31	1.6E+03	N
2,6-Dinitrotoluene	606-20-2	ug/kg	9	9	2.5	3.8	6.1E+03	N
2-Chloronaphthalene	91-58-7	ug/kg	9	9	2.4	3.6	6.3E+05	N
2-Chlorophenol	95-57-8	ug/kg	9	9	4.1	6.3	3.9E+04	N
2-Methylnaphthalene	91-57-6	ug/kg	1	9	0.56	0.56	3.1E+04	N
2-Methylphenol	95-48-7	ug/kg	9	9	5.2	8	3.1E+05	N
2-Nitroaniline	88-74-4	ug/kg	9	9	7.7	12	--	NS
2-Nitrophenol	88-75-5	ug/kg	9	9	7.2	11	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	9	9	30	47	--	NS
3-Nitroaniline	99-09-2	ug/kg	9	9	7.7	12	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	9	9	22	34	--	NS
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	9	9	1.6	2.5	--	NS
4-Chloro-3-methylphenol [8]	59-50-7	ug/kg	9	9	3.6	5.5	3.1E+05	N
4-Chloroaniline	106-47-8	ug/kg	9	9	7.7	12	--	NS
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	9	9	3.6	5.6	--	NS
4-Methylphenol	106-44-5	ug/kg	9	9	4.8	7.4	3.1E+04	N
4-Nitroaniline	100-01-6	ug/kg	9	9	1.7	2.7	--	NS
4-Nitrophenol	100-02-7	ug/kg	9	9	140	220	--	NS
Acenaphthene	83-32-9	ug/kg	8	9	0.85	1.3	3.4E+05	N
Acenaphthylene [9]	208-96-8	ug/kg	7	9	1.8	2.8	1.7E+05	N
Acetophenone	98-86-2	ug/kg	9	9	4	6.2	7.8E+05	N
Anthracene	120-12-7	ug/kg	8	9	2.8	4.3	1.7E+06	N
Atrazine	1912-24-9	ug/kg	9	9	4.8	7.5	2.1E+03	N
Benzaldehyde	100-52-7	ug/kg	9	9	6.7	10	7.8E+05	N
Benzo(a)anthracene	56-55-3	ug/kg	1	9	1.4	1.4	1.5E+02	N
Benzo(a)pyrene	50-32-8	ug/kg	1	9	1.7	1.7	1.5E+01	N
Benzo(b)fluoranthene	205-99-2	ug/kg	1	9	3.6	3.6	1.5E+02	N
Benzo(g,h,i)perylene [9]	191-24-2	ug/kg	1	9	1.1	1.1	1.7E+05	N
Benzo(k)fluoranthene	207-08-9	ug/kg	1	9	1.6	1.6	1.5E+03	N
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	9	9	1.4	2.1	1.8E+04	N
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	9	9	2	3.1	--	NS
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	9	9	7.2	11	--	NS
Butyl Benzyl Phthalate	85-68-7	ug/kg	4	9	5.3	6.9	2.6E+05	N
Caprolactam	105-60-2	ug/kg	9	9	14	21	--	NS
Carbazole	86-74-8	ug/kg	9	9	91	140	--	NS
Chrysene	218-01-9	ug/kg	1	9	4.3	4.3	1.5E+04	N
Di-n-butylphthalate	84-74-2	ug/kg	8	9	27	42	--	NS
Di-n-octylphthalate	117-84-0	ug/kg	9	9	5.8	8.9	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	8	9	8.4	13	--	NS
Dibenzofuran	132-64-9	ug/kg	9	9	9.5	15	--	NS
Diethylphthalate	84-66-2	ug/kg	8	9	3.8	5.8	--	NS
Dimethylphthalate	131-11-3	ug/kg	8	9	0.94	1.5	--	NS
Fluoranthene	206-44-0	ug/kg	1	9	0.94	0.94	2.3E+05	N
Fluorene	86-73-7	ug/kg	9	9	7.5	12	2.3E+05	N
Hexachlorobenzene	118-74-1	ug/kg	9	9	4.6	7.2	3.0E+02	N
Hexachlorobutadiene [10]	87-68-3	ug/kg	9	9	3.7	5.8	6.1E+03	N
Hexachlorocyclopentadiene	77-47-4	ug/kg	9	9	2.2	3.4	3.7E+04	N
Hexachloroethane [11]	67-72-1	ug/kg	9	9	2.7	4.1	6.1E+03	N
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	4	9	4	6.1	1.5E+02	N
Isophorone	78-59-1	ug/kg	9	9	6.7	10	5.1E+05	N
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	9	9	6.1	9.4	6.9E+01	N
N-Nitroso-diphenylamine	86-30-6	ug/kg	9	9	11	16	9.9E+04	N
Naphthalene	91-20-3	ug/kg	8	9	2.3	3.5	3.9E+03	N
Nitrobenzene	98-95-3	ug/kg	9	9	5.6	8.6	4.4E+03	N
Pentachlorophenol	87-86-5	ug/kg	9	9	48	74	3.0E+03	N
Phenanthrene [9]	85-01-8	ug/kg	1	9	1.3	1.3	1.7E+05	N
Phenol	108-95-2	ug/kg	9	9	49	75	1.8E+06	N
Pyrene	129-00-0	ug/kg	1	9	1.5	1.5	1.7E+05	N

Table G.1-1.5
SSA 60 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Explosives								
1,3,5-Trinitrobenzene	99-35-4	mg/kg	9	9	0.12	0.12	220	N
1,3-Dinitrobenzene	99-65-0	mg/kg	9	9	0.11	0.11	0.61	N
2,4-Dinitrotoluene	121-14-2	mg/kg	9	9	0.23	0.23	1.6	N
2,4,6-Trinitrotoluene	118-96-7	mg/kg	9	9	0.16	0.16	3.6	N
2,6-Dinitrotoluene	606-20-2	mg/kg	9	9	0.23	0.23	6.1	N
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	9	9	0.21	0.21	15	N
2-Nitrotoluene	88-72-2	mg/kg	9	9	0.14	0.14	2.9	N
3-Nitrotoluene	99-08-1	mg/kg	9	9	0.25	0.25	120	N
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	9	9	0.16	0.16	--	NS
4-Nitrotoluene	99-99-0	mg/kg	9	9	0.27	0.27	24	N
HMX	2691-41-0	mg/kg	9	9	0.12	0.12	380	N
Nitrobenzene	98-95-3	mg/kg	9	9	0.045	0.045	4.4	N
RDX	121-82-4	mg/kg	9	9	0.039	0.039	5.5	N
Tetryl	479-45-8	mg/kg	9	9	0.046	0.046	24	N
Nitroglycerin/PETN								
Nitroglycerin	55-63-0	mg/kg	9	9	0.29	0.29	0.61	N
PETN	78-11-5	mg/kg	9	9	0.25	0.25	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Screening Level Available
R-RSL = Residential RSL
SL = Screening Level

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

[1] = Chlordane RSL value was used
[2] = Alpha-BHC RSL value was used
[3] = Endosulfan RSL value was used
[4] = Endrin RSL value was used
[5] = Noncarcinogenic RSL value for Aroclor 1254 was used
[6] = 1,3-Dichloropropene RSL value was used
[7] = Noncarcinogenic RSL value for 2,4,6-Trichlorophenol was used
[8] = 3-Methylphenol RSL value was used
[9] = Pyrene RSL value was used
[10] = Noncarcinogenic RSL value for Hexachlorobutadiene was used
[11] = Noncarcinogenic RSL value for Hexachloroethane was used
[12] = Noncarcinogenic RSl value for 2,4,6-Trinitrotoluene was used
[13] = Noncarcinogenic RSL value for 4-Nitrotoluene was used

Table G.1-1.6
SSA 77 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
TAL Metals								
Mercury [1]	7439-97-6	mg/kg	2	7	0.0093	0.0093	0.43	N
Cyanide								
Cyanide, Total	57-12-5	mg/kg	6	7	0.088	0.097	160	N
Pesticides								
4,4'-DDD	72-54-8	mg/kg	7	7	0.00037	0.00043	2	N
4,4'-DDE	72-55-9	mg/kg	5	7	0.00033	0.00036	1.4	N
4,4'-DDT	50-29-3	mg/kg	6	7	0.00032	0.00038	1.7	N
Aldrin	309-00-2	mg/kg	7	7	0.0016	0.0018	0.029	N
alpha-BHC	319-84-6	mg/kg	7	7	0.00028	0.00032	0.077	N
alpha-Chlordane [2]	5103-71-9	mg/kg	6	7	0.0005	0.00058	1.6	N
beta-BHC	319-85-7	mg/kg	7	7	0.00036	0.00042	0.27	N
delta-BHC [3]	319-86-8	mg/kg	7	7	0.00033	0.00038	0.077	N
Dieldrin	60-57-1	mg/kg	5	7	0.00033	0.00037	0.03	N
Endosulfan I [4]	959-98-8	mg/kg	7	7	0.00032	0.00037	37	N
Endosulfan II [4]	33213-65-9	mg/kg	6	7	0.00036	0.0004	37	N
Endosulfan Sulfate [4]	1031-07-8	mg/kg	6	7	0.00041	0.00048	37	N
Endrin	72-20-8	mg/kg	5	7	0.00036	0.0004	1.8	N
Endrin Aldehyde [5]	7421-93-4	mg/kg	2	7	0.0011	0.0013	1.8	N
Endrin Ketone [5]	53494-70-5	mg/kg	7	7	0.00045	0.00052	1.8	N
gamma-BHC (Lindane)	58-89-9	mg/kg	7	7	0.00032	0.00037	0.52	N
gamma-Chlordane [2]	5103-74-2	mg/kg	5	7	0.00036	0.00041	1.6	N
Heptachlor	76-44-8	mg/kg	7	7	0.00054	0.00063	0.11	N
Heptachlor Epoxide	1024-57-3	mg/kg	6	7	0.00027	0.00031	0.053	N
Methoxychlor	72-43-5	mg/kg	7	7	0.00046	0.00053	31	N
Toxaphene	8001-35-2	mg/kg	7	7	0.0036	0.0042	0.44	N
PCBs								
Aroclor 1016	12674-11-2	ug/kg	7	7	5.3	6.1	3.9E+02	N
Aroclor 1221	11104-28-2	ug/kg	7	7	9.8	11	1.7E+02	N
Aroclor 1232	11141-16-5	ug/kg	7	7	5.6	6.5	1.7E+02	N
Aroclor 1242	53469-21-9	ug/kg	7	7	5.8	6.7	2.2E+02	N
Aroclor 1248	12672-29-6	ug/kg	7	7	8.1	9.4	2.2E+02	N
Aroclor 1254 [6]	11097-69-1	ug/kg	5	7	7.8	8.6	1.1E+02	N
Aroclor 1260	11096-82-5	ug/kg	5	7	6.6	7.3	2.2E+02	N
Aroclor 1262	37324-23-5	ug/kg	7	7	6.5	7.6	--	NS
Aroclor 1268	11100-14-4	ug/kg	7	7	8.1	9.4	--	NS
TCL VOCs								
1,1,1-Trichloroethane	71-55-6	ug/kg	7	7	1	1.5	9.0E+05	N
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	7	7	0.98	1.4	5.9E+02	N
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ug/kg	7	7	0.66	0.95	4.3E+06	N
1,1,2-Trichloroethane	79-00-5	ug/kg	7	7	1.1	1.7	1.1E+03	N
1,1-Dichloroethane	75-34-3	ug/kg	7	7	0.39	0.57	3.4E+03	N
1,1-Dichloroethene	75-35-4	ug/kg	7	7	0.89	1.3	2.5E+04	N
1,2,3-Trichlorobenzene	87-61-6	ug/kg	7	7	0.49	0.71	8.7E+03	N
1,2,4-Trichlorobenzene	120-82-1	ug/kg	7	7	0.89	1.3	8.7E+03	N
1,2-Dibromo-3-chloropropane	96-12-8	ug/kg	7	7	2.6	3.7	5.6E+00	N
1,2-Dibromoethane	106-93-4	ug/kg	7	7	1	1.5	3.4E+01	N
1,2-Dichlorobenzene	95-50-1	ug/kg	7	7	0.32	0.47	2.0E+05	N
1,2-Dichloroethane	107-06-2	ug/kg	7	7	0.45	0.66	4.5E+02	N
1,2-Dichloropropane	78-87-5	ug/kg	7	7	0.46	0.67	9.3E+02	N
1,3-Dichlorobenzene	541-73-1	ug/kg	7	7	0.48	0.7	2.6E+03	N
1,4-Dichlorobenzene	106-46-7	ug/kg	7	7	0.59	0.85	2.6E+03	N
2-Butanone	78-93-3	ug/kg	7	7	2.9	4.2	2.8E+06	N
2-Hexanone	591-78-6	ug/kg	7	7	1.3	1.9	--	NS
4-Methyl-2-pentanone	108-10-1	ug/kg	7	7	0.22	0.33	5.3E+05	N
Acetone	67-64-1	ug/kg	7	7	3.9	5.7	6.1E+06	N
Benzene	71-43-2	ug/kg	7	7	0.26	0.38	1.1E+03	N
Bromochloromethane	74-97-5	ug/kg	7	7	0.55	0.8	2.8E+02	N
Bromodichloromethane	75-27-4	ug/kg	7	7	1.1	1.6	2.8E+02	N
Bromoform	75-25-2	ug/kg	7	7	0.58	0.84	6.1E+04	N
Bromomethane	74-83-9	ug/kg	7	7	1.2	1.8	7.9E+02	N
Carbon Disulfide	75-15-0	ug/kg	7	7	0.42	0.62	6.7E+04	N
Carbon Tetrachloride	56-23-5	ug/kg	7	7	0.84	1.2	2.5E+02	N
Chlorobenzene	108-90-7	ug/kg	7	7	0.99	1.4	3.1E+04	N
Chloroethane	75-00-3	ug/kg	7	7	0.98	1.4	1.5E+06	N
Chloroform	67-66-3	ug/kg	7	7	0.29	0.42	3.0E+02	N
Chloromethane	74-87-3	ug/kg	7	7	0.52	0.76	1.2E+04	N
cis-1,2-Dichloroethene	156-59-2	ug/kg	7	7	0.36	0.52	7.8E+04	N
cis-1,3-Dichloropropene [7]	10061-01-5	ug/kg	7	7	0.53	0.76	1.7E+03	N
Cyclohexane	110-82-7	ug/kg	7	7	1	1.5	7.2E+05	N
Dibromochloromethane	124-48-1	ug/kg	7	7	0.58	0.85	7.0E+02	N
Dichlorodifluoromethane	75-71-8	ug/kg	7	7	0.44	0.64	1.9E+04	N
Ethylbenzene	100-41-4	ug/kg	7	7	0.19	0.28	5.7E+03	N
Isopropylbenzene	98-82-8	ug/kg	7	7	0.24	0.35	2.2E+05	N
Methyl Acetate	79-20-9	ug/kg	7	7	3	4.4	7.8E+06	N
Methyl tert-Butyl Ether	1634-04-4	ug/kg	7	7	0.61	0.89	3.9E+04	N
Methylcyclohexane	108-87-2	ug/kg	7	7	1.1	1.6	--	NS

Table G.1-1.6
SSA 77 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Methylene Chloride	75-09-2	ug/kg	4	7	1.6	1.9	1.1E+04	N
Styrene	100-42-5	ug/kg	7	7	0.97	1.4	6.5E+05	N
Tetrachloroethene	127-18-4	ug/kg	7	7	0.93	1.4	5.7E+02	N
Toluene	108-88-3	ug/kg	7	7	0.75	1.1	5.0E+05	N
trans-1,2-Dichloroethene	156-60-5	ug/kg	7	7	1	1.5	1.1E+04	N
trans-1,3-Dichloropropene [7]	10061-02-6	ug/kg	7	7	0.38	0.55	1.7E+03	N
Trichloroethene	79-01-6	ug/kg	7	7	0.54	0.79	2.8E+03	N
Trichlorofluoromethane	75-69-4	ug/kg	7	7	0.39	0.57	8.0E+04	N
Vinyl Chloride	75-01-4	ug/kg	7	7	0.32	0.47	6.0E+01	N
Xylenes (Total)	1330-20-7	ug/kg	7	7	1.3	1.9	6.0E+04	N
TCL SVOCs								
1,1'-Biphenyl	92-52-4	ug/kg	6	7	1.1	1.2	3.9E+05	N
1,2,4,5-Tetrachlorobenzene	95-94-3	ug/kg	7	7	2.6	3	1.8E+03	N
2,3,4,6-Tetrachlorophenol	58-90-2	ug/kg	7	7	12	14	1.8E+05	N
2,4,5-Trichlorophenol	95-95-4	ug/kg	7	7	3.1	3.6	6.1E+05	N
2,4,6-Trichlorophenol [8]	88-06-2	ug/kg	7	7	2.6	3	6.1E+03	N
2,4-Dichlorophenol	120-83-2	ug/kg	7	7	4.2	4.9	1.8E+04	N
2,4-Dimethylphenol	105-67-9	ug/kg	7	7	1.9	2.2	1.2E+05	N
2,4-Dinitrophenol	51-28-5	ug/kg	7	7	130	150	1.2E+04	N
2,4-Dinitrotoluene	121-14-2	ug/kg	6	7	25	27	1.6E+03	N
2,6-Dinitrotoluene	606-20-2	ug/kg	6	7	3	3.3	6.1E+03	N
2-Chloronaphthalene	91-58-7	ug/kg	7	7	2.7	3.2	6.3E+05	N
2-Chlorophenol	95-57-8	ug/kg	7	7	4.7	5.5	3.9E+04	N
2-Methylnaphthalene	91-57-6	ug/kg	5	7	0.6	0.66	3.1E+04	N
2-Methylphenol	95-48-7	ug/kg	7	7	6	6.9	3.1E+05	N
2-Nitroaniline	88-74-4	ug/kg	7	7	8.9	10	1.8E+04	N
2-Nitrophenol	88-75-5	ug/kg	7	7	8.3	9.6	--	NS
3,3'-Dichlorobenzidine	91-94-1	ug/kg	7	7	35	40	1.1E+03	N
3-Nitroaniline	99-09-2	ug/kg	7	7	8.9	10	--	NS
4,6-Dinitro-2-methylphenol	534-52-1	ug/kg	7	7	25	29	6.1E+02	N
4-Bromophenyl Phenyl Ether	101-55-3	ug/kg	7	7	1.9	2.2	--	NS
4-Chloro-3-methylphenol [9]	59-50-7	ug/kg	7	7	4.1	4.8	3.1E+05	N
4-Chloroaniline	106-47-8	ug/kg	7	7	8.8	10	2.4E+03	N
4-Chlorophenyl Phenyl Ether	7005-72-3	ug/kg	7	7	4.2	4.9	--	NS
4-Methylphenol	106-44-5	ug/kg	7	7	5.5	6.4	3.1E+04	N
4-Nitroaniline	100-01-6	ug/kg	7	7	2	2.3	2.4E+04	N
4-Nitrophenol	100-02-7	ug/kg	7	7	170	190	--	NS
Acenaphthene	83-32-9	ug/kg	6	7	1	1.1	3.4E+05	N
Acenaphthylene [10]	208-96-8	ug/kg	6	7	2.2	2.4	1.7E+05	N
Acetophenone	98-86-2	ug/kg	7	7	4.6	5.4	7.8E+05	N
Anthracene	120-12-7	ug/kg	6	7	3.4	3.7	1.7E+06	N
Atrazine	1912-24-9	ug/kg	7	7	5.6	6.5	2.1E+03	N
Benzaldehyde	100-52-7	ug/kg	7	7	7.7	9	7.8E+05	N
Benzo(a)anthracene	56-55-3	ug/kg	4	7	1.5	1.6	1.5E+02	N
Benzo(a)pyrene	50-32-8	ug/kg	5	7	1.8	2	1.5E+01	N
Benzo(b)fluoranthene	205-99-2	ug/kg	5	7	3.9	4.2	1.5E+02	N
Benzo(g,h,i)perylene [10]	191-24-2	ug/kg	6	7	1.2	1.4	1.7E+05	N
Benzo(k)fluoranthene	207-08-9	ug/kg	4	7	1.7	1.9	1.5E+03	N
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	7	7	1.6	1.8	1.8E+04	N
Bis(2-chloroethyl) Ether	111-44-4	ug/kg	7	7	2.3	2.7	1.9E+02	N
Bis(2-chloroisopropyl) Ether	39638-32-9	ug/kg	7	7	8.3	9.7	--	NS
Butylbenzylphthalate	85-68-7	ug/kg	3	7	6.8	7.1	2.6E+05	N
Caprolactam	105-60-2	ug/kg	7	7	16	18	3.1E+06	N
Carbazole	86-74-8	ug/kg	7	7	100	120	--	NS
Chrysene	218-01-9	ug/kg	5	7	4.6	5.1	1.5E+04	N
Di-n-butylphthalate	84-74-2	ug/kg	6	7	33	36	6.1E+05	N
Di-n-octylphthalate	117-84-0	ug/kg	7	7	6.7	7.7	--	NS
Dibenz(a,h)anthracene	53-70-3	ug/kg	6	7	10	11	1.5E+01	N
Dibenzofuran	132-64-9	ug/kg	7	7	11	13	--	NS
Diethylphthalate	84-66-2	ug/kg	5	7	4.6	5	4.9E+06	N
Dimethylphthalate	131-11-3	ug/kg	7	7	1.1	1.3	--	NS
Fluoranthene	206-44-0	ug/kg	4	7	1	1.1	2.3E+05	N
Fluorene	86-73-7	ug/kg	7	7	8.6	10	2.3E+05	N
Hexachlorobenzene	118-74-1	ug/kg	7	7	5.3	6.2	3.0E+02	N
Hexachlorobutadiene [11]	87-68-3	ug/kg	7	7	4.3	5	6.1E+03	N
Hexachlorocyclopentadiene	77-47-4	ug/kg	7	7	2.5	2.9	3.7E+04	N
Hexachloroethane [12]	67-72-1	ug/kg	7	7	3.1	3.6	6.1E+03	N
Indeno(1,2,3-cd)pyrene	193-39-5	ug/kg	6	7	4.8	5.3	1.5E+02	N
Isophorone	78-59-1	ug/kg	7	7	7.8	9	5.1E+05	N
N-Nitroso-di-n-propylamine	621-64-7	ug/kg	7	7	7	8.1	6.9E+01	N
N-Nitroso-diphenylamine	86-30-6	ug/kg	7	7	12	14	9.9E+04	N
Naphthalene	91-20-3	ug/kg	6	7	2.7	3	3.9E+03	N
Nitrobenzene	98-95-3	ug/kg	7	7	6.4	7.5	4.4E+03	N
Pentachlorophenol	87-86-5	ug/kg	7	7	55	64	3.0E+03	N
Phenanthrene [10]	85-01-8	ug/kg	5	7	1.4	1.5	1.7E+05	N
Phenol	108-95-2	ug/kg	7	7	56	65	1.8E+06	N
Pyrene	129-00-0	ug/kg	4	7	1.6	1.7	1.7E+05	N

Table G.1-1.6
SSA 77 Non-detected Chemicals MDL Screening - Soil
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Parameter Name	CAS #	Units	Number of Non-Detects	Number of Samples	Minimum MDL	Maximum MDL	Adjusted R-RSL	Maximum MDL Above SL
Explosives								
1,3,5-Trinitrobenzene	99-35-4	mg/kg	7	7	0.12	0.12	220	N
1,3-Dinitrobenzene	99-65-0	mg/kg	7	7	0.11	0.11	0.61	N
2,4-Dinitrotoluene	121-14-2	mg/kg	7	7	0.23	0.23	1.6	N
2,4,6-Trinitrotoluene [13]	118-96-7	mg/kg	7	7	0.16	0.16	3.6	N
2,6-Dinitrotoluene	606-20-2	mg/kg	7	7	0.23	0.23	6.1	N
2-Amino-4,6-dinitrotoluene	35572-78-2	mg/kg	7	7	0.21	0.21	15	N
2-Nitrotoluene	88-72-2	mg/kg	7	7	0.14	0.14	2.9	N
3-Nitrotoluene	99-08-1	mg/kg	7	7	0.25	0.25	120	N
4-Amino-2,6-dinitrotoluene	1946-51-0	mg/kg	7	7	0.16	0.16	--	NS
4-Nitrotoluene [14]	99-99-0	mg/kg	7	7	0.27	0.27	24	N
HMX	2691-41-0	mg/kg	7	7	0.12	0.12	380	N
Nitrobenzene	98-95-3	mg/kg	7	7	0.045	0.045	4.4	N
RDX	121-82-4	mg/kg	7	7	0.039	0.039	5.5	N
Tetryl	479-45-8	mg/kg	7	7	0.046	0.046	24	N
Nitroglycerin/PETN								
Nitroglycerin	55-63-0	mg/kg	7	7	0.29	0.29	0.61	N
PETN	78-11-5	mg/kg	7	7	0.25	0.25	--	NS

Notes:

CAS = Chemical Abstracts Service
mg/kg = Milligram Per Kilogram
ug/kg = Microgram Per Kilogram
TAL = Target Analyte List
TCL = Target Compound List
PCB = Polychlorinated Biphenyl
VOC = Volatile Organic Compound
SVOC = Semi-volatile Organic Compound
PETN = Pentaerythritol Tetranitrate
MDL = Method Detection Limit
RSL = Regional Screening Level (RSL) from April 2009 RSL Table
Adjusted RSLs = a Hazard Quotient (HQ) of 0.1 applied to non-carcinogens
-- = No Screening Level Available
R-RSL = Residential RSL
SL = Screening Level

Y = MDL exceeds screening level
N = MDL does not exceed screening level
NS = No screening level available

[1] = Mercuric Chloride RSL value was used
[2] = Chlordane RSL value was used
[3] = Alpha-BHC RSL value was used
[4] = Endosulfan RSL value was used
[5] = Endrin RSL value was used
[6] = Noncarcinogenic RSL value for Aroclor 1254 was used
[7] = 1,3-Dichloropropene RSL value was used
[8] = Noncarcinogenic RSL value for 2,4,6-Trichlorophenol was used
[9] = 3-Methylphenol RSL value was used
[10] = Pyrene RSL value was used
[11] = Noncarcinogenic RSL value for Hexachlorobutadiene was used
[12] = Noncarcinogenic RSL value for Hexachloroethane was used
[13] = Noncarcinogenic RSl value for 2,4,6-Trinitrotoluene was used
[14] = Noncarcinogenic RSL value for 4-Nitrotoluene was used

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TABLE G.1-2
DATA USABILITY WORKSHEET
SITE: SSAs 18, 72, 30, 79, 30, and 77
MEDIUM: Groundwater

Activity	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	There were no problems identified during field sampling that affected data usability.
Are samples representative of receptor exposure for this medium (e.g., sample depth, grab vs. composite, filtered vs. unfiltered, low flow, etc.)?	Yes. Low-flow groundwater sampling techniques were used to collect the samples representative of groundwater quality.
Assess the effect of field QC results on data usability.	Field duplicate samples were collected at the rate of 1 per 10 groundwater samples. The average concentration of the groundwater sample and its duplicate sample were used in the risk assessments. Equipment rinsate blank samples were collected at the rate of 1 per 20 groundwater samples. Asbestos was not detected in the equipment blank (Table G.1-2). No impact on data usability resulted from this sample. Matrix spike (MS)/matrix spike duplicate (MSD) samples were at the rate of 1 per 20 groundwater samples. No significant impact on data usability was identified based on the matrix spike results.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No significant sampling issues were noted. Section 6.0 of the SSP Report discusses the uncertainty analysis for the human health risk assessment for sampling and analysis.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Yes. EPA analytical methods were used for groundwater analysis in accordance with the MWP and WPA 028. Groundwater samples were analyzed for Asbestos by EPA Method 100.2.
Were detection limits adequate?	Not applicable.
Summarize the effect of analytical technique issues on risk assessment, if applicable.	There were no analytical technical issues which significantly affected the risk assessments. Section 6.0 of the SSP Report discusses the uncertainty analysis for the human health risk assessment for sampling and analysis.
Data Quality Objectives	
Precision – How were duplicates handled?	Field duplicate samples were collected at the rate of 1 per 10 groundwater samples. The average concentration of the groundwater sample and its duplicate sample were used in the risk assessment.
Accuracy – How were split samples handled?	Split samples were not collected.

TABLE G.1-2
DATA USABILITY WORKSHEET
SITE: SSAs 18, 72, 30, 79, 30, and 77
MEDIUM: Groundwater

Activity	Comment
Representativeness – Indicate any problems associated with data representativeness (e.g., trip blank or rinsate blank contamination, COC problems, etc.).	No significant issues regarding data representativeness were noted.
Completeness – Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	No significant issues regarding completeness of the data were noted. The overall completeness goal of 90±2% for field activities was exceeded for analytical analysis and field data collection.
Comparability – Indicate any problems associated with data comparability.	No significant issues regarding comparability of the data were noted.
Were the DQOs specified in the QAPP satisfied?	Yes, the DQOs specified in the QAPP were satisfied.
Summarize the effect of DQO issues on the risk assessment, if applicable.	Not applicable.
Data Validation and Interpretation	
What are the data validation requirements for this region?	EPA Region III modifications to the National Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	EPA Region III National Functional Guidelines for Data Validation.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	Yes, there were no discrepancies.
Were all data qualifiers defined? Discuss those which were not.	Yes, they were defined in the guidance document, data validation reports included in Appendix G.2 of the SSP Report, and in the data tables included in Section 6.0 of the SSP Report.
Which qualifiers represent usable data?	B, J, L, U
Which qualifiers represent unusable data?	R
How are tentatively identified compounds handled?	Detected tentatively identified compounds are qualified NJ. These compounds are not used in the risk assessment.
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Section 6.0 of the SSP Report discusses uncertainties associated with qualified data.
Additional notes:	None.

Table G.1-2
Detected Analytes in Groundwater Field Blanks
SSP Report for SSAs 18, 72, 30, 79, 60, and 77
Radford Army Ammunition Plant, Radford, Virginia

Sample ID Sample Date	Units	EQBK-1 11/11/2009		MDL	RL
		Result	LQ, VQ, r		
Asbestos					
Asbestos	MFL	<0.72	U	0.20	0.72

Notes
MFL = Million Fibers per Liter
MDL = Method Detection Limit
RL = Reporting Limit
LQ = Laboratory Qualifier
VQ = Validation Qualifier
r = Reason Code

Data Qualifiers
U = The compound was analyzed for but not detected. The reporting limit will be adjusted to reflect any dilution, and for soil, the percent moisture.

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APPENDIX G.2

DATA VALIDATION REPORTS AND LABORATORY ANALYTICAL DATA (FORM 1s)

APPENDIX G.2.1
SITE SCREENING PROCESS SAMPLING
AUGUST 2009

APPENDIX G.2.2
SITE SCREENING PROCESS SAMPLING
NOVEMBER 2009

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APPENDIX G.2.1

SITE SCREENING PROCESS SAMPLING
AUGUST 2009

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DATA VALIDATION REPORT - Level III Review

SDG No.:	**SSP0809**	**Fraction:**	**VOC, SVOC, Pesticides, PCB, Explosives, TAL Inorganics, & TOC**
Laboratory:	**TriMatrix**	**Project:**	**Radford SSP**
Reviewer:	**Andrea Sansom**	**Date:**	**October 12, 2009**

This report presents the findings of a review of the referenced data. The report consists of this summary, copies of data reports with data qualifying flags applied (as required), the completed data validation checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the USEPA Region III Modifications to the National Functional Guidelines for Organic and Inorganic Data Review as pertains to the specifics of the analytical methods employed and provisions of the approved project-specific QAPP.

Major Anomalies: For the semi-volatile organic compound analyses (SVOC), the laboratory control spikes displayed the following anomalies:

Batch	Analyte	Laboratory Control Spike (%)	Laboratory Control Spike Duplicate (%)	Control Limits (%)	Relative Percent Difference	Control Limit (%)
0909484	Benzo(a)pyrene	110	**111**	55-110	0.7	30
	Caprolactam	**22**	**15**	25-135	**39**	
	Carbazole	**137**	**135**	50-115	2	
	Dibenzofuran	**107**	104	55-105	3	
	2,4-Dichlorophenol	**106**	100	50-105	6	
	Hexachloroethane	**102**	91	30-95	11	
	2-Methylnaphthalene	**114**	105	45-105	8	
	Naphthalene	**102**	93	40-100	9	
	Pentachlorophenol	**117**	115	40-115	2	
0909647	Benzaldehyde	**4**	not applicable	50-150	-	-

The associated field sample results were non-detect for benzaldehyde and caprolactam; these results were flagged R,l. The other associated field sample results were non-detect while the laboratory control spikes displayed a positive bias; therefore, no further data qualifying action was taken. The matrix spike pair performed on field sample 77SB1A displayed the following major percent recovery anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits	RPD	Control Limit	Previously Qualified
2,4-Dinitrophenol	53	**0**	15-130	**200**	30	
3,3'-Dichlorobenzidine	**0**	**0**	10-130	0		UJ,i
4-Chloroaniline	**5**	**6**	10-95	21		
4-Nitrophenol	**0**	**0**	015-140	0		
Benzaldehyde	**0**	**0**	50-150	0		R,l

These compounds were qualified R,m in the associated soil samples, unless previously qualified for a similar laboratory control spike anomaly.

Minor Anomalies: For the volatile organic compound analyses (VOC) analyses, blanks displayed the following positive detections:

Type	Identification	Analyte	Result	Units
Batch Blank	0909550-BLK1	1,2,3-Trichlorobenzene	2.4	µg/kg
		1,2,4-Trichlorobenzene	3.8	
		2-Hexanone	1.6	
		Acetone	11	
		Methylene Chloride	1.4	
	0909550-BLK2	1,2,3-Trichlorobenzene	2.2	
		1,2,4-Trichlorobenzene	3.6	
		2-Hexanone	2.4	
	0909853-BLK1	Methylene Chloride	24	
EQBK-1	0908185-10	Acetone	4.2	µg/L
Trip Blank	0908185-11		4.5	

Positive associated field sample results less than five times (ten times for acetone and methylene chloride) the method blank detections were flagged B,z. The initial calibration 9H12016 and 9H21009 displayed correlations less than the control limit of 0.995 for 1,2-dibromo-3-chloropropane at 0.994 and 1,2-dibromoethane at 0.992, respectively. Since the associated field sample results were non-detect, no data qualifying action was taken. The continuing calibrations displayed the following percent differences (%Ds) greater than the control limit (i.e., 20%):

Date	Time	Analyte	%D	Bias
08/20/09	1609	trans-1,3-Dichloropropene	22.3	-
		Isopropylbenzene	22.7	+

The associated field sample result for trans-1,3-dichloropropene was non-detect and was flagged UJ,c. The associated field sample result was non-detect for isopropylbenzene while the continuing calibration displayed a positive bias; no data qualifying action was required. The neat analysis of field sample 60SE1 displayed an internal standard area count less than the lower control limit of 50% for 1,4-dichlorobenzene-d_4 at 37%. The associated field sample results quantified from this internal standard were non-detect and were flagged UJ,i. The neat analysis of field sample 60SE1 displayed a surrogate percent recovery less than the lower control limit of 85% for 4-bromofluorobenzene at 76%. Positive associated field sample results were flagged J,s while non-detect results were flagged UJ,s, unless previously qualified for an internal standard anomaly. Sample 60SE1 was re-analyzed at a medium dilution with acceptable surrogate percent recoveries and internal standard area counts. The data reviewer has manually indicated the data for use on the result forms. The matrix spike pair performed on 77SB1A displayed the following percent recoveries or relative percent difference (RPD) outside the control limits:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Lower Control Limit (%)	RPD	Control Limit (%)
1,2,3-Trichlorobenzene	**53**	76	60	**35**	30
1,2,4-Trichlorobenzene	**52**	71	65	**31**	

Since the matrix spike duplicate displayed acceptable percent recoveries, no data qualifying action was taken.

For the SVOC analyses, blanks displayed the following positive detections:

Type	Identification	Analyte	Result	Units
Batch Blank	0909484-BLK1	Butyl Benzyl Phthalate	0.090	µg/L
		Diethyl Phthalate	0.050	
		Di-n-butyl Phthalate	0.35	
	0909647-BLK1	Bis(2-ethylhexyl) Phthalate	7.3	µg/kg
EQBK-1	0908185-10	Acetophenone	0.081	µg/L
		Bis(2-ethylhexyl) Phthalate	0.30	
		Butyl Benzyl Phthalate	0.39	
		Diethyl Phthalate	0.081	
		Di-n-butyl Phthalate	0.71	

Positive associated field sample results less than five times (ten times for phthalates) the method blank detections were flagged B,z. The equipment blank detections for butyl benzyl phthalate, diethylphthalate, and di-n-butylphthalate were flagged B due to method blank detections and no further data qualifying action was taken. The associated positive field sample results less than ten times the equipment blank detection for bis(2-ethylhexyl)phthalate were previously flagged for a method blank detection and no further data qualifying action was taken. The associated field sample results were non-detect for acetophenone and no data qualifying action was required. The continuing calibration check analyzed on 8/21/09 at 1438 displayed a percent difference greater than the control limit of 20% with a negative bias for 2,4-dinitrophenol at 20.4%. The associated field sample results were non-detect and were flagged UJ,c. The neat analyses of field samples 60SS1, 60SE1, 60SE2, 77SB1A, and 77SB3A displayed internal standard area counts less than the lower control limit of 50% for chrysene-d_{12} and perylene-d_{12}. The positive associated field sample results quantified from these internal standards were flagged J,i while non-detects were flagged UJ,i, unless previously flagged for a blank detection or matrix spike anomaly. These samples were re-analyzed at various dilutions with acceptable internal standard area counts. The data reviewer has manually indicated the data for use on the result forms. The matrix spike pair performed on field sample 77SB1A displayed the following percent recoveries and relative percent differences outside the laboratory generated control limits:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits	RPD	Control Limit
2,4-Dinitrotoluene	112	**147**	50-115	25	30
4,6-Dinitro-2-methylphenol	76	35	30-135	**73**	
4-Bromophenyl Phenyl Ether	**120**	**117**	45-115	3	
4-Nitroaniline	**31**	**27**	35-115	16	
Benzo(a)anthracene	**111**	99	50-110	10	
Benzo(b)fluoranthene	**134**	**118**	45-115	11	
Bis(2-ethylhexyl) Phthalate	**160**	**261**	45-125	**41**	
Butyl Benzyl Phthalate	**136**	**131**	50-125	4	
Diethyl Phthalate	**47**	75	50-115	10	
Di-n-butyl Phthalate	**128**	**395**	55-110	**84**	
Di-n-octyl Phthalate	126	**132**	40-130	5	
Hexachlorocyclopentadiene	59	37	10-113	**46**	
Phenanthrene	**117**	**132**	50-110	12	
Pyrene	**146**	**131**	45-125	9	

The parent sample result for 4-nitroaniline was non-detect and was flagged UL,m. The parent sample result for diethylphthalate was positive and was flagged L,m. The parent sample results were non-detect for 4,6-dinitro-2-methylphenol and hexachlorocyclo-pentadiene while the matrix spike pair displayed only relative percent difference anomalies; thus, no data qualifying action was deemed necessary. Positive field sample results for the remaining anomalous compounds were flagged K,m, unless previously flagged for an internal standard anomaly.

For the pesticide analyses, the equipment blank displayed positive detections for gamma-BHC at 0.0022 µg/L and heptachlor epoxide at 0.0016 µg/L. Positive associated field samples results were less than five times the blank concentration and were flagged B,x. The continuing calibrations displayed the following percent differences greater than the control limit of 15%:

Date	Time	Column	Analyte	Percent Difference	Bias
8/25/09	1437	2	gamma-Chlordane	71.0	+
8/26/09	1739	1	Toxaphene	65.4	+
		2		38.3	
	2316	1	4,4'-DDT	16.6	-
			Methoxychlor	18.8	
8/27/09	1915		Toxaphene	20.0	+
8/28/09	1012		Methoxychlor	16.1	-
	1050		Toxaphene	20.6	+
8/30/09	1803			19.2	-
		2		16.5	
8/31/09	0441		Endrin	17.4	+
	0518	1	Toxaphene	15.6	-
		2		18.7	

Positive field sample results associated with positive bias anomalies were flagged J,c. No data qualifying action was required for non-detect results reported from the passing column when the second analytical column displayed an anomaly of either bias. When both columns displayed a negative bias, the associated field sample results were non-detect and were flagged UJ,c. The separate toxaphene continuing calibrations displayed surrogate percent difference anomalies. Since the surrogates displayed acceptable percent differences in the single peak pesticide continuing calibrations, no data qualifying action was deemed necessary. The aqueous laboratory control spike for batch 0909501 displayed a percent recovery greater than the upper control limit of 125% on column 2 for beta-BHC at 134%. The associated field sample result was non-detect, thus, no data qualifying action was taken. The matrix spike pair conducting on field sample 77SB1A for batch 0909442 displayed the following anomalies:

Analyte	Matrix Spike (%)		Matrix Spike Duplicate (%)		Control Limits (%)
	Column 1	Column 2	Column 1	Column 2	
4,4'-DDE	116	**130**	103	**138**	70-125
4,4'-DDT	**206**	**366**	**191**	**388**	45-140
Dieldrin	90	**59**	81	**41**	65-125
Toxaphene	**296**	**208**	**162**	**163**	40-150

Toxaphene also displayed a relative percent difference greater than the control limit of 30% on column 1 at 59%. Since the parent sample results were non-detect for toxaphene and 4,4'-DDT, no data qualifying action was deemed necessary. The parent sample results for 4,4'-DDE and dieldrin were reported from column 1 that displayed passing matrix spike percent recoveries, thus, no data qualifying action was taken. Several positive results displayed relative percent differences greater than the control limit of 40% between the dual column concentrations. These results were flagged J,g, unless previously flagged for a blank detection or continuing calibration anomaly.

For the PCB analyses, the matrix spikes performed on field sample 77SB1A displayed percent recoveries less than the lower control limit of 60% for Aroclor-1260 on column one (58%/53%) and on column two (53%/51%). The parent sample was positive for two Aroclors and these results were flagged L,m while the non-detect parent sample results were flagged UL,m. Several positive results displayed relative percent differences greater than the control limit of 40% between the dual column concentrations. These results were flagged J,g.

For the explosives analyses, the following continuing calibrations displayed percent differences greater than the control limit (i.e., 15%):

Date	Time	Analyte	%D	Bias
08/23/09	0308	Tetryl	17.1	-
08/24/09	1019	4-Amino-2,6-dinitrotoluene	16.1	
		HMX	15.4	
	1640	Tetryl	15.5	
	2056		15.3	
08/25/09	1017	4-Amino-2,6-dinitrotoluene	15.6	
	1514	HMX	15.1	

Since the associated field sample results were non-detect while the continuing calibrations displayed a negative bias, the associated field sample results were flagged UJ,c. The continuing calibrations also displayed percent differences greater than the control limit of 15% with a negative bias for the surrogate 4-nitroaniline. Since all the field samples and batch quality control samples displayed acceptable surrogate percent recoveries, no data qualifying action was taken.

For the inorganic analyses, the method blanks displayed the following detections:

Date	Time	Identification	Analyte	Result	Units
08/17/09	1014	9H17031-CCB1	Silver	0.000034	mg/L
	1026	9H17031-CCB2		0.000028	
			Thallium	0.000013	
	1104	9H17031-CCB3	Selenium	0.00011	
	1142	9H17031-CCB4		-0.00013	
	1217	9H17031-CCB5	Silver	0.000035	
08/18/09	0949	0909448-BLK1	Calcium	15	mg/kg
			Zinc	1.4	
	1126	9H18017-CCB4	Iron	0.0071	mg/L
	1214	9H18017-CCB5		0.0061	
	1440	9H18065-CCB1	Antimony	0.00014	
	1449	9H18065-CCB2		0.000084	

Date	Time	Identification	Analyte	Result	Units
08/19/09	0909	9H19009-CCB1	Antimony	0.15	µg/L
			Arsenic	0.13	
	0932	9H19009-CCB2	Antimony	0.10	
	0936	0909625-BLK1	Zinc	2.1	
	1020	9H19009-CCB2	Cobalt	-0.0081	
	1102	9H19032-CCB1	Selenium	-0.084	
	1148	9H19032-CCB3		-0.097	
08/20/09	0836	9H20016-CCB1	Aluminum	-26	
	0856	9H20016-CCB2		-24	
	0910	EQBK-1	Iron	13	
	0923	9H20016-CCB3	Aluminum	-31	

The associated field sample results for silver, thallium, arsenic, calcium, zinc, and iron were greater than five times the blank concentrations, thus, no data qualifying action was required. The positive field sample results less than five times the blank concentrations for antimony were flagged B,o. The associated field sample results for aluminum and selenium were non-detect and were flagged UL,o. The associated positive field sample results for cobalt and selenium that were less than five times the absolute value of the negative blank detections were flagged L,o. The equipment blank EQBK-1 displayed the following detections:

Analyte	Result	Units
Iron	13	µg/L
Barium	0.34	
Chromium	0.76	
Cobalt	0.063	
Manganese	0.65	
Zinc	11	

The associated field sample results were positive and greater than five times the blank concentrations; no data qualifying action was required. The 6020 sequence 9H17031 analyzed on 08/17/09 displayed a positive detection greater than the reporting limit for the unspiked element nickel. Since the samples were not analyzed for interfering elements during this analysis, the presence of interfering elements at concentrations approximate to the ICS was evaluated and confirmed in the 6010 raw data. The field sample results were positive for nickel at concentrations greater than five times the value reported in the ICS, thus no data qualifying action was taken. The matrix spike pair performed on field sample 77SB1A displayed the following anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits	RPD	Control Limit
Barium	102	**157**	80-120	10	20
Calcium	86	**428**		**25**	
Mercury	**121**	**56**		16	
Nickel	**67**	**62**		3	
Selenium	**79**	**79**		0.2	
Vanadium	**76**	**71**		2	

The associated field sample results were positive for barium and calcium; these results were flagged K,m. The associated field sample results were positive for nickel, selenium, and vanadium; these results were flagged L,m, unless previously flagged for a blank detection. Positive associated field sample results for mercury were flagged J,m. The field duplicate pair conducted on parent sample 60SS4 displayed a relative percent difference greater than the control limit of 35% for copper at 54.9%. The associated field duplicate sample results were positive and were flagged J,f.

Correctable Anomalies: Due to laboratory capability limitations, the sample summary forms displayed an analytical date of 8/19/09 even though Aroclor 1262 and 1268 were manually noted as not being a match on raw data collected during the analysis conducted from 8/20/09 through 8/21/09 and positive Aroclor 1254 results were reported from data collected during the analysis conducted from 8/20/09 through 8/21/09 after a five point initial calibration for Aroclor 1254.

Comments: The samples are dried prior to metals digestion; the results are not adjusted for percent solids. In addition, the preparation volumes do not adjust the MDL/MRL until a greater than 6% difference in the default amount and actual amount is observed. Due to the abundance of target compounds, most of the samples were analyzed at dilutions for several metal analytes. Therefore, the reporting limits for these constituents were elevated. No anomalies were encountered if a given fraction was not mentioned. Except for data flagged "R", data are usable as qualified for their intended purpose based on the data reviewed.

Signed: Andrea Sansom

Andrea Sansom

Radford SSP
SSP0809

Field Sample Identification	Laboratory Sample Identification	Date Sampled	VOC	SVOC	Pesticides	PCB	Explosives, NG, PETN	TAL Inorganics	TOC
60SS1	0908176-01	8/10/2009	X	X	X	X	X	X	
60SS2	0908176-02	8/10/2009	X	X	X	X	X	X	
60SS3	0908176-03	8/10/2009	X	X	X	X	X	X	
60SS4	0908176-04	8/10/2009	X	X	X	X	X	X	
60SS5	0908176-05	8/10/2009	X	X	X	X	X	X	
60SE1	0908176-06	8/10/2009	X	X	X	X	X	X	
60SE2	0908176-07	8/10/2009	X	X	X	X	X	X	
DUP-1	0908176-08	8/10/2009	X	X	X	X	X	X	
60SS3	0908185-01	8/11/2009							X
60TP1	0908185-02	8/11/2009	X	X	X	X	X	X	X
77SB1A	0908185-03	8/11/2009	X	X	X	X	X	X	
77SB1B	0908185-04	8/11/2009	X	X	X	X	X	X	
77SB3A	0908185-05	8/11/2009	X	X	X	X	X	X	
77SB3B	0908185-06	8/11/2009	X	X	X	X	X	X	
77SB2A	0908185-07	8/11/2009	X	X	X	X	X	X	X
77SB2B	0908185-08	8/11/2009	X	X	X	X	X	X	X
77SB4B	0908185-09	8/11/2009	X	X	X	X	X	X	
EQBK-1	0908185-10	8/11/2009	X	X	X	X	X	X	
Trip Blank	0908185-11	8/11/2009	X						

Radford SSP

Duplicate Statistics

Client Sample ID:			**60SS4**		**DUP-1**					
Lab Sample ID:			**0908176-04**		**0908176-08**					
Date Sampled:			**8/10/09**		**8/10/09**					
	Units	**RL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
Organics										
Acetone	ug/kg	35	35	U	11	JD	104.3%	**24**	70	Pass
Toluene	ug/kg	6.3	1	J	1.1	JD	9.5%	**0.1**	12.6	Pass
2-Methylnaphthalene	ug/kg	220	220	U	1.7	J	196.9%	**218.3**	440	Pass
Benzo(a)anthracene	ug/kg	22	5.1	J	6.8	J	28.6%	**1.7**	44	Pass
Benzo(a)pyrene	ug/kg	22	6.3	J	7.7	J	20.0%	**1.4**	44	Pass
Benzo(b)fluoranthene	ug/kg	22	10	J	16	J	46.2%	**6**	44	Pass
Benzo(g,h,i)perylene	ug/kg	85	5.1	J	7.3	J	35.5%	**2.2**	170	Pass
Benzo(k)fluoranthene	ug/kg	22	3.4	J	5.6	J	48.9%	**2.2**	44	Pass
Bis(2-ethylhexyl) Phthalate	ug/kg	220	22	JB	28	JB	24.0%	**6**	440	Pass
Butyl Benzyl Phthalate	ug/kg	220	8.9	J	8.1	J	9.4%	**0.8**	440	Pass
Chrysene	ug/kg	22	6.3	J	10	J	45.4%	**3.7**	44	Pass
Fluoranthene	ug/kg	22	7.6	J	12	J	44.9%	**4.4**	44	Pass
Indeno(1,2,3-cd)pyrene	ug/kg	86	86	U	6	J	173.9%	**80**	172	Pass
Phenanthrene	ug/kg	22	3.4	J	6.8	J	66.7%	**3.4**	44	Pass
Pyrene	ug/kg	22	8.5	J	17	J	66.7%	**8.5**	44	Pass
4,4'-DDD	mg/kg	0.022	0.0025	J	0.022	U	159.2%	**0.0195**	0.044	Pass
4,4'-DDD [2C]	mg/kg	0.022	0.0017	J	0.022	U	171.3%	**0.0203**	0.044	Pass
4,4'-DDE	mg/kg	0.022	0.032		0.022	U	37.0%	**0.01**	0.044	Pass
4,4'-DDE [2C]	mg/kg	0.022	0.00042	J	0.022	U	192.5%	**0.02158**	0.044	Pass
gamma-Chlordane	mg/kg	0.022	0.022	U	0.0011	J	181.0%	**0.0209**	0.044	Pass
gamma-Chlordane [2C]	mg/kg	0.022	0.022	U	0.0023	J	162.1%	**0.0197**	0.044	Pass
Heptachlor Epoxide	mg/kg	0.022	0.022	U	0.00051	J	190.9%	**0.02149**	0.044	Pass
Heptachlor Epoxide [2C]	mg/kg	0.022	0.022	U	0.0016	J	172.9%	**0.0204**	0.044	Pass
PCB-1254	ug/kg	42	23	J	46		66.7%	**23**	84	Pass
PCB-1254 [2C]	ug/kg	42	21	J	45		72.7%	**24**	84	Pass
PCB-1260	ug/kg	85	12	J	11	J	8.7%	**1**	170	Pass
PCB-1260 [2C]	ug/kg	85	19	J	24	J	23.3%	**5**	170	Pass
TAL Inorganics										
Aluminum	mg/kg	10	21000		22000		**4.7%**	1000	20	Pass
Barium	mg/kg	1	94		94		**0.0%**	0	2	Pass
Beryllium	mg/kg	1	1.2		1.2		**0.0%**	0	2	Pass
Cadmium	mg/kg	2	0.95	J	1	J	5.1%	**0.05**	4	Pass
Calcium	mg/kg	50	26000		28000		**7.4%**	2000	100	Pass
Chromium	mg/kg	5	29		30		**3.4%**	1	10	Pass
Cobalt	mg/kg	2	11		12		**8.7%**	1	4	Pass
Iron	mg/kg	10	29000		29000		**0.0%**	0	20	Pass
Magnesium	mg/kg	50	20000		21000		**4.9%**	1000	100	Pass
Manganese	mg/kg	1	650		640		**1.6%**	10	2	Pass
Potassium	mg/kg	50	1800		2000		**10.5%**	200	100	Pass
Sodium	mg/kg	100	60	J	62	J	3.3%	**2**	200	Pass
Zinc	mg/kg	5	93	B	95	B	**2.1%**	2	10	Pass
Antimony	mg/kg	0.2	0.34		0.38		**11.1%**	0.04	0.4	Pass
Arsenic	mg/kg	0.1	8.8		9.4		**6.6%**	0.6	0.2	Pass
Copper	mg/kg	0.2	37		65	D	**54.9%**	28	0.4	**Fail**
Lead	mg/kg	0.2	28		25		**11.3%**	3	0.4	Pass
Nickel	mg/kg	0.1	21		24		**13.3%**	3	0.2	Pass
Selenium	mg/kg	0.2	0.53		0.39		**30.4%**	0.14	0.4	Pass
Silver	mg/kg	0.1	0.11		0.11		**0.0%**	0	0.2	Pass
Thallium	mg/kg	0.1	0.22		0.18		**20.0%**	0.04	0.2	Pass
Vanadium	mg/kg	0.1	41		41		**0.0%**	0	0.2	Pass
Mercury	mg/kg	0.05	0.057		0.055		**3.6%**	0.002	0.1	Pass
Cyanide, Total	mg/kg	0.38	0.12	J	0.38	U	104.0%	**0.26**	0.76	Pass
Percent Solids	%	0.1	79		78		**1.3%**	1	0.2	Pass

Control limit Organics: [sample]>RL use 60%; [sample]<RL use Δ<2*RL
Metals: [sample]>RL use 35%; [sample]<RL use Δ<2*RL

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: 0908176-01.D

Sampled: 08/10/09 13:15 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 11:27

Solids: 86.40 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.7 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	25	25	3.8	U
71-43-2	Benzene	1	6.2	6.2	0.26	U
74-97-5	Bromochloromethane	1	25	25	0.54	U
75-27-4	Bromodichloromethane	1	6.2	6.2	1.1	U
75-25-2	Bromoform	1	6.2	6.2	0.57	U
74-83-9	Bromomethane	1	6.2	6.2	1.2	U
75-15-0	Carbon Disulfide	1	6.2	6.2	0.42	U
56-23-5	Carbon Tetrachloride	1	6.2	6.2	0.83	U
108-90-7	Chlorobenzene	1	6.2	6.2	0.97	U
75-00-3	Chloroethane	1	25	25	0.97	U
67-66-3	Chloroform	1	6.2	6.2	0.28	U
74-87-3	Chloromethane	1	6.2	6.2	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.2	6.2	0.57	U
106-93-4	1,2-Dibromoethane	1	6.2	6.2	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.2	6.2	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.2	6.2	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.2	6.2	0.58	U
75-71-8	Dichlorodifluoromethane	1	6.2	6.2	0.43	U
75-34-3	1,1-Dichloroethane	1	6.2	6.2	0.38	U
107-06-2	1,2-Dichloroethane	1	6.2	6.2	0.45	U
75-35-4	1,1-Dichloroethene	1	6.2	6.2	0.87	U
156-59-2	cis-1,2-Dichloroethene	1	6.2	6.2	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.2	6.2	1.0	U
78-87-5	1,2-Dichloropropane	1	6.2	6.2	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.2	6.2	0.52	U
10061-02-6	trans-1,3-Dichloropropene	1	6.2	6.2	0.37	U
100-41-4	Ethylbenzene	1	6.2	6.2	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.2	6.2	0.24	U
79-20-9	Methyl Acetate	1	25	25	3.0	U
1634-04-4	Methyl tert-Butyl Ether	1	6.2	6.2	0.60	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	25	25	1.5	U
78-93-3	2-Butanone (MEK)	1	25	25	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.2	6.2	0.96	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.2	6.2	0.96	U
127-18-4	Tetrachloroethene	1	6.2	6.2	0.92	U
108-88-3	Toluene	1	6.2	6.2	0.74	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: 0908176-01.D

Sampled: 08/10/09 13:15 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 11:27

Solids: 86.40 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.7 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.48	U
120-82-1	1,2,4-Trichlorobenzene	1	6.2	6.2	0.88	U
71-55-6	1,1,1-Trichloroethane	1	6.2	6.2	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.2	6.2	1.1	U
79-01-6	Trichloroethene	1	6.2	6.2	0.53	U
75-69-4	Trichlorofluoromethane	1	6.2	6.2	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.2	6.2	0.65	U
75-01-4	Vinyl Chloride	1	6.2	6.2	0.32	U
1330-20-7	Xylene (Total)	1	6.2	6.2	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	37.4	94	78 - 121	
1,2-Dichloroethane-d4	40.0	36.6	91	66 - 124	
Toluene-d8	40.0	37.9	95	85 - 115	
4-Bromofluorobenzene	40.0	38.4	96	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	892063	4.27	947725	4.28	
Chlorobenzene-d5	541237	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	228956	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: 0908176-02.D

Sampled: 08/10/09 13:50 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 12:00

Solids: 76.49 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	7.4	28	4.4	JB
71-43-2	Benzene	1	7.1	7.1	0.30	U
74-97-5	Bromochloromethane	1	28	28	0.63	U
75-27-4	Bromodichloromethane	1	7.1	7.1	1.2	U
75-25-2	Bromoform	1	7.1	7.1	0.66	U
74-83-9	Bromomethane	1	7.1	7.1	1.4	U
75-15-0	Carbon Disulfide	1	7.1	7.1	0.48	U
56-23-5	Carbon Tetrachloride	1	7.1	7.1	0.96	U
108-90-7	Chlorobenzene	1	7.1	7.1	1.1	U
75-00-3	Chloroethane	1	28	28	1.1	U
67-66-3	Chloroform	1	7.1	7.1	0.33	U
74-87-3	Chloromethane	1	7.1	7.1	0.59	U
110-82-7	Cyclohexane	1	14	14	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.9	U
124-48-1	Dibromochloromethane	1	7.1	7.1	0.66	U
106-93-4	1,2-Dibromoethane	1	7.1	7.1	1.2	U
95-50-1	1,2-Dichlorobenzene	1	7.1	7.1	0.37	U
541-73-1	1,3-Dichlorobenzene	1	7.1	7.1	0.55	U
106-46-7	1,4-Dichlorobenzene	1	7.1	7.1	0.67	U
75-71-8	Dichlorodifluoromethane	1	7.1	7.1	0.50	U
75-34-3	1,1-Dichloroethane	1	7.1	7.1	0.44	U
107-06-2	1,2-Dichloroethane	1	7.1	7.1	0.52	U
75-35-4	1,1-Dichloroethene	1	7.1	7.1	1.0	U
156-59-2	cis-1,2-Dichloroethene	1	7.1	7.1	0.40	U
156-60-5	trans-1,2-Dichloroethene	1	7.1	7.1	1.2	U
78-87-5	1,2-Dichloropropane	1	7.1	7.1	0.52	U
10061-01-5	cis-1,3-Dichloropropene	1	7.1	7.1	0.60	U
10061-02-6	trans-1,3-Dichloropropene	1	7.1	7.1	0.43	U
100-41-4	Ethylbenzene	1	7.1	7.1	0.22	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	7.1	7.1	0.28	U
79-20-9	Methyl Acetate	1	28	28	3.4	U
1634-04-4	Methyl tert-Butyl Ether	1	7.1	7.1	0.69	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	28	28	1.8	U
78-93-3	2-Butanone (MEK)	1	28	28	3.3	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	7.1	7.1	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.1	7.1	1.1	U
127-18-4	Tetrachloroethene	1	7.1	7.1	1.1	U
108-88-3	Toluene	1	7.1	7.1	0.85	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: 0908176-02.D

Sampled: 08/10/09 13:50 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 12:00

Solids: 76.49 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	28	28	0.56	U
120-82-1	1,2,4-Trichlorobenzene	1	7.1	7.1	1.0	U
71-55-6	1,1,1-Trichloroethane	1	7.1	7.1	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.1	7.1	1.3	U
79-01-6	Trichloroethene	1	7.1	7.1	0.62	U
75-69-4	Trichlorofluoromethane	1	7.1	7.1	0.44	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.1	7.1	0.74	U
75-01-4	Vinyl Chloride	1	7.1	7.1	0.37	U
1330-20-7	Xylene (Total)	1	7.1	7.1	1.5	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.6	99	78 - 121	
1,2-Dichloroethane-d4	40.0	41.5	104	66 - 124	
Toluene-d8	40.0	38.3	96	85 - 115	
4-Bromofluorobenzene	40.0	37.3	93	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	897245	4.28	947725	4.28	
Chlorobenzene-d5	583556	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	268037	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: 0908176-03.D

Sampled: 08/10/09 14:10 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 12:32

Solids: 92.04 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.8	U
71-43-2	Benzene	1	6.0	6.0	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.53	U
75-27-4	Bromodichloromethane	1	6.0	6.0	1.1	U
75-25-2	Bromoform	1	6.0	6.0	0.56	U
74-83-9	Bromomethane	1	6.0	6.0	1.2	U
75-15-0	Carbon Disulfide	1	6.0	6.0	0.41	U
56-23-5	Carbon Tetrachloride	1	6.0	6.0	0.81	U
108-90-7	Chlorobenzene	1	6.0	6.0	0.95	U
75-00-3	Chloroethane	1	24	24	0.95	U
67-66-3	Chloroform	1	6.0	6.0	0.28	U
74-87-3	Chloromethane	1	6.0	6.0	0.50	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.0	6.0	0.56	U
106-93-4	1,2-Dibromoethane	1	6.0	6.0	0.99	U
95-50-1	1,2-Dichlorobenzene	1	6.0	6.0	0.31	U
541-73-1	1,3-Dichlorobenzene	1	6.0	6.0	0.46	U
106-46-7	1,4-Dichlorobenzene	1	6.0	6.0	0.57	U
75-71-8	Dichlorodifluoromethane	1	6.0	6.0	0.42	U
75-34-3	1,1-Dichloroethane	1	6.0	6.0	0.38	U
107-06-2	1,2-Dichloroethane	1	6.0	6.0	0.44	U
75-35-4	1,1-Dichloroethene	1	6.0	6.0	0.86	U
156-59-2	cis-1,2-Dichloroethene	1	6.0	6.0	0.34	U
156-60-5	trans-1,2-Dichloroethene	1	6.0	6.0	0.98	U
78-87-5	1,2-Dichloropropane	1	6.0	6.0	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.0	6.0	0.51	U
10061-02-6	trans-1,3-Dichloropropene	1	6.0	6.0	0.36	U
100-41-4	Ethylbenzene	1	6.0	6.0	0.18	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.0	6.0	0.24	U
79-20-9	Methyl Acetate	1	24	24	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.0	6.0	0.59	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	24	24	1.5	U
78-93-3	2-Butanone (MEK)	1	24	24	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.0	6.0	0.94	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.0	6.0	0.95	U
127-18-4	Tetrachloroethene	1	6.0	6.0	0.90	U
108-88-3	Toluene	1	6.0	6.0	0.72	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: 0908176-03.D

Sampled: 08/10/09 14:10 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 12:32

Solids: 92.04 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.47	U
120-82-1	1,2,4-Trichlorobenzene	1	6.0	6.0	0.86	U
71-55-6	1,1,1-Trichloroethane	1	6.0	6.0	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.0	6.0	1.1	U
79-01-6	Trichloroethene	1	6.0	6.0	0.52	U
75-69-4	Trichlorofluoromethane	1	6.0	6.0	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.0	6.0	0.63	U
75-01-4	Vinyl Chloride	1	6.0	6.0	0.31	U
1330-20-7	Xylene (Total)	1	6.0	6.0	1.2	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	35.4	89	78 - 121	
1,2-Dichloroethane-d4	40.0	36.9	92	66 - 124	
Toluene-d8	40.0	38.0	95	85 - 115	
4-Bromofluorobenzene	40.0	34.9	87	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	827234	4.28	947725	4.28	
Chlorobenzene-d5	487521	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	195613	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS4

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-04 File ID: 0908176-04.D

Sampled: 08/10/09 16:15 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 13:05

Solids: 78.77 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.9 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	25	25	4.0	U
71-43-2	Benzene	1	6.3	6.3	0.27	U
74-97-5	Bromochloromethane	1	25	25	0.56	U
75-27-4	Bromodichloromethane	1	6.3	6.3	1.1	U
75-25-2	Bromoform	1	6.3	6.3	0.59	U
74-83-9	Bromomethane	1	6.3	6.3	1.2	U
75-15-0	Carbon Disulfide	1	6.3	6.3	0.43	U
56-23-5	Carbon Tetrachloride	1	6.3	6.3	0.86	U
108-90-7	Chlorobenzene	1	6.3	6.3	1.0	U
75-00-3	Chloroethane	1	25	25	1.0	U
67-66-3	Chloroform	1	6.3	6.3	0.29	U
74-87-3	Chloromethane	1	6.3	6.3	0.53	U
110-82-7	Cyclohexane	1	13	13	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.6	U
124-48-1	Dibromochloromethane	1	6.3	6.3	0.59	U
106-93-4	1,2-Dibromoethane	1	6.3	6.3	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.3	6.3	0.33	U
541-73-1	1,3-Dichlorobenzene	1	6.3	6.3	0.49	U
106-46-7	1,4-Dichlorobenzene	1	6.3	6.3	0.60	U
75-71-8	Dichlorodifluoromethane	1	6.3	6.3	0.45	U
75-34-3	1,1-Dichloroethane	1	6.3	6.3	0.40	U
107-06-2	1,2-Dichloroethane	1	6.3	6.3	0.46	U
75-35-4	1,1-Dichloroethene	1	6.3	6.3	0.90	U
156-59-2	cis-1,2-Dichloroethene	1	6.3	6.3	0.36	U
156-60-5	trans-1,2-Dichloroethene	1	6.3	6.3	1.0	U
78-87-5	1,2-Dichloropropane	1	6.3	6.3	0.47	U
10061-01-5	cis-1,3-Dichloropropene	1	6.3	6.3	0.53	U
10061-02-6	trans-1,3-Dichloropropene	1	6.3	6.3	0.38	U
100-41-4	Ethylbenzene	1	6.3	6.3	0.19	U
591-78-6	2-Hexanone	1	13	13	1.3	U
98-82-8	Isopropylbenzene	1	6.3	6.3	0.25	U
79-20-9	Methyl Acetate	1	25	25	3.0	U
1634-04-4	Methyl tert-Butyl Ether	1	6.3	6.3	0.62	U
108-87-2	Methylcyclohexane	1	13	13	1.1	U
75-09-2	Methylene Chloride	1	25	25	1.6	U
78-93-3	2-Butanone (MEK)	1	25	25	2.9	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.23	U
100-42-5	Styrene	1	6.3	6.3	0.99	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.3	6.3	0.99	U
127-18-4	Tetrachloroethene	1	6.3	6.3	0.95	U
108-88-3	Toluene	1	1.0	6.3	0.76	J

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS4

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-04 File ID: 0908176-04.D

Sampled: 08/10/09 16:15 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 13:05

Solids: 78.77 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.9 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.50	U
120-82-1	1,2,4-Trichlorobenzene	1	6.3	6.3	0.90	U
71-55-6	1,1,1-Trichloroethane	1	6.3	6.3	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.3	6.3	1.2	U
79-01-6	Trichloroethene	1	6.3	6.3	0.55	U
75-69-4	Trichlorofluoromethane	1	6.3	6.3	0.40	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.3	6.3	0.67	U
75-01-4	Vinyl Chloride	1	6.3	6.3	0.33	U
1330-20-7	Xylene (Total)	1	6.3	6.3	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.0	98	78 - 121	
1,2-Dichloroethane-d4	40.0	39.9	100	66 - 124	
Toluene-d8	40.0	38.0	95	85 - 115	
4-Bromofluorobenzene	40.0	35.6	89	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	842743	4.28	947725	4.28	
Chlorobenzene-d5	521180	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	223290	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: 0908176-05A.D

Sampled: 08/10/09 16:00 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 15:46

Solids: 70.71 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.8 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	37	37	5.8	U
71-43-2	Benzene	1	9.3	9.3	0.39	U
74-97-5	Bromochloromethane	1	37	37	0.82	U
75-27-4	Bromodichloromethane	1	9.3	9.3	1.6	U
75-25-2	Bromoform	1	9.3	9.3	0.86	U
74-83-9	Bromomethane	1	9.3	9.3	1.8	U
75-15-0	Carbon Disulfide	1	9.3	9.3	0.63	U
56-23-5	Carbon Tetrachloride	1	9.3	9.3	1.3	U
108-90-7	Chlorobenzene	1	9.3	9.3	1.5	U
75-00-3	Chloroethane	1	37	37	1.5	U
67-66-3	Chloroform	1	9.3	9.3	0.43	U
74-87-3	Chloromethane	1	9.3	9.3	0.78	U
110-82-7	Cyclohexane	1	19	19	1.5	U
96-12-8	1,2-Dibromo-3-chloropropane	1	19	19	3.8	U
124-48-1	Dibromochloromethane	1	9.3	9.3	0.87	U
106-93-4	1,2-Dibromoethane	1	9.3	9.3	1.5	U
95-50-1	1,2-Dichlorobenzene	1	9.3	9.3	0.48	U
541-73-1	1,3-Dichlorobenzene	1	9.3	9.3	0.71	U
106-46-7	1,4-Dichlorobenzene	1	9.3	9.3	0.87	U
75-71-8	Dichlorodifluoromethane	1	9.3	9.3	0.66	U
75-34-3	1,1-Dichloroethane	1	9.3	9.3	0.58	U
107-06-2	1,2-Dichloroethane	1	9.3	9.3	0.68	U
75-35-4	1,1-Dichloroethene	1	9.3	9.3	1.3	U
156-59-2	cis-1,2-Dichloroethene	1	9.3	9.3	0.53	U
156-60-5	trans-1,2-Dichloroethene	1	9.3	9.3	1.5	U
78-87-5	1,2-Dichloropropane	1	9.3	9.3	0.69	U
10061-01-5	cis-1,3-Dichloropropene	1	9.3	9.3	0.78	U
10061-02-6	trans-1,3-Dichloropropene	1	9.3	9.3	0.56	U
100-41-4	Ethylbenzene	1	9.3	9.3	0.28	U
591-78-6	2-Hexanone	1	19	19	2.0	U
98-82-8	Isopropylbenzene	1	9.3	9.3	0.36	U
79-20-9	Methyl Acetate	1	37	37	4.5	U
1634-04-4	Methyl tert-Butyl Ether	1	9.3	9.3	0.91	U
108-87-2	Methylcyclohexane	1	19	19	1.6	U
75-09-2	Methylene Chloride	1	37	37	2.3	U
78-93-3	2-Butanone (MEK)	1	37	37	4.3	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	19	19	0.33	U
100-42-5	Styrene	1	9.3	9.3	1.4	U
79-34-5	1,1,2,2-Tetrachloroethane	1	9.3	9.3	1.5	U
127-18-4	Tetrachloroethene	1	9.3	9.3	1.4	U
108-88-3	Toluene	1	9.3	9.3	1.1	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: 0908176-05A.D

Sampled: 08/10/09 16:00 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 15:46

Solids: 70.71 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.8 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	37	37	0.73	U
120-82-1	1,2,4-Trichlorobenzene	1	9.3	9.3	1.3	U
71-55-6	1,1,1-Trichloroethane	1	9.3	9.3	1.6	U
79-00-5	1,1,2-Trichloroethane	1	9.3	9.3	1.7	U
79-01-6	Trichloroethene	1	9.3	9.3	0.81	U
75-69-4	Trichlorofluoromethane	1	9.3	9.3	0.58	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	9.3	9.3	0.98	U
75-01-4	Vinyl Chloride	1	9.3	9.3	0.48	U
1330-20-7	Xylene (Total)	1	9.3	9.3	1.9	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.7	99	78 - 121	
1,2-Dichloroethane-d4	40.0	40.2	101	66 - 124	
Toluene-d8	40.0	38.0	95	85 - 115	
4-Bromofluorobenzene	40.0	34.7	87	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	853085	4.28	947725	4.28	
Chlorobenzene-d5	518998	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	196477	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: 0908176-06.D

Sampled: 08/10/09 15:55 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 14:10

Solids: 67.98 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	37	37	5.7	U UJ, S
71-43-2	Benzene	1	9.2	9.2	0.38	U
74-97-5	Bromochloromethane	1	37	37	0.81	U
75-27-4	Bromodichloromethane	1	9.2	9.2	1.6	U
75-25-2	Bromoform	1	9.2	9.2	0.85	U
74-83-9	Bromomethane	1	9.2	9.2	1.8	U
75-15-0	Carbon Disulfide	1	9.2	9.2	0.62	U
56-23-5	Carbon Tetrachloride	1	9.2	9.2	1.2	U
108-90-7	Chlorobenzene	1	9.2	9.2	1.4	U
75-00-3	Chloroethane	1	37	37	1.4	U
67-66-3	Chloroform	1	9.2	9.2	0.42	U
74-87-3	Chloromethane	1	9.2	9.2	0.77	U
110-82-7	Cyclohexane	1	18	18	1.5	U L
96-12-8	1,2-Dibromo-3-chloropropane	1	18	18	3.8	U UJ, I
124-48-1	Dibromochloromethane	1	9.2	9.2	0.86	U UJ, S
106-93-4	1,2-Dibromoethane	1	9.2	9.2	1.5	U L
95-50-1	1,2-Dichlorobenzene	1	9.2	9.2	0.48	U UJ, I
541-73-1	1,3-Dichlorobenzene	1	9.2	9.2	0.71	U UJ, I
106-46-7	1,4-Dichlorobenzene	1	9.2	9.2	0.86	U UJ, I
75-71-8	Dichlorodifluoromethane	1	9.2	9.2	0.65	U UJ, S
75-34-3	1,1-Dichloroethane	1	9.2	9.2	0.57	U
107-06-2	1,2-Dichloroethane	1	9.2	9.2	0.67	U
75-35-4	1,1-Dichloroethene	1	9.2	9.2	1.3	U
156-59-2	cis-1,2-Dichloroethene	1	9.2	9.2	0.52	U
156-60-5	trans-1,2-Dichloroethene	1	9.2	9.2	1.5	U
78-87-5	1,2-Dichloropropane	1	9.2	9.2	0.68	U
10061-01-5	cis-1,3-Dichloropropene	1	9.2	9.2	0.77	U
10061-02-6	trans-1,3-Dichloropropene	1	9.2	9.2	0.56	U
100-41-4	Ethylbenzene	1	9.2	9.2	0.28	U
591-78-6	2-Hexanone	1	18	18	1.9	U L
98-82-8	Isopropylbenzene	1	9.2	9.2	0.36	U UJ, I
79-20-9	Methyl Acetate	1	37	37	4.4	U UJ, S
1634-04-4	Methyl tert-Butyl Ether	1	9.2	9.2	0.90	U
108-87-2	Methylcyclohexane	1	18	18	1.6	U
75-09-2	Methylene Chloride	1	37	37	2.3	U
78-93-3	2-Butanone (MEK)	1	37	37	4.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	18	18	0.33	U
100-42-5	Styrene	1	9.2	9.2	1.4	U
79-34-5	1,1,2,2-Tetrachloroethane	1	9.2	9.2	1.4	U UJ, I
127-18-4	Tetrachloroethene	1	9.2	9.2	1.4	U UJ, S
108-88-3	Toluene	1	1.2	9.2	1.1	J J, S

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: 0908176-06.D

Sampled: 08/10/09 15:55 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 14:10

Solids: 67.98 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	37	37	0.72	U
120-82-1	1,2,4-Trichlorobenzene	1	9.2	9.2	1.3	U
71-55-6	1,1,1-Trichloroethane	1	9.2	9.2	1.5	U
79-00-5	1,1,2-Trichloroethane	1	9.2	9.2	1.7	U
79-01-6	Trichloroethene	1	9.2	9.2	0.80	U
75-69-4	Trichlorofluoromethane	1	9.2	9.2	0.57	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	9.2	9.2	0.96	U
75-01-4	Vinyl Chloride	1	9.2	9.2	0.47	U
1330-20-7	Xylene (Total)	1	9.2	9.2	1.9	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	42.3	106	78 - 121	
1,2-Dichloroethane-d4	40.0	39.4	98	66 - 124	
Toluene-d8	40.0	41.6	104	85 - 115	
4-Bromofluorobenzene	40.0	30.3	76	85 - 120	*

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	720546	4.27	947725	4.28	
Chlorobenzene-d5	461950	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	130116	9.56	350029	9.55	*

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: 0908176-06.D

Sampled: 08/10/09 15:55 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 18:02

Solids: 67.98 Preparation: 5030B Aqueous Purge & Initial/Final: 4.2 g / 210 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	1100	1100	120	U
71-43-2	Benzene	1	74	74	21	U
74-97-5	Bromochloromethane	1	74	74	16	U
75-27-4	Bromodichloromethane	1	74	74	12	U
75-25-2	Bromoform	1	74	74	37	U
74-83-9	Bromomethane	1	74	74	45	U
75-15-0	Carbon Disulfide	1	370	370	21	U
56-23-5	Carbon Tetrachloride	1	74	74	16	U
108-90-7	Chlorobenzene	1	74	74	16	U
75-00-3	Chloroethane	1	97	97	33	U
67-66-3	Chloroform	1	74	74	17	U
74-87-3	Chloromethane	1	74	74	22	U
110-82-7	Cyclohexane	1	370	370	17	U
96-12-8	1,2-Dibromo-3-chloropropane	1	370	370	26	U
124-48-1	Dibromochloromethane	1	110	110	37	U
106-93-4	1,2-Dibromoethane	1	74	74	14	U
95-50-1	1,2-Dichlorobenzene	1	74	74	17	U
541-73-1	1,3-Dichlorobenzene	1	74	74	20	U
106-46-7	1,4-Dichlorobenzene	1	74	74	20	U
75-71-8	Dichlorodifluoromethane	1	74	74	14	U
75-34-3	1,1-Dichloroethane	1	74	74	18	U
107-06-2	1,2-Dichloroethane	1	74	74	13	U
75-35-4	1,1-Dichloroethene	1	74	74	21	U
156-59-2	cis-1,2-Dichloroethene	1	74	74	16	U
156-60-5	trans-1,2-Dichloroethene	1	75	75	24	U
78-87-5	1,2-Dichloropropane	1	74	74	16	U
10061-01-5	cis-1,3-Dichloropropene	1	74	74	13	U
10061-02-6	trans-1,3-Dichloropropene	1	74	74	10	U
100-41-4	Ethylbenzene	1	74	74	22	U
591-78-6	2-Hexanone	1	3700	3700	39	U
98-82-8	Isopropylbenzene	1	74	74	20	U
79-20-9	Methyl Acetate	1	49	370	21	J
1634-04-4	Methyl tert-Butyl Ether	1	74	74	10	U
108-87-2	Methylcyclohexane	1	370	370	13	U
75-09-2	Methylene Chloride	1	94	370	15	J
78-93-3	2-Butanone (MEK)	1	3700	3700	37	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	3700	3700	35	U
100-42-5	Styrene	1	74	74	14	U
79-34-5	1,1,2,2-Tetrachloroethane	1	74	74	21	U
127-18-4	Tetrachloroethene	1	84	84	28	U
108-88-3	Toluene	1	23	74	21	J

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: 0908176-06.D

Sampled: 08/10/09 15:55 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 18:02

Solids: 67.98 Preparation: 5030B Aqueous Purge & Initial/Final: 4.2 g / 210 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	150	150	15	U
120-82-1	1,2,4-Trichlorobenzene	1	150	150	26	U
71-55-6	1,1,1-Trichloroethane	1	74	74	23	U
79-00-5	1,1,2-Trichloroethane	1	110	110	37	U
79-01-6	Trichloroethene	1	79	79	26	U
75-69-4	Trichlorofluoromethane	1	74	74	23	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	370	370	12	U
75-01-4	Vinyl Chloride	1	74	74	18	U
1330-20-7	Xylene (Total)	1	220	220	63	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	37.4	94	78 - 121	
1,2-Dichloroethane-d4	40.0	39.8	99	66 - 124	
Toluene-d8	40.0	39.2	98	85 - 115	
4-Bromofluorobenzene	40.0	38.9	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	688149	4.28	740105	4.28	
Chlorobenzene-d5	525958	7.27	539083	7.27	
1,4-Dichlorobenzene-d4	262325	9.55	287402	9.55	

* Values outside of QC limits

See next pg.

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: 0908176-07.D

Sampled: 08/10/09 15:40 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 14:42

Solids: 59.69 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	12	36	5.7	JB
71-43-2	Benzene	1	9.1	9.1	0.38	U
74-97-5	Bromochloromethane	1	36	36	0.80	U
75-27-4	Bromodichloromethane	1	9.1	9.1	1.6	U
75-25-2	Bromoform	1	9.1	9.1	0.84	U
74-83-9	Bromomethane	1	9.1	9.1	1.8	U
75-15-0	Carbon Disulfide	1	9.1	9.1	0.62	U
56-23-5	Carbon Tetrachloride	1	9.1	9.1	1.2	U
108-90-7	Chlorobenzene	1	9.1	9.1	1.4	U
75-00-3	Chloroethane	1	36	36	1.4	U
67-66-3	Chloroform	1	9.1	9.1	0.42	U
74-87-3	Chloromethane	1	9.1	9.1	0.76	U
110-82-7	Cyclohexane	1	18	18	1.5	U
96-12-8	1,2-Dibromo-3-chloropropane	1	18	18	3.8	U
124-48-1	Dibromochloromethane	1	9.1	9.1	0.85	U
106-93-4	1,2-Dibromoethane	1	9.1	9.1	1.5	U
95-50-1	1,2-Dichlorobenzene	1	9.1	9.1	0.47	U
541-73-1	1,3-Dichlorobenzene	1	9.1	9.1	0.70	U
106-46-7	1,4-Dichlorobenzene	1	9.1	9.1	0.86	U
75-71-8	Dichlorodifluoromethane	1	9.1	9.1	0.64	U
75-34-3	1,1-Dichloroethane	1	9.1	9.1	0.57	U
107-06-2	1,2-Dichloroethane	1	9.1	9.1	0.66	U
75-35-4	1,1-Dichloroethene	1	9.1	9.1	1.3	U
156-59-2	cis-1,2-Dichloroethene	1	9.1	9.1	0.52	U
156-60-5	trans-1,2-Dichloroethene	1	9.1	9.1	1.5	U
78-87-5	1,2-Dichloropropane	1	9.1	9.1	0.67	U
10061-01-5	cis-1,3-Dichloropropene	1	9.1	9.1	0.77	U
10061-02-6	trans-1,3-Dichloropropene	1	9.1	9.1	0.55	U
100-41-4	Ethylbenzene	1	9.1	9.1	0.28	U
591-78-6	2-Hexanone	1	18	18	1.9	U
98-82-8	Isopropylbenzene	1	9.1	9.1	0.36	U
79-20-9	Methyl Acetate	1	36	36	4.4	U
1634-04-4	Methyl tert-Butyl Ether	1	9.1	9.1	0.89	U
108-87-2	Methylcyclohexane	1	18	18	1.6	U
75-09-2	Methylene Chloride	1	3.0	36	2.3	J
78-93-3	2-Butanone (MEK)	1	36	36	4.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	18	18	0.33	U
100-42-5	Styrene	1	9.1	9.1	1.4	U
79-34-5	1,1,2,2-Tetrachloroethane	1	9.1	9.1	1.4	U
127-18-4	Tetrachloroethene	1	9.1	9.1	1.4	U
108-88-3	Toluene	1	9.1	9.1	1.1	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: 0908176-07.D

Sampled: 08/10/09 15:40 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 14:42

Solids: 59.69 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	36	36	0.71	U
120-82-1	1,2,4-Trichlorobenzene	1	9.1	9.1	1.3	U
71-55-6	1,1,1-Trichloroethane	1	9.1	9.1	1.5	U
79-00-5	1,1,2-Trichloroethane	1	9.1	9.1	1.7	U
79-01-6	Trichloroethene	1	9.1	9.1	0.79	U
75-69-4	Trichlorofluoromethane	1	9.1	9.1	0.57	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	9.1	9.1	0.95	U
75-01-4	Vinyl Chloride	1	9.1	9.1	0.47	U
1330-20-7	Xylene (Total)	1	9.1	9.1	1.9	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.9	100	78 - 121	
1,2-Dichloroethane-d4	40.0	41.0	103	66 - 124	
Toluene-d8	40.0	38.8	97	85 - 115	
4-Bromofluorobenzene	40.0	36.2	91	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	869742	4.28	947725	4.28	
Chlorobenzene-d5	559341	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	228341	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: 0908176-08A.D

Sampled: 08/10/09 00:00 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 16:51

Solids: 78.01 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.7 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	11	35	5.4	JB
71-43-2	Benzene	1	8.7	8.7	0.36	U
74-97-5	Bromochloromethane	1	35	35	0.77	U
75-27-4	Bromodichloromethane	1	8.7	8.7	1.5	U
75-25-2	Bromoform	1	8.7	8.7	0.80	U
74-83-9	Bromomethane	1	8.7	8.7	1.7	U
75-15-0	Carbon Disulfide	1	8.7	8.7	0.59	U
56-23-5	Carbon Tetrachloride	1	8.7	8.7	1.2	U
108-90-7	Chlorobenzene	1	8.7	8.7	1.4	U
75-00-3	Chloroethane	1	35	35	1.4	U
67-66-3	Chloroform	1	8.7	8.7	0.40	U
74-87-3	Chloromethane	1	8.7	8.7	0.72	U
110-82-7	Cyclohexane	1	17	17	1.4	U
96-12-8	1,2-Dibromo-3-chloropropane	1	17	17	3.6	U
124-48-1	Dibromochloromethane	1	8.7	8.7	0.81	U
106-93-4	1,2-Dibromoethane	1	8.7	8.7	1.4	U
95-50-1	1,2-Dichlorobenzene	1	8.7	8.7	0.45	U
541-73-1	1,3-Dichlorobenzene	1	8.7	8.7	0.67	U
106-46-7	1,4-Dichlorobenzene	1	8.7	8.7	0.81	U
75-71-8	Dichlorodifluoromethane	1	8.7	8.7	0.61	U
75-34-3	1,1-Dichloroethane	1	8.7	8.7	0.54	U
107-06-2	1,2-Dichloroethane	1	8.7	8.7	0.63	U
75-35-4	1,1-Dichloroethene	1	8.7	8.7	1.2	U
156-59-2	cis-1,2-Dichloroethene	1	8.7	8.7	0.49	U
156-60-5	trans-1,2-Dichloroethene	1	8.7	8.7	1.4	U
78-87-5	1,2-Dichloropropane	1	8.7	8.7	0.64	U
10061-01-5	cis-1,3-Dichloropropene	1	8.7	8.7	0.73	U
10061-02-6	trans-1,3-Dichloropropene	1	8.7	8.7	0.52	U
100-41-4	Ethylbenzene	1	8.7	8.7	0.27	U
591-78-6	2-Hexanone	1	17	17	1.8	U
98-82-8	Isopropylbenzene	1	8.7	8.7	0.34	U
79-20-9	Methyl Acetate	1	35	35	4.2	U
1634-04-4	Methyl tert-Butyl Ether	1	8.7	8.7	0.85	U
108-87-2	Methylcyclohexane	1	17	17	1.5	U
75-09-2	Methylene Chloride	1	35	35	2.2	U
78-93-3	2-Butanone (MEK)	1	35	35	4.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	17	17	0.31	U
100-42-5	Styrene	1	8.7	8.7	1.3	U
79-34-5	1,1,2,2-Tetrachloroethane	1	8.7	8.7	1.4	U
127-18-4	Tetrachloroethene	1	8.7	8.7	1.3	U
108-88-3	Toluene	1	1.1	8.7	1.0	J

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ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: 0908176-08A.D

Sampled: 08/10/09 00:00 Prepared: 08/13/09 08:00 Analyzed: 08/13/09 16:51

Solids: 78.01 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.7 g / 5 mL

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	35	35	0.68	U
120-82-1	1,2,4-Trichlorobenzene	1	8.7	8.7	1.2	U
71-55-6	1,1,1-Trichloroethane	1	8.7	8.7	1.4	U
79-00-5	1,1,2-Trichloroethane	1	8.7	8.7	1.6	U
79-01-6	Trichloroethene	1	8.7	8.7	0.75	U
75-69-4	Trichlorofluoromethane	1	8.7	8.7	0.54	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	8.7	8.7	0.91	U
75-01-4	Vinyl Chloride	1	8.7	8.7	0.45	U
1330-20-7	Xylene (Total)	1	8.7	8.7	1.8	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	36.2	90	78 - 121	
1,2-Dichloroethane-d4	40.0	39.8	100	66 - 124	
Toluene-d8	40.0	37.8	94	85 - 115	
4-Bromofluorobenzene	40.0	35.3	88	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	814276	4.28	947725	4.28	
Chlorobenzene-d5	507102	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	214050	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: 0908185-02.D

Sampled: 08/11/09 11:00 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 11:10

Solids: 81.36 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	27	27	4.3	U
71-43-2	Benzene	1	6.8	6.8	0.29	U
74-97-5	Bromochloromethane	1	27	27	0.60	U
75-27-4	Bromodichloromethane	1	6.8	6.8	1.2	U
75-25-2	Bromoform	1	6.8	6.8	0.63	U
74-83-9	Bromomethane	1	6.8	6.8	1.3	U
75-15-0	Carbon Disulfide	1	6.8	6.8	0.46	U
56-23-5	Carbon Tetrachloride	1	6.8	6.8	0.92	U
108-90-7	Chlorobenzene	1	6.8	6.8	1.1	U
75-00-3	Chloroethane	1	27	27	1.1	U
67-66-3	Chloroform	1	6.8	6.8	0.31	U
74-87-3	Chloromethane	1	6.8	6.8	0.57	U
110-82-7	Cyclohexane	1	14	14	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.8	U
124-48-1	Dibromochloromethane	1	6.8	6.8	0.64	U
106-93-4	1,2-Dibromoethane	1	6.8	6.8	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.8	6.8	0.35	U
541-73-1	1,3-Dichlorobenzene	1	6.8	6.8	0.52	U
106-46-7	1,4-Dichlorobenzene	1	6.8	6.8	0.64	U
75-71-8	Dichlorodifluoromethane	1	6.8	6.8	0.48	U
75-34-3	1,1-Dichloroethane	1	6.8	6.8	0.43	U
107-06-2	1,2-Dichloroethane	1	6.8	6.8	0.50	U
75-35-4	1,1-Dichloroethene	1	6.8	6.8	0.97	U
156-59-2	cis-1,2-Dichloroethene	1	6.8	6.8	0.39	U
156-60-5	trans-1,2-Dichloroethene	1	6.8	6.8	1.1	U
78-87-5	1,2-Dichloropropane	1	6.8	6.8	0.50	U
10061-01-5	cis-1,3-Dichloropropene	1	6.8	6.8	0.57	U
10061-02-6	trans-1,3-Dichloropropene	1	6.8	6.8	0.41	U
100-41-4	Ethylbenzene	1	6.8	6.8	0.21	U
591-78-6	2-Hexanone	1	14	14	1.4	U
98-82-8	Isopropylbenzene	1	6.8	6.8	0.27	U
79-20-9	Methyl Acetate	1	27	27	3.3	U
1634-04-4	Methyl tert-Butyl Ether	1	6.8	6.8	0.67	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	27	27	1.7	U
78-93-3	2-Butanone (MEK)	1	27	27	3.1	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.24	U
100-42-5	Styrene	1	6.8	6.8	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.8	6.8	1.1	U
127-18-4	Tetrachloroethene	1	6.8	6.8	1.0	U
108-88-3	Toluene	1	6.8	6.8	0.82	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: 0908185-02.D

Sampled: 08/11/09 11:00 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 11:10

Solids: 81.36 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	27	27	0.53	U
120-82-1	1,2,4-Trichlorobenzene	1	6.8	6.8	0.97	U
71-55-6	1,1,1-Trichloroethane	1	6.8	6.8	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.8	6.8	1.2	U
79-01-6	Trichloroethene	1	6.8	6.8	0.59	U
75-69-4	Trichlorofluoromethane	1	6.8	6.8	0.43	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.8	6.8	0.72	U
75-01-4	Vinyl Chloride	1	6.8	6.8	0.35	U
1330-20-7	Xylene (Total)	1	6.8	6.8	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	37.0	92	78 - 121	
1,2-Dichloroethane-d4	40.0	39.4	98	66 - 124	
Toluene-d8	40.0	38.2	96	85 - 115	
4-Bromofluorobenzene	40.0	40.2	100	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	846344	4.28	947725	4.28	
Chlorobenzene-d5	553810	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	272179	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03 File ID: 0908185-03.D

Sampled: 08/11/09 13:00 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 11:42

Solids: 79.99 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	25	25	3.9	U
71-43-2	Benzene	1	6.3	6.3	0.26	U
74-97-5	Bromochloromethane	1	25	25	0.55	U
75-27-4	Bromodichloromethane	1	6.3	6.3	1.1	U
75-25-2	Bromoform	1	6.3	6.3	0.58	U
74-83-9	Bromomethane	1	6.3	6.3	1.2	U
75-15-0	Carbon Disulfide	1	6.3	6.3	0.42	U
56-23-5	Carbon Tetrachloride	1	6.3	6.3	0.84	U
108-90-7	Chlorobenzene	1	6.3	6.3	0.99	U
75-00-3	Chloroethane	1	25	25	0.98	U
67-66-3	Chloroform	1	6.3	6.3	0.29	U
74-87-3	Chloromethane	1	6.3	6.3	0.52	U
110-82-7	Cyclohexane	1	13	13	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.6	U
124-48-1	Dibromochloromethane	1	6.3	6.3	0.58	U
106-93-4	1,2-Dibromoethane	1	6.3	6.3	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.3	6.3	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.3	6.3	0.48	U
106-46-7	1,4-Dichlorobenzene	1	6.3	6.3	0.59	U
75-71-8	Dichlorodifluoromethane	1	6.3	6.3	0.44	U
75-34-3	1,1-Dichloroethane	1	6.3	6.3	0.39	U
107-06-2	1,2-Dichloroethane	1	6.3	6.3	0.45	U
75-35-4	1,1-Dichloroethene	1	6.3	6.3	0.89	U
156-59-2	cis-1,2-Dichloroethene	1	6.3	6.3	0.36	U
156-60-5	trans-1,2-Dichloroethene	1	6.3	6.3	1.0	U
78-87-5	1,2-Dichloropropane	1	6.3	6.3	0.46	U
10061-01-5	cis-1,3-Dichloropropene	1	6.3	6.3	0.53	U
10061-02-6	trans-1,3-Dichloropropene	1	6.3	6.3	0.38	U
100-41-4	Ethylbenzene	1	6.3	6.3	0.19	U
591-78-6	2-Hexanone	1	13	13	1.3	U
98-82-8	Isopropylbenzene	1	6.3	6.3	0.24	U
79-20-9	Methyl Acetate	1	25	25	3.0	U
1634-04-4	Methyl tert-Butyl Ether	1	6.3	6.3	0.61	U
108-87-2	Methylcyclohexane	1	13	13	1.1	U
75-09-2	Methylene Chloride	1	25	25	1.6	U
78-93-3	2-Butanone (MEK)	1	25	25	2.9	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.22	U
100-42-5	Styrene	1	6.3	6.3	0.97	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.3	6.3	0.98	U
127-18-4	Tetrachloroethene	1	6.3	6.3	0.93	U
108-88-3	Toluene	1	6.3	6.3	0.75	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03 File ID: 0908185-03.D

Sampled: 08/11/09 13:00 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 11:42

Solids: 79.99 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.49	U
120-82-1	1,2,4-Trichlorobenzene	1	6.3	6.3	0.89	U
71-55-6	1,1,1-Trichloroethane	1	6.3	6.3	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.3	6.3	1.1	U
79-01-6	Trichloroethene	1	6.3	6.3	0.54	U
75-69-4	Trichlorofluoromethane	1	6.3	6.3	0.39	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.3	6.3	0.66	U
75-01-4	Vinyl Chloride	1	6.3	6.3	0.32	U
1330-20-7	Xylene (Total)	1	6.3	6.3	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.8	100	78 - 121	
1,2-Dichloroethane-d4	40.0	37.8	95	66 - 124	
Toluene-d8	40.0	37.8	95	85 - 115	
4-Bromofluorobenzene	40.0	35.7	89	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	796922	4.27	947725	4.28	
Chlorobenzene-d5	494826	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	191328	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-04 File ID: 0908185-04.D

Sampled: 08/11/09 13:10 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 12:15

Solids: 71.95 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	28	28	4.3	U
71-43-2	Benzene	1	6.9	6.9	0.29	U
74-97-5	Bromochloromethane	1	28	28	0.61	U
75-27-4	Bromodichloromethane	1	6.9	6.9	1.2	U
75-25-2	Bromoform	1	6.9	6.9	0.64	U
74-83-9	Bromomethane	1	6.9	6.9	1.3	U
75-15-0	Carbon Disulfide	1	6.9	6.9	0.47	U
56-23-5	Carbon Tetrachloride	1	6.9	6.9	0.94	U
108-90-7	Chlorobenzene	1	6.9	6.9	1.1	U
75-00-3	Chloroethane	1	28	28	1.1	U
67-66-3	Chloroform	1	6.9	6.9	0.32	U
74-87-3	Chloromethane	1	6.9	6.9	0.58	U
110-82-7	Cyclohexane	1	14	14	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.9	U
124-48-1	Dibromochloromethane	1	6.9	6.9	0.65	U
106-93-4	1,2-Dibromoethane	1	6.9	6.9	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.9	6.9	0.36	U
541-73-1	1,3-Dichlorobenzene	1	6.9	6.9	0.53	U
106-46-7	1,4-Dichlorobenzene	1	6.9	6.9	0.65	U
75-71-8	Dichlorodifluoromethane	1	6.9	6.9	0.49	U
75-34-3	1,1-Dichloroethane	1	6.9	6.9	0.43	U
107-06-2	1,2-Dichloroethane	1	6.9	6.9	0.50	U
75-35-4	1,1-Dichloroethene	1	6.9	6.9	0.99	U
156-59-2	cis-1,2-Dichloroethene	1	6.9	6.9	0.39	U
156-60-5	trans-1,2-Dichloroethene	1	6.9	6.9	1.1	U
78-87-5	1,2-Dichloropropane	1	6.9	6.9	0.51	U
10061-01-5	cis-1,3-Dichloropropene	1	6.9	6.9	0.59	U
10061-02-6	trans-1,3-Dichloropropene	1	6.9	6.9	0.42	U
100-41-4	Ethylbenzene	1	6.9	6.9	0.21	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	6.9	6.9	0.27	U
79-20-9	Methyl Acetate	1	28	28	3.3	U
1634-04-4	Methyl tert-Butyl Ether	1	6.9	6.9	0.68	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	2.6	28	1.7	J
78-93-3	2-Butanone (MEK)	1	28	28	3.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	6.9	6.9	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.9	6.9	1.1	U
127-18-4	Tetrachloroethene	1	6.9	6.9	1.0	U
108-88-3	Toluene	1	6.9	6.9	0.83	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-04 File ID: 0908185-04.D

Sampled: 08/11/09 13:10 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 12:15

Solids: 71.95 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	28	28	0.54	U
120-82-1	1,2,4-Trichlorobenzene	1	6.9	6.9	0.99	U
71-55-6	1,1,1-Trichloroethane	1	6.9	6.9	1.2	U
79-00-5	1,1,2-Trichloroethane	1	6.9	6.9	1.3	U
79-01-6	Trichloroethene	1	6.9	6.9	0.60	U
75-69-4	Trichlorofluoromethane	1	6.9	6.9	0.43	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.9	6.9	0.73	U
75-01-4	Vinyl Chloride	1	6.9	6.9	0.36	U
1330-20-7	Xylene (Total)	1	6.9	6.9	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.6	97	78 - 121	
1,2-Dichloroethane-d4	40.0	38.4	96	66 - 124	
Toluene-d8	40.0	37.6	94	85 - 115	
4-Bromofluorobenzene	40.0	37.2	93	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	800290	4.28	947725	4.28	
Chlorobenzene-d5	515379	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	220307	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: 0908185-05.D

Sampled: 08/11/09 13:40 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 12:47

Solids: 70.86 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.1 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	34	34	5.4	U
71-43-2	Benzene	1	8.6	8.6	0.36	U
74-97-5	Bromochloromethane	1	34	34	0.76	U
75-27-4	Bromodichloromethane	1	8.6	8.6	1.5	U
75-25-2	Bromoform	1	8.6	8.6	0.80	U
74-83-9	Bromomethane	1	8.6	8.6	1.7	U
75-15-0	Carbon Disulfide	1	8.6	8.6	0.58	U
56-23-5	Carbon Tetrachloride	1	8.6	8.6	1.2	U
108-90-7	Chlorobenzene	1	8.6	8.6	1.4	U
75-00-3	Chloroethane	1	34	34	1.4	U
67-66-3	Chloroform	1	8.6	8.6	0.39	U
74-87-3	Chloromethane	1	8.6	8.6	0.72	U
110-82-7	Cyclohexane	1	17	17	1.4	U
96-12-8	1,2-Dibromo-3-chloropropane	1	17	17	3.5	U
124-48-1	Dibromochloromethane	1	8.6	8.6	0.80	U
106-93-4	1,2-Dibromoethane	1	8.6	8.6	1.4	U
95-50-1	1,2-Dichlorobenzene	1	8.6	8.6	0.45	U
541-73-1	1,3-Dichlorobenzene	1	8.6	8.6	0.66	U
106-46-7	1,4-Dichlorobenzene	1	8.6	8.6	0.81	U
75-71-8	Dichlorodifluoromethane	1	8.6	8.6	0.61	U
75-34-3	1,1-Dichloroethane	1	8.6	8.6	0.54	U
107-06-2	1,2-Dichloroethane	1	8.6	8.6	0.62	U
75-35-4	1,1-Dichloroethene	1	8.6	8.6	1.2	U
156-59-2	cis-1,2-Dichloroethene	1	8.6	8.6	0.49	U
156-60-5	trans-1,2-Dichloroethene	1	8.6	8.6	1.4	U
78-87-5	1,2-Dichloropropane	1	8.6	8.6	0.64	U
10061-01-5	cis-1,3-Dichloropropene	1	8.6	8.6	0.72	U
10061-02-6	trans-1,3-Dichloropropene	1	8.6	8.6	0.52	U
100-41-4	Ethylbenzene	1	8.6	8.6	0.26	U
591-78-6	2-Hexanone	1	17	17	1.8	U
98-82-8	Isopropylbenzene	1	8.6	8.6	0.34	U
79-20-9	Methyl Acetate	1	34	34	4.1	U
1634-04-4	Methyl tert-Butyl Ether	1	8.6	8.6	0.84	U
108-87-2	Methylcyclohexane	1	17	17	1.5	U
75-09-2	Methylene Chloride	1	2.7	34	2.2	J
78-93-3	2-Butanone (MEK)	1	34	34	3.9	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	17	17	0.31	U
100-42-5	Styrene	1	8.6	8.6	1.3	U
79-34-5	1,1,2,2-Tetrachloroethane	1	8.6	8.6	1.3	U
127-18-4	Tetrachloroethene	1	8.6	8.6	1.3	U
108-88-3	Toluene	1	8.6	8.6	1.0	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: 0908185-05.D

Sampled: 08/11/09 13:40 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 12:47

Solids: 70.86 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.1 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	34	34	0.67	U
120-82-1	1,2,4-Trichlorobenzene	1	8.6	8.6	1.2	U
71-55-6	1,1,1-Trichloroethane	1	8.6	8.6	1.4	U
79-00-5	1,1,2-Trichloroethane	1	8.6	8.6	1.6	U
79-01-6	Trichloroethene	1	8.6	8.6	0.75	U
75-69-4	Trichlorofluoromethane	1	8.6	8.6	0.54	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	8.6	8.6	0.90	U
75-01-4	Vinyl Chloride	1	8.6	8.6	0.44	U
1330-20-7	Xylene (Total)	1	8.6	8.6	1.8	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.9	97	78 - 121	
1,2-Dichloroethane-d4	40.0	38.6	96	66 - 124	
Toluene-d8	40.0	37.8	94	85 - 115	
4-Bromofluorobenzene	40.0	36.3	91	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	826541	4.28	947725	4.28	
Chlorobenzene-d5	539716	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	236141	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: 0908185-06.D

Sampled: 08/11/09 14:00 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 13:19

Solids: 68.83 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	36	36	5.7	U
71-43-2	Benzene	1	9.1	9.1	0.38	U
74-97-5	Bromochloromethane	1	36	36	0.80	U
75-27-4	Bromodichloromethane	1	9.1	9.1	1.6	U
75-25-2	Bromoform	1	9.1	9.1	0.84	U
74-83-9	Bromomethane	1	9.1	9.1	1.8	U
75-15-0	Carbon Disulfide	1	9.1	9.1	0.62	U
56-23-5	Carbon Tetrachloride	1	9.1	9.1	1.2	U
108-90-7	Chlorobenzene	1	9.1	9.1	1.4	U
75-00-3	Chloroethane	1	36	36	1.4	U
67-66-3	Chloroform	1	9.1	9.1	0.42	U
74-87-3	Chloromethane	1	9.1	9.1	0.76	U
110-82-7	Cyclohexane	1	18	18	1.5	U
96-12-8	1,2-Dibromo-3-chloropropane	1	18	18	3.7	U
124-48-1	Dibromochloromethane	1	9.1	9.1	0.85	U
106-93-4	1,2-Dibromoethane	1	9.1	9.1	1.5	U
95-50-1	1,2-Dichlorobenzene	1	9.1	9.1	0.47	U
541-73-1	1,3-Dichlorobenzene	1	9.1	9.1	0.70	U
106-46-7	1,4-Dichlorobenzene	1	9.1	9.1	0.85	U
75-71-8	Dichlorodifluoromethane	1	9.1	9.1	0.64	U
75-34-3	1,1-Dichloroethane	1	9.1	9.1	0.57	U
107-06-2	1,2-Dichloroethane	1	9.1	9.1	0.66	U
75-35-4	1,1-Dichloroethene	1	9.1	9.1	1.3	U
156-59-2	cis-1,2-Dichloroethene	1	9.1	9.1	0.52	U
156-60-5	trans-1,2-Dichloroethene	1	9.1	9.1	1.5	U
78-87-5	1,2-Dichloropropane	1	9.1	9.1	0.67	U
10061-01-5	cis-1,3-Dichloropropene	1	9.1	9.1	0.76	U
10061-02-6	trans-1,3-Dichloropropene	1	9.1	9.1	0.55	U
100-41-4	Ethylbenzene	1	9.1	9.1	0.28	U
591-78-6	2-Hexanone	1	18	18	1.9	U
98-82-8	Isopropylbenzene	1	9.1	9.1	0.35	U
79-20-9	Methyl Acetate	1	36	36	4.4	U
1634-04-4	Methyl tert-Butyl Ether	1	9.1	9.1	0.89	U
108-87-2	Methylcyclohexane	1	18	18	1.6	U
75-09-2	Methylene Chloride	1	2.5	36	2.3	J
78-93-3	2-Butanone (MEK)	1	36	36	4.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	18	18	0.33	U
100-42-5	Styrene	1	9.1	9.1	1.4	U
79-34-5	1,1,2,2-Tetrachloroethane	1	9.1	9.1	1.4	U
127-18-4	Tetrachloroethene	1	9.1	9.1	1.4	U
108-88-3	Toluene	1	9.1	9.1	1.1	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: 0908185-06.D

Sampled: 08/11/09 14:00 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 13:19

Solids: 68.83 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	36	36	0.71	U
120-82-1	1,2,4-Trichlorobenzene	1	9.1	9.1	1.3	U
71-55-6	1,1,1-Trichloroethane	1	9.1	9.1	1.5	U
79-00-5	1,1,2-Trichloroethane	1	9.1	9.1	1.7	U
79-01-6	Trichloroethene	1	9.1	9.1	0.79	U
75-69-4	Trichlorofluoromethane	1	9.1	9.1	0.57	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	9.1	9.1	0.95	U
75-01-4	Vinyl Chloride	1	9.1	9.1	0.47	U
1330-20-7	Xylene (Total)	1	9.1	9.1	1.9	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	40.4	101	78 - 121	
1,2-Dichloroethane-d4	40.0	40.6	101	66 - 124	
Toluene-d8	40.0	38.7	97	85 - 115	
4-Bromofluorobenzene	40.0	38.6	96	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	868018	4.28	947725	4.28	
Chlorobenzene-d5	580954	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	243971	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-07 File ID: 0908185-07.D

Sampled: 08/11/09 14:15 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 13:52

Solids: 69.36 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	29	29	4.5	U
71-43-2	Benzene	1	7.2	7.2	0.30	U
74-97-5	Bromochloromethane	1	29	29	0.64	U
75-27-4	Bromodichloromethane	1	7.2	7.2	1.3	U
75-25-2	Bromoform	1	7.2	7.2	0.67	U
74-83-9	Bromomethane	1	7.2	7.2	1.4	U
75-15-0	Carbon Disulfide	1	7.2	7.2	0.49	U
56-23-5	Carbon Tetrachloride	1	7.2	7.2	0.97	U
108-90-7	Chlorobenzene	1	7.2	7.2	1.1	U
75-00-3	Chloroethane	1	29	29	1.1	U
67-66-3	Chloroform	1	7.2	7.2	0.33	U
74-87-3	Chloromethane	1	7.2	7.2	0.60	U
110-82-7	Cyclohexane	1	14	14	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	3.0	U
124-48-1	Dibromochloromethane	1	7.2	7.2	0.67	U
106-93-4	1,2-Dibromoethane	1	7.2	7.2	1.2	U
95-50-1	1,2-Dichlorobenzene	1	7.2	7.2	0.37	U
541-73-1	1,3-Dichlorobenzene	1	7.2	7.2	0.55	U
106-46-7	1,4-Dichlorobenzene	1	7.2	7.2	0.68	U
75-71-8	Dichlorodifluoromethane	1	7.2	7.2	0.51	U
75-34-3	1,1-Dichloroethane	1	7.2	7.2	0.45	U
107-06-2	1,2-Dichloroethane	1	7.2	7.2	0.52	U
75-35-4	1,1-Dichloroethene	1	7.2	7.2	1.0	U
156-59-2	cis-1,2-Dichloroethene	1	7.2	7.2	0.41	U
156-60-5	trans-1,2-Dichloroethene	1	7.2	7.2	1.2	U
78-87-5	1,2-Dichloropropane	1	7.2	7.2	0.53	U
10061-01-5	cis-1,3-Dichloropropene	1	7.2	7.2	0.61	U
10061-02-6	trans-1,3-Dichloropropene	1	7.2	7.2	0.44	U
100-41-4	Ethylbenzene	1	7.2	7.2	0.22	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	7.2	7.2	0.28	U
79-20-9	Methyl Acetate	1	29	29	3.5	U
1634-04-4	Methyl tert-Butyl Ether	1	7.2	7.2	0.70	U
108-87-2	Methylcyclohexane	1	14	14	1.3	U
75-09-2	Methylene Chloride	1	29	29	1.8	U
78-93-3	2-Butanone (MEK)	1	29	29	3.3	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.26	U
100-42-5	Styrene	1	7.2	7.2	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.2	7.2	1.1	U
127-18-4	Tetrachloroethene	1	7.2	7.2	1.1	U
108-88-3	Toluene	1	7.2	7.2	0.87	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-07 File ID: 0908185-07.D

Sampled: 08/11/09 14:15 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 13:52

Solids: 69.36 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	29	29	0.56	U
120-82-1	1,2,4-Trichlorobenzene	1	7.2	7.2	1.0	U
71-55-6	1,1,1-Trichloroethane	1	7.2	7.2	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.2	7.2	1.3	U
79-01-6	Trichloroethene	1	7.2	7.2	0.63	U
75-69-4	Trichlorofluoromethane	1	7.2	7.2	0.45	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.2	7.2	0.76	U
75-01-4	Vinyl Chloride	1	7.2	7.2	0.37	U
1330-20-7	Xylene (Total)	1	7.2	7.2	1.5	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	40.1	100	78 - 121	
1,2-Dichloroethane-d4	40.0	41.6	104	66 - 124	
Toluene-d8	40.0	39.0	97	85 - 115	
4-Bromofluorobenzene	40.0	37.8	94	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	860756	4.28	947725	4.28	
Chlorobenzene-d5	575504	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	256232	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: 0908185-08.D

Sampled: 08/11/09 14:30 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 14:24

Solids: 72.01 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	31	31	4.8	U
71-43-2	Benzene	1	7.7	7.7	0.32	U
74-97-5	Bromochloromethane	1	31	31	0.68	U
75-27-4	Bromodichloromethane	1	7.7	7.7	1.3	U
75-25-2	Bromoform	1	7.7	7.7	0.71	U
74-83-9	Bromomethane	1	7.7	7.7	1.5	U
75-15-0	Carbon Disulfide	1	7.7	7.7	0.52	U
56-23-5	Carbon Tetrachloride	1	7.7	7.7	1.0	U
108-90-7	Chlorobenzene	1	7.7	7.7	1.2	U
75-00-3	Chloroethane	1	31	31	1.2	U
67-66-3	Chloroform	1	7.7	7.7	0.35	U
74-87-3	Chloromethane	1	7.7	7.7	0.64	U
110-82-7	Cyclohexane	1	15	15	1.3	U
96-12-8	1,2-Dibromo-3-chloropropane	1	15	15	3.2	U
124-48-1	Dibromochloromethane	1	7.7	7.7	0.72	U
106-93-4	1,2-Dibromoethane	1	7.7	7.7	1.3	U
95-50-1	1,2-Dichlorobenzene	1	7.7	7.7	0.40	U
541-73-1	1,3-Dichlorobenzene	1	7.7	7.7	0.59	U
106-46-7	1,4-Dichlorobenzene	1	7.7	7.7	0.73	U
75-71-8	Dichlorodifluoromethane	1	7.7	7.7	0.54	U
75-34-3	1,1-Dichloroethane	1	7.7	7.7	0.48	U
107-06-2	1,2-Dichloroethane	1	7.7	7.7	0.56	U
75-35-4	1,1-Dichloroethene	1	7.7	7.7	1.1	U
156-59-2	cis-1,2-Dichloroethene	1	7.7	7.7	0.44	U
156-60-5	trans-1,2-Dichloroethene	1	7.7	7.7	1.3	U
78-87-5	1,2-Dichloropropane	1	7.7	7.7	0.57	U
10061-01-5	cis-1,3-Dichloropropene	1	7.7	7.7	0.65	U
10061-02-6	trans-1,3-Dichloropropene	1	7.7	7.7	0.47	U
100-41-4	Ethylbenzene	1	7.7	7.7	0.24	U
591-78-6	2-Hexanone	1	15	15	1.6	U
98-82-8	Isopropylbenzene	1	7.7	7.7	0.30	U
79-20-9	Methyl Acetate	1	31	31	3.7	U
1634-04-4	Methyl tert-Butyl Ether	1	7.7	7.7	0.75	U
108-87-2	Methylcyclohexane	1	15	15	1.4	U
75-09-2	Methylene Chloride	1	31	31	1.9	U
78-93-3	2-Butanone (MEK)	1	31	31	3.5	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	15	15	0.28	U
100-42-5	Styrene	1	7.7	7.7	1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.7	7.7	1.2	U
127-18-4	Tetrachloroethene	1	7.7	7.7	1.2	U
108-88-3	Toluene	1	7.7	7.7	0.93	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: 0908185-08.D

Sampled: 08/11/09 14:30 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 14:24

Solids: 72.01 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	31	31	0.60	U
120-82-1	1,2,4-Trichlorobenzene	1	7.7	7.7	1.1	U
71-55-6	1,1,1-Trichloroethane	1	7.7	7.7	1.3	U
79-00-5	1,1,2-Trichloroethane	1	7.7	7.7	1.4	U
79-01-6	Trichloroethene	1	7.7	7.7	0.67	U
75-69-4	Trichlorofluoromethane	1	7.7	7.7	0.48	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.7	7.7	0.81	U
75-01-4	Vinyl Chloride	1	7.7	7.7	0.40	U
1330-20-7	Xylene (Total)	1	7.7	7.7	1.6	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.3	96	78 - 121	
1,2-Dichloroethane-d4	40.0	37.8	94	66 - 124	
Toluene-d8	40.0	37.0	92	85 - 115	
4-Bromofluorobenzene	40.0	37.3	93	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	894383	4.27	947725	4.28	
Chlorobenzene-d5	574006	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	243438	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-09 File ID: 0908185-09A.D

Sampled: 08/11/09 15:30 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 16:34

Solids: 75.68 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.3 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	31	31	4.8	U
71-43-2	Benzene	1	7.7	7.7	0.32	U
74-97-5	Bromochloromethane	1	31	31	0.68	U
75-27-4	Bromodichloromethane	1	7.7	7.7	1.3	U
75-25-2	Bromoform	1	7.7	7.7	0.71	U
74-83-9	Bromomethane	1	7.7	7.7	1.5	U
75-15-0	Carbon Disulfide	1	7.7	7.7	0.52	U
56-23-5	Carbon Tetrachloride	1	7.7	7.7	1.0	U
108-90-7	Chlorobenzene	1	7.7	7.7	1.2	U
75-00-3	Chloroethane	1	31	31	1.2	U
67-66-3	Chloroform	1	7.7	7.7	0.35	U
74-87-3	Chloromethane	1	7.7	7.7	0.64	U
110-82-7	Cyclohexane	1	15	15	1.3	U
96-12-8	1,2-Dibromo-3-chloropropane	1	15	15	3.2	U
124-48-1	Dibromochloromethane	1	7.7	7.7	0.72	U
106-93-4	1,2-Dibromoethane	1	7.7	7.7	1.3	U
95-50-1	1,2-Dichlorobenzene	1	7.7	7.7	0.40	U
541-73-1	1,3-Dichlorobenzene	1	7.7	7.7	0.59	U
106-46-7	1,4-Dichlorobenzene	1	7.7	7.7	0.72	U
75-71-8	Dichlorodifluoromethane	1	7.7	7.7	0.54	U
75-34-3	1,1-Dichloroethane	1	7.7	7.7	0.48	U
107-06-2	1,2-Dichloroethane	1	7.7	7.7	0.56	U
75-35-4	1,1-Dichloroethene	1	7.7	7.7	1.1	U
156-59-2	cis-1,2-Dichloroethene	1	7.7	7.7	0.44	U
156-60-5	trans-1,2-Dichloroethene	1	7.7	7.7	1.2	U
78-87-5	1,2-Dichloropropane	1	7.7	7.7	0.57	U
10061-01-5	cis-1,3-Dichloropropene	1	7.7	7.7	0.65	U
10061-02-6	trans-1,3-Dichloropropene	1	7.7	7.7	0.46	U
100-41-4	Ethylbenzene	1	7.7	7.7	0.24	U
591-78-6	2-Hexanone	1	15	15	1.6	U
98-82-8	Isopropylbenzene	1	7.7	7.7	0.30	U
79-20-9	Methyl Acetate	1	31	31	3.7	U
1634-04-4	Methyl tert-Butyl Ether	1	7.7	7.7	0.75	U
108-87-2	Methylcyclohexane	1	15	15	1.3	U
75-09-2	Methylene Chloride	1	31	31	1.9	U
78-93-3	2-Butanone (MEK)	1	31	31	3.5	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	15	15	0.28	U
100-42-5	Styrene	1	7.7	7.7	1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.7	7.7	1.2	U
127-18-4	Tetrachloroethene	1	7.7	7.7	1.1	U
108-88-3	Toluene	1	7.7	7.7	0.92	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

77SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-09 File ID: 0908185-09A.D

Sampled: 08/11/09 15:30 Prepared: 08/14/09 08:00 Analyzed: 08/14/09 16:34

Solids: 75.68 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.3 g / 5 mL

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	31	31	0.60	U
120-82-1	1,2,4-Trichlorobenzene	1	7.7	7.7	1.1	U
71-55-6	1,1,1-Trichloroethane	1	7.7	7.7	1.3	U
79-00-5	1,1,2-Trichloroethane	1	7.7	7.7	1.4	U
79-01-6	Trichloroethene	1	7.7	7.7	0.67	U
75-69-4	Trichlorofluoromethane	1	7.7	7.7	0.48	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.7	7.7	0.81	U
75-01-4	Vinyl Chloride	1	7.7	7.7	0.39	U
1330-20-7	Xylene (Total)	1	7.7	7.7	1.6	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.2	98	78 - 121	
1,2-Dichloroethane-d4	40.0	36.3	91	66 - 124	
Toluene-d8	40.0	37.8	95	85 - 115	
4-Bromofluorobenzene	40.0	38.1	95	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	860172	4.27	947725	4.28	
Chlorobenzene-d5	569749	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	235601	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

EQBK-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-10 File ID: 18510.D

Sampled: 08/11/09 11:10 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 12:46

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
67-64-1	Acetone	1	4.2	20	2.5	J
71-43-2	Benzene	1	1.0	1.0	0.088	U
74-97-5	Bromochloromethane	1	1.0	1.0	0.17	U
75-27-4	Bromodichloromethane	1	1.0	1.0	0.12	U
75-25-2	Bromoform	1	2.0	2.0	0.47	U
74-83-9	Bromomethane	1	1.0	1.0	0.15	U
75-15-0	Carbon Disulfide	1	5.0	5.0	0.20	U
56-23-5	Carbon Tetrachloride	1	1.0	1.0	0.16	U
108-90-7	Chlorobenzene	1	1.0	1.0	0.11	U
75-00-3	Chloroethane	1	1.0	1.0	0.13	U
67-66-3	Chloroform	1	1.0	1.0	0.074	U
74-87-3	Chloromethane	1	1.0	1.0	0.12	U
110-82-7	Cyclohexane	1	5.0	5.0	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	1	5.0	5.0	0.29	U
124-48-1	Dibromochloromethane	1	1.0	1.0	0.15	U
106-93-4	1,2-Dibromoethane	1	1.0	1.0	0.16	U
95-50-1	1,2-Dichlorobenzene	1	1.0	1.0	0.11	U
541-73-1	1,3-Dichlorobenzene	1	1.0	1.0	0.090	U
106-46-7	1,4-Dichlorobenzene	1	1.0	1.0	0.13	U
75-71-8	Dichlorodifluoromethane	1	1.0	1.0	0.13	U
75-34-3	1,1-Dichloroethane	1	1.0	1.0	0.092	U
107-06-2	1,2-Dichloroethane	1	1.0	1.0	0.096	U
75-35-4	1,1-Dichloroethene	1	1.0	1.0	0.17	U
156-59-2	cis-1,2-Dichloroethene	1	1.0	1.0	0.074	U
156-60-5	trans-1,2-Dichloroethene	1	1.0	1.0	0.086	U
78-87-5	1,2-Dichloropropane	1	1.0	1.0	0.16	U
10061-01-5	cis-1,3-Dichloropropene	1	1.0	1.0	0.076	U
10061-02-6	trans-1,3-Dichloropropene	1	1.0	1.0	0.078	U
100-41-4	Ethylbenzene	1	1.0	1.0	0.10	U
591-78-6	2-Hexanone	1	10	10	0.50	U
98-82-8	Isopropylbenzene	1	1.0	1.0	0.076	U
79-20-9	Methyl Acetate	1	5.0	5.0	0.17	U
1634-04-4	Methyl tert-Butyl Ether	1	1.0	1.0	0.11	U
108-87-2	Methylcyclohexane	1	5.0	5.0	0.081	U
75-09-2	Methylene Chloride	1	5.0	5.0	0.18	U
78-93-3	2-Butanone (MEK)	1	10	10	0.27	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	10	10	0.36	U
100-42-5	Styrene	1	1.0	1.0	0.036	U
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	1.0	0.12	U
127-18-4	Tetrachloroethene	1	1.0	1.0	0.10	U
108-88-3	Toluene	1	1.0	1.0	0.22	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

EQBK-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-10 File ID: 18510.D

Sampled: 08/11/09 11:10 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 12:46

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	2.0	2.0	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	2.0	2.0	0.13	U
71-55-6	1,1,1-Trichloroethane	1	1.0	1.0	0.12	U
79-00-5	1,1,2-Trichloroethane	1	1.0	1.0	0.16	U
79-01-6	Trichloroethene	1	1.0	1.0	0.13	U
75-69-4	Trichlorofluoromethane	1	1.0	1.0	0.11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	1.0	1.0	0.12	U
75-01-4	Vinyl Chloride	1	1.0	1.0	0.062	U
1330-20-7	Xylene (Total)	1	3.0	3.0	0.20	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	41.4	104	85 - 115	
1,2-Dichloroethane-d4	40.0	43.9	110	70 - 120	
Toluene-d8	40.0	41.4	104	85 - 120	
4-Bromofluorobenzene	40.0	38.3	96	75 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	717764	5.14	951014	5.14	
Chlorobenzene-d5	604450	8.08	748999	8.08	
1,4-Dichlorobenzene-d4	331588	10.38	460871	10.38	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

Trip Blank

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-11 File ID: 18511.D

Sampled: 08/11/09 11:10 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 13:13

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
67-64-1	Acetone	1	4.5	20	2.5	J
71-43-2	Benzene	1	1.0	1.0	0.088	U
74-97-5	Bromochloromethane	1	1.0	1.0	0.17	U
75-27-4	Bromodichloromethane	1	1.0	1.0	0.12	U
75-25-2	Bromoform	1	2.0	2.0	0.47	U
74-83-9	Bromomethane	1	1.0	1.0	0.15	U
75-15-0	Carbon Disulfide	1	5.0	5.0	0.20	U
56-23-5	Carbon Tetrachloride	1	1.0	1.0	0.16	U
108-90-7	Chlorobenzene	1	1.0	1.0	0.11	U
75-00-3	Chloroethane	1	1.0	1.0	0.13	U
67-66-3	Chloroform	1	1.0	1.0	0.074	U
74-87-3	Chloromethane	1	1.0	1.0	0.12	U
110-82-7	Cyclohexane	1	5.0	5.0	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	1	5.0	5.0	0.29	U
124-48-1	Dibromochloromethane	1	1.0	1.0	0.15	U
106-93-4	1,2-Dibromoethane	1	1.0	1.0	0.16	U
95-50-1	1,2-Dichlorobenzene	1	1.0	1.0	0.11	U
541-73-1	1,3-Dichlorobenzene	1	1.0	1.0	0.090	U
106-46-7	1,4-Dichlorobenzene	1	1.0	1.0	0.13	U
75-71-8	Dichlorodifluoromethane	1	1.0	1.0	0.13	U
75-34-3	1,1-Dichloroethane	1	1.0	1.0	0.092	U
107-06-2	1,2-Dichloroethane	1	1.0	1.0	0.096	U
75-35-4	1,1-Dichloroethene	1	1.0	1.0	0.17	U
156-59-2	cis-1,2-Dichloroethene	1	1.0	1.0	0.074	U
156-60-5	trans-1,2-Dichloroethene	1	1.0	1.0	0.086	U
78-87-5	1,2-Dichloropropane	1	1.0	1.0	0.16	U
10061-01-5	cis-1,3-Dichloropropene	1	1.0	1.0	0.076	U
10061-02-6	trans-1,3-Dichloropropene	1	1.0	1.0	0.078	U
100-41-4	Ethylbenzene	1	1.0	1.0	0.10	U
591-78-6	2-Hexanone	1	10	10	0.50	U
98-82-8	Isopropylbenzene	1	1.0	1.0	0.076	U
79-20-9	Methyl Acetate	1	5.0	5.0	0.17	U
1634-04-4	Methyl tert-Butyl Ether	1	1.0	1.0	0.11	U
108-87-2	Methylcyclohexane	1	5.0	5.0	0.081	U
75-09-2	Methylene Chloride	1	5.0	5.0	0.18	U
78-93-3	2-Butanone (MEK)	1	10	10	0.27	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	10	10	0.36	U
100-42-5	Styrene	1	1.0	1.0	0.036	U
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	1.0	0.12	U
127-18-4	Tetrachloroethene	1	1.0	1.0	0.10	U
108-88-3	Toluene	1	1.0	1.0	0.22	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

Trip Blank

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-11 File ID: 18511.D

Sampled: 08/11/09 11:10 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 13:13

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	2.0	2.0	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	2.0	2.0	0.13	U
71-55-6	1,1,1-Trichloroethane	1	1.0	1.0	0.12	U
79-00-5	1,1,2-Trichloroethane	1	1.0	1.0	0.16	U
79-01-6	Trichloroethene	1	1.0	1.0	0.13	U
75-69-4	Trichlorofluoromethane	1	1.0	1.0	0.11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	1.0	1.0	0.12	U
75-01-4	Vinyl Chloride	1	1.0	1.0	0.062	U
1330-20-7	Xylene (Total)	1	3.0	3.0	0.20	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	41.8	104	85 - 115	
1,2-Dichloroethane-d4	40.0	43.2	108	70 - 120	
Toluene-d8	40.0	40.8	102	85 - 120	
4-Bromofluorobenzene	40.0	37.9	95	75 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	714032	5.14	951014	5.14	
Chlorobenzene-d5	596757	8.08	748999	8.08	
1,4-Dichlorobenzene-d4	323489	10.38	460871	10.38	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: 0908176-01.D

Sampled: 08/10/09 13:15 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 13:41

Solids: 86.40 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	1.2	20	0.90	J
208-96-8	Acenaphthylene	1	7.3	20	1.9	J
98-86-2	Acetophenone	1	200	200	4.3	U
120-12-7	Anthracene	1	4.2	20	3.0	J
1912-24-9	Atrazine	1	200	200	5.2	U
100-52-7	Benzaldehyde	1	200	200	7.2	U
56-55-3	Benzo(a)anthracene	1	51	20	1.3	
50-32-8	Benzo(a)pyrene	1	69	20	1.6	
205-99-2	Benzo(b)fluoranthene	1	120	20	3.4	
207-08-9	Benzo(k)fluoranthene	1	35	20	1.5	
191-24-2	Benzo(g,h,i)perylene	1	46	78	1.1	J
92-52-4	1,1'-Biphenyl	1	200	200	0.96	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	11	200	5.7	J
105-60-2	Caprolactam	1	380	380	15	U
86-74-8	Carbazole	1	380	380	97	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.8	U
106-47-8	4-Chloroaniline	1	200	200	8.2	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.7	U
91-58-7	2-Chloronaphthalene	1	200	200	2.5	U
95-57-8	2-Chlorophenol	1	200	200	4.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	3.9	U
218-01-9	Chrysene	1	67	20	4.0	
53-70-3	Dibenz(a,h)anthracene	1	9.3	78	8.9	J
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	200	200	29	U
91-94-1	3,3´-Dichlorobenzidine	1	280	280	32	U
120-83-2	2,4-Dichlorophenol	1	200	200	3.9	U
84-66-2	Diethyl Phthalate	1	200	200	4.0	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.7	U
131-11-3	Dimethyl Phthalate	1	1.9	200	1.0	J
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	23	U
51-28-5	2,4-Dinitrophenol	1	380	380	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.6	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.2	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	57	200	5.4	J
206-44-0	Fluoranthene	1	60	20	0.88	
86-73-7	Fluorene	1	38	38	8.0	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: 0908176-01.D

Sampled: 08/10/09 13:15 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 13:41

Solids: 86.40 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	4.9	U
87-68-3	Hexachlorobutadiene	1	200	200	4.0	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.3	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	36	78	4.2	J J,i
78-59-1	Isophorone	1	200	200	7.2	U
91-57-6	2-Methylnaphthalene	1	4.6	200	0.52	J
95-48-7	2-Methylphenol	1	200	200	5.5	U
106-44-5	4-Methylphenol	1	200	200	5.1	U
91-20-3	Naphthalene	1	2.7	20	2.4	J
88-74-4	2-Nitroaniline	1	200	200	8.2	U
99-09-2	3-Nitroaniline	1	200	200	8.2	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.0	U
100-02-7	4-Nitrophenol	1	780	780	150	U K,M
88-75-5	2-Nitrophenol	1	200	200	7.7	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.5	U
87-86-5	Pentachlorophenol	1	380	380	51	U
85-01-8	Phenanthrene	1	23	20	1.2	
108-95-2	Phenol	1	200	200	52	U
129-00-0	Pyrene	1	86	20	1.4	J,i
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	772	552	72	35 - 105	
Phenol-d6	776	547	71	40 - 100	
Nitrobenzene-d5	384	275	72	35 - 100	
2-Fluorobiphenyl	390	275	71	45 - 105	
2,4,6-Tribromophenol	772	604	78	35 - 125	
o-Terphenyl	386	282	73	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	184602	7.964	162142	8.052	
Naphthalene-d8	690612	10.704	631706	10.803	
Acenaphthene-d10	354626	14.831	345886	14.941	
Phenanthrene-d10	408465	18.2	512675	18.281	
Chrysene-d12	311557	21.726	651471	21.79	*

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01RE1 File ID: 0908176-01 10x.D

Sampled: 08/10/09 13:15 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 11:06

Solids: 86.40 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	10	200	200	9.0	U
208-96-8	Acenaphthylene	10	200	200	19	U
98-86-2	Acetophenone	10	2000	2000	43	U
120-12-7	Anthracene	10	200	200	30	U
1912-24-9	Atrazine	10	2000	2000	52	U
100-52-7	Benzaldehyde	10	2000	2000	72	U R,I
56-55-3	Benzo(a)anthracene	10	77	200	13	J
50-32-8	Benzo(a)pyrene	10	69	200	16	J
205-99-2	Benzo(b)fluoranthene	10	89	200	34	J
207-08-9	Benzo(k)fluoranthene	10	58	200	15	J
191-24-2	Benzo(g,h,i)perylene	10	58	780	11	J
92-52-4	1,1'-Biphenyl	10	2000	2000	9.6	U
101-55-3	4-Bromophenyl Phenyl Ether	10	2000	2000	17	U
85-68-7	Butyl Benzyl Phthalate	10	2000	2000	57	U
105-60-2	Caprolactam	10	3800	3800	150	U
86-74-8	Carbazole	10	3800	3800	970	U
59-50-7	4-Chloro-3-methylphenol	10	2000	2000	38	U
106-47-8	4-Chloroaniline	10	2000	2000	82	U R,M
111-91-1	Bis(2-chloroethoxy)methane	10	2000	2000	14	U
111-44-4	Bis(2-chloroethyl) Ether	10	2000	2000	22	U
108-60-1	Bis(2-chloroisopropyl) Ether	10	2000	2000	77	U
91-58-7	2-Chloronaphthalene	10	2000	2000	25	U
95-57-8	2-Chlorophenol	10	2000	2000	44	U
7005-72-3	4-Chlorophenyl Phenyl Ether	10	2000	2000	39	U
218-01-9	Chrysene	10	66	200	40	J
53-70-3	Dibenz(a,h)anthracene	10	780	780	89	U
132-64-9	Dibenzofuran	10	2000	2000	100	U
84-74-2	Di-n-butyl Phthalate	10	2000	2000	290	U
91-94-1	3,3'-Dichlorobenzidine	10	2800	2800	320	U R,M
120-83-2	2,4-Dichlorophenol	10	2000	2000	39	U
84-66-2	Diethyl Phthalate	10	2000	2000	40	U
105-67-9	2,4-Dimethylphenol	10	2000	2000	17	U
131-11-3	Dimethyl Phthalate	10	2000	2000	10	U
534-52-1	4,6-Dinitro-2-methylphenol	10	2000	2000	230	U
51-28-5	2,4-Dinitrophenol	10	3800	3800	1200	U R,M
121-14-2	2,4-Dinitrotoluene	10	2000	2000	220	U
606-20-2	2,6-Dinitrotoluene	10	2000	2000	26	U
117-84-0	Di-n-octyl Phthalate	10	2000	2000	62	U
117-81-7	Bis(2-ethylhexyl) Phthalate	10	69	2000	54	J B,Z
206-44-0	Fluoranthene	10	73	200	8.8	J
86-73-7	Fluorene	10	380	380	80	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01RE1 File ID: 0908176-01 10x.D

Sampled: 08/10/09 13:15 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 11:06

Solids: 86.40 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	10	2000	2000	49	U
87-68-3	Hexachlorobutadiene	10	2000	2000	40	U
77-47-4	Hexachlorocyclopentadiene	10	2000	2000	23	U
67-72-1	Hexachloroethane	10	2000	2000	29	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	50	780	42	J
78-59-1	Isophorone	10	2000	2000	72	U
91-57-6	2-Methylnaphthalene	10	2000	2000	5.2	U
95-48-7	2-Methylphenol	10	2000	2000	55	U
106-44-5	4-Methylphenol	10	2000	2000	51	U
91-20-3	Naphthalene	10	200	200	24	U
88-74-4	2-Nitroaniline	10	2000	2000	82	U
99-09-2	3-Nitroaniline	10	2000	2000	82	U
100-01-6	4-Nitroaniline	10	2000	2000	19	U
98-95-3	Nitrobenzene	10	2000	2000	60	U
100-02-7	4-Nitrophenol	10	7800	7800	1500	U RM
88-75-5	2-Nitrophenol	10	2000	2000	77	U
86-30-6	N-Nitroso-diphenylamine	10	2000	2000	110	U
621-64-7	N-Nitroso-di-n-propylamine	10	2000	2000	65	U
87-86-5	Pentachlorophenol	10	3800	3800	510	U
85-01-8	Phenanthrene	10	27	200	12	J
108-95-2	Phenol	10	2000	2000	520	U
129-00-0	Pyrene	10	89	200	14	J
95-94-3	1,2,4,5-Tetrachlorobenzene	10	2000	2000	24	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	2000	2000	110	U
88-06-2	2,4,6-Trichlorophenol	10	2000	2000	24	U
95-95-4	2,4,5-Trichlorophenol	10	2000	2000	28	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	772	532	69	35 - 105	D
Phenol-d6	776	559	72	40 - 100	D
Nitrobenzene-d5	384	282	73	35 - 100	D
2-Fluorobiphenyl	390	255	65	45 - 105	D
2,4,6-Tribromophenol	772	390	50	35 - 125	D
o-Terphenyl	386	235	61	30 - 125	D

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	195258	7.722	162142	8.052	
Naphthalene-d8	767704	10.45	631706	10.803	
Acenaphthene-d10	397150	14.559	345886	14.941	
Phenanthrene-d10	553171	17.981	512675	18.281	
Chrysene-d12	528750	21.577	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: 0908176-02.D

Sampled: 08/10/09 13:50 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 14:16

Solids: 76.49 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	22	22	1.0	U
208-96-8	Acenaphthylene	1	3.1	22	2.2	J
98-86-2	Acetophenone	1	220	220	4.8	U
120-12-7	Anthracene	1	22	22	3.3	U
1912-24-9	Atrazine	1	220	220	5.8	U
100-52-7	Benzaldehyde	1	220	220	8.1	U R,H
56-55-3	Benzo(a)anthracene	1	11	22	1.5	J
50-32-8	Benzo(a)pyrene	1	17	22	1.8	J
205-99-2	Benzo(b)fluoranthene	1	27	22	3.8	
207-08-9	Benzo(k)fluoranthene	1	12	22	1.7	J
191-24-2	Benzo(g,h,i)perylene	1	14	88	1.2	J
92-52-4	1,1'-Biphenyl	1	220	220	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	1.9	U
85-68-7	Butyl Benzyl Phthalate	1	220	220	6.4	U
105-60-2	Caprolactam	1	430	430	16	U
86-74-8	Carbazole	1	430	430	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.3	U
106-47-8	4-Chloroaniline	1	220	220	9.2	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.4	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.7	U
91-58-7	2-Chloronaphthalene	1	220	220	2.8	U
95-57-8	2-Chlorophenol	1	220	220	4.9	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.4	U
218-01-9	Chrysene	1	16	22	4.5	J
53-70-3	Dibenz(a,h)anthracene	1	88	88	10	U
132-64-9	Dibenzofuran	1	220	220	11	U
84-74-2	Di-n-butyl Phthalate	1	220	220	32	U
91-94-1	3,3'-Dichlorobenzidine	1	310	310	36	U R,M
120-83-2	2,4-Dichlorophenol	1	220	220	4.4	U
84-66-2	Diethyl Phthalate	1	220	220	4.5	U
105-67-9	2,4-Dimethylphenol	1	220	220	1.9	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	27	U
51-28-5	2,4-Dinitrophenol	1	430	430	140	U R,M
121-14-2	2,4-Dinitrotoluene	1	220	220	25	U
606-20-2	2,6-Dinitrotoluene	1	220	220	3.0	U
117-84-0	Di-n-octyl Phthalate	1	220	220	7.0	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	14	220	6.1	J B,F
206-44-0	Fluoranthene	1	19	22	1.0	J
86-73-7	Fluorene	1	43	43	9.0	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: 0908176-02.D

Sampled: 08/10/09 13:50 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 14:16

Solids: 76.49 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.6	U
87-68-3	Hexachlorobutadiene	1	220	220	4.5	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.6	U
67-72-1	Hexachloroethane	1	220	220	3.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	11	88	4.8	J
78-59-1	Isophorone	1	220	220	8.1	U
91-57-6	2-Methylnaphthalene	1	0.87	220	0.59	J
95-48-7	2-Methylphenol	1	220	220	6.2	U
106-44-5	4-Methylphenol	1	220	220	5.8	U
91-20-3	Naphthalene	1	22	22	2.7	U
88-74-4	2-Nitroaniline	1	220	220	9.3	U
99-09-2	3-Nitroaniline	1	220	220	9.3	U
100-01-6	4-Nitroaniline	1	220	220	2.1	U
98-95-3	Nitrobenzene	1	220	220	6.7	U
100-02-7	4-Nitrophenol	1	880	880	170	U
88-75-5	2-Nitrophenol	1	220	220	8.6	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	13	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.3	U
87-86-5	Pentachlorophenol	1	430	430	58	U
85-01-8	Phenanthrene	1	11	22	1.4	J
108-95-2	Phenol	1	220	220	58	U
129-00-0	Pyrene	1	24	22	1.6	
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.7	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.7	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.2	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	872	687	79	35 - 105	
Phenol-d6	876	678	77	40 - 100	
Nitrobenzene-d5	434	322	74	35 - 100	
2-Fluorobiphenyl	440	295	67	45 - 105	
2,4,6-Tribromophenol	872	709	81	35 - 125	
o-Terphenyl	436	290	67	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	170073	7.964	162142	8.052	
Naphthalene-d8	648980	10.704	631706	10.803	
Acenaphthene-d10	350692	14.836	345886	14.941	
Phenanthrene-d10	474890	18.205	512675	18.281	
Chrysene-d12	392310	21.726	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: 0908176-03.D

Sampled: 08/10/09 14:10 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 14:50

Solids: 92.04 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	18	18	0.85	U
208-96-8	Acenaphthylene	1	18	18	1.8	U
98-86-2	Acetophenone	1	180	180	4.0	U
120-12-7	Anthracene	1	18	18	2.8	U
1912-24-9	Atrazine	1	180	180	4.8	U
100-52-7	Benzaldehyde	1	180	180	6.7	U R,I
56-55-3	Benzo(a)anthracene	1	6.5	18	1.2	J
50-32-8	Benzo(a)pyrene	1	6.9	18	1.5	J
205-99-2	Benzo(b)fluoranthene	1	8.0	18	3.2	J
207-08-9	Benzo(k)fluoranthene	1	3.6	18	1.4	J
191-24-2	Benzo(g,h,i)perylene	1	4.7	73	1.0	J
92-52-4	1,1'-Biphenyl	1	180	180	0.90	U
101-55-3	4-Bromophenyl Phenyl Ether	1	180	180	1.6	U
85-68-7	Butyl Benzyl Phthalate	1	180	180	5.3	U
105-60-2	Caprolactam	1	360	360	14	U
86-74-8	Carbazole	1	360	360	91	U
59-50-7	4-Chloro-3-methylphenol	1	180	180	3.6	U
106-47-8	4-Chloroaniline	1	180	180	7.7	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	180	180	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	180	180	2.0	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	180	180	7.2	U
91-58-7	2-Chloronaphthalene	1	180	180	2.4	U
95-57-8	2-Chlorophenol	1	180	180	4.1	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	180	180	3.6	U
218-01-9	Chrysene	1	7.2	18	3.8	J
53-70-3	Dibenz(a,h)anthracene	1	73	73	8.4	U
132-64-9	Dibenzofuran	1	180	180	9.5	U
84-74-2	Di-n-butyl Phthalate	1	180	180	27	U
91-94-1	3,3'-Dichlorobenzidine	1	260	260	30	U R,M
120-83-2	2,4-Dichlorophenol	1	180	180	3.7	U
84-66-2	Diethyl Phthalate	1	180	180	3.8	U
105-67-9	2,4-Dimethylphenol	1	180	180	1.6	U
131-11-3	Dimethyl Phthalate	1	180	180	0.94	U
534-52-1	4,6-Dinitro-2-methylphenol	1	180	180	22	U
51-28-5	2,4-Dinitrophenol	1	360	360	110	U R,M
121-14-2	2,4-Dinitrotoluene	1	180	180	20	U
606-20-2	2,6-Dinitrotoluene	1	180	180	2.5	U
117-84-0	Di-n-octyl Phthalate	1	180	180	5.8	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	11	180	5.1	J B,Z
206-44-0	Fluoranthene	1	9.4	18	0.83	J
86-73-7	Fluorene	1	36	36	7.5	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: 0908176-03.D

Sampled: 08/10/09 14:10 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 14:50

Solids: 92.04 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	180	180	4.6	U
87-68-3	Hexachlorobutadiene	1	180	180	3.7	U
77-47-4	Hexachlorocyclopentadiene	1	180	180	2.2	U
67-72-1	Hexachloroethane	1	180	180	2.7	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	73	73	4.0	U
78-59-1	Isophorone	1	180	180	6.7	U
91-57-6	2-Methylnaphthalene	1	0.72	180	0.49	J
95-48-7	2-Methylphenol	1	180	180	5.2	U
106-44-5	4-Methylphenol	1	180	180	4.8	U
91-20-3	Naphthalene	1	18	18	2.3	U
88-74-4	2-Nitroaniline	1	180	180	7.7	U
99-09-2	3-Nitroaniline	1	180	180	7.7	U
100-01-6	4-Nitroaniline	1	180	180	1.7	U
98-95-3	Nitrobenzene	1	180	180	5.6	U
100-02-7	4-Nitrophenol	1	730	730	140	U RM
88-75-5	2-Nitrophenol	1	180	180	7.2	U
86-30-6	N-Nitroso-diphenylamine	1	180	180	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	180	180	6.1	U
87-86-5	Pentachlorophenol	1	360	360	48	U
85-01-8	Phenanthrene	1	4.3	18	1.1	J
108-95-2	Phenol	1	180	180	49	U
129-00-0	Pyrene	1	12	18	1.3	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	180	180	2.3	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	180	180	10	U
88-06-2	2,4,6-Trichlorophenol	1	180	180	2.2	U
95-95-4	2,4,5-Trichlorophenol	1	180	180	2.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	724	527	73	35 - 105	
Phenol-d6	728	520	71	40 - 100	
Nitrobenzene-d5	360	251	70	35 - 100	
2-Fluorobiphenyl	366	250	68	45 - 105	
2,4,6-Tribromophenol	724	520	72	35 - 125	
o-Terphenyl	362	247	68	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	190447	7.965	162142	8.052	
Naphthalene-d8	742064	10.704	631706	10.803	
Acenaphthene-d10	389840	14.831	345886	14.941	
Phenanthrene-d10	533370	18.2	512675	18.281	
Chrysene-d12	439728	21.726	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS4

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-04 File ID: 0908176-04.D

Sampled: 08/10/09 16:15 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 15:25

Solids: 78.77 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	22	22	0.99	U
208-96-8	Acenaphthylene	1	22	22	2.1	U
98-86-2	Acetophenone	1	220	220	4.7	U
120-12-7	Anthracene	1	22	22	3.2	U
1912-24-9	Atrazine	1	220	220	5.7	U
100-52-7	Benzaldehyde	1	220	220	7.8	U R,I
56-55-3	Benzo(a)anthracene	1	5.1	22	1.4	J
50-32-8	Benzo(a)pyrene	1	6.3	22	1.8	J
205-99-2	Benzo(b)fluoranthene	1	10	22	3.7	J
207-08-9	Benzo(k)fluoranthene	1	3.4	22	1.6	J
191-24-2	Benzo(g,h,i)perylene	1	5.1	85	1.2	J
92-52-4	1,1'-Biphenyl	1	220	220	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	1.9	U
85-68-7	Butyl Benzyl Phthalate	1	8.9	220	6.2	J
105-60-2	Caprolactam	1	420	420	16	U
86-74-8	Carbazole	1	420	420	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.2	U
106-47-8	4-Chloroaniline	1	220	220	9.0	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.4	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.4	U
91-58-7	2-Chloronaphthalene	1	220	220	2.8	U
95-57-8	2-Chlorophenol	1	220	220	4.8	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.3	U
218-01-9	Chrysene	1	6.3	22	4.4	J
53-70-3	Dibenz(a,h)anthracene	1	85	85	9.8	U
132-64-9	Dibenzofuran	1	220	220	11	U
84-74-2	Di-n-butyl Phthalate	1	220	220	31	U
91-94-1	3,3'-Dichlorobenzidine	1	300	300	35	U R,M
120-83-2	2,4-Dichlorophenol	1	220	220	4.3	U
84-66-2	Diethyl Phthalate	1	220	220	4.4	U
105-67-9	2,4-Dimethylphenol	1	220	220	1.9	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	26	U
51-28-5	2,4-Dinitrophenol	1	420	420	130	U R,M
121-14-2	2,4-Dinitrotoluene	1	220	220	24	U
606-20-2	2,6-Dinitrotoluene	1	220	220	2.9	U
117-84-0	Di-n-octyl Phthalate	1	220	220	6.8	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	22	220	5.9	J B,J
206-44-0	Fluoranthene	1	7.6	22	0.97	J
86-73-7	Fluorene	1	42	42	8.7	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS4

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-04 File ID: 0908176-04.D

Sampled: 08/10/09 16:15 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 15:25

Solids: 78.77 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.4	U
87-68-3	Hexachlorobutadiene	1	220	220	4.4	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.6	U
67-72-1	Hexachloroethane	1	220	220	3.1	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	85	85	4.7	U
78-59-1	Isophorone	1	220	220	7.9	U
91-57-6	2-Methylnaphthalene	1	220	220	0.58	U
95-48-7	2-Methylphenol	1	220	220	6.0	U
106-44-5	4-Methylphenol	1	220	220	5.6	U
91-20-3	Naphthalene	1	22	22	2.6	U
88-74-4	2-Nitroaniline	1	220	220	9.0	U
99-09-2	3-Nitroaniline	1	220	220	9.0	U
100-01-6	4-Nitroaniline	1	220	220	2.0	U
98-95-3	Nitrobenzene	1	220	220	6.5	U
100-02-7	4-Nitrophenol	1	850	850	170	U RM
88-75-5	2-Nitrophenol	1	220	220	8.4	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.1	U
87-86-5	Pentachlorophenol	1	420	420	56	U
85-01-8	Phenanthrene	1	3.4	22	1.3	J
108-95-2	Phenol	1	220	220	57	U
129-00-0	Pyrene	1	8.5	22	1.5	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.6	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	846	650	77	35 - 105	
Phenol-d6	851	638	75	40 - 100	
Nitrobenzene-d5	421	300	71	35 - 100	
2-Fluorobiphenyl	427	276	65	45 - 105	
2,4,6-Tribromophenol	846	642	76	35 - 125	
o-Terphenyl	423	263	62	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	186613	7.965	162142	8.052	
Naphthalene-d8	739365	10.704	631706	10.803	
Acenaphthene-d10	397154	14.837	345886	14.941	
Phenanthrene-d10	540953	18.206	512675	18.281	
Chrysene-d12	473756	21.732	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: 0908176-05.D

Sampled: 08/10/09 16:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 15:59

Solids: 70.71 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	24	24	1.1	U
208-96-8	Acenaphthylene	1	24	24	2.4	U
98-86-2	Acetophenone	1	240	240	5.2	U
120-12-7	Anthracene	1	24	24	3.6	U
1912-24-9	Atrazine	1	240	240	6.3	U
100-52-7	Benzaldehyde	1	240	240	8.7	U R,I
56-55-3	Benzo(a)anthracene	1	6.1	24	1.6	J
50-32-8	Benzo(a)pyrene	1	7.1	24	2.0	J
205-99-2	Benzo(b)fluoranthene	1	10	24	4.1	J
207-08-9	Benzo(k)fluoranthene	1	3.8	24	1.8	J
191-24-2	Benzo(g,h,i)perylene	1	5.2	95	1.3	J
92-52-4	1,1'-Biphenyl	1	240	240	1.2	U
101-55-3	4-Bromophenyl Phenyl Ether	1	240	240	2.1	U
85-68-7	Butyl Benzyl Phthalate	1	240	240	6.9	U
105-60-2	Caprolactam	1	470	470	18	U
86-74-8	Carbazole	1	470	470	120	U
59-50-7	4-Chloro-3-methylphenol	1	240	240	4.7	U
106-47-8	4-Chloroaniline	1	240	240	10	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	240	240	1.8	U
111-44-4	Bis(2-chloroethyl) Ether	1	240	240	2.6	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	240	240	9.4	U
91-58-7	2-Chloronaphthalene	1	240	240	3.1	U
95-57-8	2-Chlorophenol	1	240	240	5.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	240	240	4.7	U
218-01-9	Chrysene	1	6.6	24	4.9	J
53-70-3	Dibenz(a,h)anthracene	1	95	95	11	U
132-64-9	Dibenzofuran	1	240	240	12	U
84-74-2	Di-n-butyl Phthalate	1	240	240	35	U
91-94-1	3,3'-Dichlorobenzidine	1	340	340	39	U R,M
120-83-2	2,4-Dichlorophenol	1	240	240	4.8	U
84-66-2	Diethyl Phthalate	1	240	240	4.9	U
105-67-9	2,4-Dimethylphenol	1	240	240	2.1	U
131-11-3	Dimethyl Phthalate	1	240	240	1.2	U
534-52-1	4,6-Dinitro-2-methylphenol	1	240	240	29	U
51-28-5	2,4-Dinitrophenol	1	470	470	150	U R,M
121-14-2	2,4-Dinitrotoluene	1	240	240	27	U
606-20-2	2,6-Dinitrotoluene	1	240	240	3.2	U
117-84-0	Di-n-octyl Phthalate	1	240	240	7.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	35	240	6.6	J B,J
206-44-0	Fluoranthene	1	9.9	24	1.1	J
86-73-7	Fluorene	1	47	47	9.7	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: 0908176-05.D

Sampled: 08/10/09 16:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 15:59

Solids: 70.71 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	240	240	6.0	U
87-68-3	Hexachlorobutadiene	1	240	240	4.9	U
77-47-4	Hexachlorocyclopentadiene	1	240	240	2.8	U
67-72-1	Hexachloroethane	1	240	240	3.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	95	95	5.2	U
78-59-1	Isophorone	1	240	240	8.8	U
91-57-6	2-Methylnaphthalene	1	1.4	240	0.64	J
95-48-7	2-Methylphenol	1	240	240	6.7	U
106-44-5	4-Methylphenol	1	240	240	6.3	U
91-20-3	Naphthalene	1	24	24	2.9	U
88-74-4	2-Nitroaniline	1	240	240	10	U
99-09-2	3-Nitroaniline	1	240	240	10	U
100-01-6	4-Nitroaniline	1	240	240	2.3	U
98-95-3	Nitrobenzene	1	240	240	7.3	U
100-02-7	4-Nitrophenol	1	950	950	190	U RM
88-75-5	2-Nitrophenol	1	240	240	9.3	U
86-30-6	N-Nitroso-diphenylamine	1	240	240	14	U
621-64-7	N-Nitroso-di-n-propylamine	1	240	240	7.9	U
87-86-5	Pentachlorophenol	1	470	470	62	U
85-01-8	Phenanthrene	1	4.2	24	1.5	J
108-95-2	Phenol	1	240	240	63	U
129-00-0	Pyrene	1	12	24	1.7	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	240	240	2.9	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	240	240	13	U
88-06-2	2,4,6-Trichlorophenol	1	240	240	2.9	U
95-95-4	2,4,5-Trichlorophenol	1	240	240	3.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	943	742	79	35 - 105	
Phenol-d6	948	736	78	40 - 100	
Nitrobenzene-d5	469	363	77	35 - 100	
2-Fluorobiphenyl	476	341	72	45 - 105	
2,4,6-Tribromophenol	943	776	82	35 - 125	
o-Terphenyl	471	322	68	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	195586	7.964	162142	8.052	
Naphthalene-d8	748251	10.704	631706	10.803	
Acenaphthene-d10	401139	14.836	345886	14.941	
Phenanthrene-d10	536539	18.205	512675	18.281	
Chrysene-d12	431665	21.732	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: 0908176-06.D

Sampled: 08/10/09 15:55 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 16:33

Solids: 67.98 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	25	25	1.1	U
208-96-8	Acenaphthylene	1	25	25	2.5	U
98-86-2	Acetophenone	1	250	250	5.4	U
120-12-7	Anthracene	1	25	25	3.8	U
1912-24-9	Atrazine	1	250	250	6.6	U
100-52-7	Benzaldehyde	1	250	250	9.1	U RJ
56-55-3	Benzo(a)anthracene	1	11	25	1.7	J J,i
50-32-8	Benzo(a)pyrene	1	13	25	2.1	J
205-99-2	Benzo(b)fluoranthene	1	22	25	4.3	J
207-08-9	Benzo(k)fluoranthene	1	6.4	25	1.9	J
191-24-2	Benzo(g,h,i)perylene	1	7.4	99	1.4	J
92-52-4	1,1'-Biphenyl	1	250	250	1.2	U
101-55-3	4-Bromophenyl Phenyl Ether	1	250	250	2.2	U
85-68-7	Butyl Benzyl Phthalate	1	7.8	250	7.2	J J,i
105-60-2	Caprolactam	1	490	490	19	U
86-74-8	Carbazole	1	490	490	120	U
59-50-7	4-Chloro-3-methylphenol	1	250	250	4.9	U
106-47-8	4-Chloroaniline	1	250	250	10	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	250	250	1.8	U
111-44-4	Bis(2-chloroethyl) Ether	1	250	250	2.8	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	250	250	9.8	U
91-58-7	2-Chloronaphthalene	1	250	250	3.2	U
95-57-8	2-Chlorophenol	1	250	250	5.5	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	250	250	4.9	U
218-01-9	Chrysene	1	15	25	5.1	J J,i
53-70-3	Dibenz(a,h)anthracene	1	99	99	11	U UJ,i
132-64-9	Dibenzofuran	1	250	250	13	U
84-74-2	Di-n-butyl Phthalate	1	250	250	36	U
91-94-1	3,3'-Dichlorobenzidine	1	350	350	41	U R,M
120-83-2	2,4-Dichlorophenol	1	250	250	5.0	U
84-66-2	Diethyl Phthalate	1	250	250	5.1	U
105-67-9	2,4-Dimethylphenol	1	250	250	2.2	U
131-11-3	Dimethyl Phthalate	1	250	250	1.3	U
534-52-1	4,6-Dinitro-2-methylphenol	1	250	250	30	U
51-28-5	2,4-Dinitrophenol	1	490	490	150	U R,M
121-14-2	2,4-Dinitrotoluene	1	250	250	28	U
606-20-2	2,6-Dinitrotoluene	1	250	250	3.4	U
117-84-0	Di-n-octyl Phthalate	1	250	250	7.8	U UJ,i
117-81-7	Bis(2-ethylhexyl) Phthalate	1	57	250	6.8	J B,J
206-44-0	Fluoranthene	1	16	25	1.1	J
86-73-7	Fluorene	1	49	49	10	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: 0908176-06.D

Sampled: 08/10/09 15:55 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 16:33

Solids: 67.98 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	250	250	6.3	U
87-68-3	Hexachlorobutadiene	1	250	250	5.1	U
77-47-4	Hexachlorocyclopentadiene	1	250	250	3.0	U
67-72-1	Hexachloroethane	1	250	250	3.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	7.8	99	5.4	J JJ
78-59-1	Isophorone	1	250	250	9.1	U
91-57-6	2-Methylnaphthalene	1	4.9	250	0.67	J
95-48-7	2-Methylphenol	1	250	250	7.0	U
106-44-5	4-Methylphenol	1	250	250	6.5	U
91-20-3	Naphthalene	1	25	25	3.1	U
88-74-4	2-Nitroaniline	1	250	250	10	U
99-09-2	3-Nitroaniline	1	250	250	10	U
100-01-6	4-Nitroaniline	1	250	250	2.4	U
98-95-3	Nitrobenzene	1	250	250	7.6	U
100-02-7	4-Nitrophenol	1	990	990	200	U R,M
88-75-5	2-Nitrophenol	1	250	250	9.7	U
86-30-6	N-Nitroso-diphenylamine	1	250	250	14	U
621-64-7	N-Nitroso-di-n-propylamine	1	250	250	8.3	U
87-86-5	Pentachlorophenol	1	490	490	65	U
85-01-8	Phenanthrene	1	11	25	1.5	J
108-95-2	Phenol	1	250	250	66	U
129-00-0	Pyrene	1	23	25	1.8	J JJ
95-94-3	1,2,4,5-Tetrachlorobenzene	1	250	250	3.1	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	250	250	14	U
88-06-2	2,4,6-Trichlorophenol	1	250	250	3.0	U
95-95-4	2,4,5-Trichlorophenol	1	250	250	3.6	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	981	783	80	35 - 105	
Phenol-d6	986	789	80	40 - 100	
Nitrobenzene-d5	488	383	79	35 - 100	
2-Fluorobiphenyl	495	377	76	45 - 105	
2,4,6-Tribromophenol	981	778	79	35 - 125	
o-Terphenyl	490	303	62	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	175260	7.964	162142	8.052	
Naphthalene-d8	671993	10.704	631706	10.803	
Acenaphthene-d10	340534	14.836	345886	14.941	
Phenanthrene-d10	455971	18.205	512675	18.281	
Chrysene-d12	318079	21.732	651471	21.79	*

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06RE1 File ID: 0908176-06 10x.D

Sampled: 08/10/09 15:55 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 11:41

Solids: 67.98 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	10	250	250	11	U
208-96-8	Acenaphthylene	10	250	250	25	U
98-86-2	Acetophenone	10	2500	2500	54	U
120-12-7	Anthracene	10	250	250	38	U
1912-24-9	Atrazine	10	2500	2500	66	U
100-52-7	Benzaldehyde	10	2500	2500	91	U R,I
56-55-3	Benzo(a)anthracene	10	20	250	17	J
50-32-8	Benzo(a)pyrene	10	250	250	21	U
205-99-2	Benzo(b)fluoranthene	10	250	250	43	U
207-08-9	Benzo(k)fluoranthene	10	250	250	19	U
191-24-2	Benzo(g,h,i)perylene	10	15	990	14	J
92-52-4	1,1'-Biphenyl	10	2500	2500	12	U
101-55-3	4-Bromophenyl Phenyl Ether	10	2500	2500	22	U
85-68-7	Butyl Benzyl Phthalate	10	2500	2500	72	U
105-60-2	Caprolactam	10	4900	4900	190	U
86-74-8	Carbazole	10	4900	4900	1200	U
59-50-7	4-Chloro-3-methylphenol	10	2500	2500	49	U
106-47-8	4-Chloroaniline	10	2500	2500	100	U R,M
111-91-1	Bis(2-chloroethoxy)methane	10	2500	2500	18	U
111-44-4	Bis(2-chloroethyl) Ether	10	2500	2500	28	U
108-60-1	Bis(2-chloroisopropyl) Ether	10	2500	2500	98	U
91-58-7	2-Chloronaphthalene	10	2500	2500	32	U
95-57-8	2-Chlorophenol	10	2500	2500	55	U
7005-72-3	4-Chlorophenyl Phenyl Ether	10	2500	2500	49	U
218-01-9	Chrysene	10	250	250	51	U
53-70-3	Dibenz(a,h)anthracene	10	990	990	110	U
132-64-9	Dibenzofuran	10	2500	2500	130	U
84-74-2	Di-n-butyl Phthalate	10	2500	2500	360	U
91-94-1	3,3'-Dichlorobenzidine	10	3500	3500	410	U R,M
120-83-2	2,4-Dichlorophenol	10	2500	2500	50	U
84-66-2	Diethyl Phthalate	10	2500	2500	51	U
105-67-9	2,4-Dimethylphenol	10	2500	2500	22	U
131-11-3	Dimethyl Phthalate	10	2500	2500	13	U
534-52-1	4,6-Dinitro-2-methylphenol	10	2500	2500	300	U
51-28-5	2,4-Dinitrophenol	10	4900	4900	1500	U R,M
121-14-2	2,4-Dinitrotoluene	10	2500	2500	280	U
606-20-2	2,6-Dinitrotoluene	10	2500	2500	34	U
117-84-0	Di-n-octyl Phthalate	10	2500	2500	78	U
117-81-7	Bis(2-ethylhexyl) Phthalate	10	69	2500	68	J B,Z
206-44-0	Fluoranthene	10	25	250	11	J
86-73-7	Fluorene	10	490	490	100	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06RE1 File ID: 0908176-06 10x.D

Sampled: 08/10/09 15:55 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 11:41

Solids: 67.98 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	10	2500	2500	63	U
87-68-3	Hexachlorobutadiene	10	2500	2500	51	U
77-47-4	Hexachlorocyclopentadiene	10	2500	2500	30	U
67-72-1	Hexachloroethane	10	2500	2500	36	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	990	990	54	U
78-59-1	Isophorone	10	2500	2500	91	U
91-57-6	2-Methylnaphthalene	10	2500	2500	6.7	U
95-48-7	2-Methylphenol	10	2500	2500	70	U
106-44-5	4-Methylphenol	10	2500	2500	65	U
91-20-3	Naphthalene	10	250	250	31	U
88-74-4	2-Nitroaniline	10	2500	2500	100	U
99-09-2	3-Nitroaniline	10	2500	2500	100	U
100-01-6	4-Nitroaniline	10	2500	2500	24	U
98-95-3	Nitrobenzene	10	2500	2500	76	U
100-02-7	4-Nitrophenol	10	9900	9900	2000	U RM
88-75-5	2-Nitrophenol	10	2500	2500	97	U
86-30-6	N-Nitroso-diphenylamine	10	2500	2500	140	U
621-64-7	N-Nitroso-di-n-propylamine	10	2500	2500	83	U
87-86-5	Pentachlorophenol	10	4900	4900	650	U
85-01-8	Phenanthrene	10	250	250	15	U
108-95-2	Phenol	10	2500	2500	660	U
129-00-0	Pyrene	10	25	250	18	J
95-94-3	1,2,4,5-Tetrachlorobenzene	10	2500	2500	31	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	2500	2500	140	U
88-06-2	2,4,6-Trichlorophenol	10	2500	2500	30	U
95-95-4	2,4,5-Trichlorophenol	10	2500	2500	36	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	981	804	82	35 - 105	D
Phenol-d6	986	819	83	40 - 100	D
Nitrobenzene-d5	488	392	80	35 - 100	D
2-Fluorobiphenyl	495	368	74	45 - 105	D
2,4,6-Tribromophenol	981	574	58	35 - 125	D
o-Terphenyl	490	338	69	30 - 125	D

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	184056	7.722	162142	8.052	
Naphthalene-d8	723662	10.45	631706	10.803	
Acenaphthene-d10	374681	14.565	345886	14.941	
Phenanthrene-d10	510676	17.981	512675	18.281	
Chrysene-d12	537936	21.577	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: 0908176-07.D

Sampled: 08/10/09 15:40 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 17:07

Solids: 59.69 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	28	28	1.3	U
208-96-8	Acenaphthylene	1	28	28	2.8	U
98-86-2	Acetophenone	1	280	280	6.2	U
120-12-7	Anthracene	1	28	28	4.3	U
1912-24-9	Atrazine	1	280	280	7.5	U
100-52-7	Benzaldehyde	1	280	280	10	U R,i
56-55-3	Benzo(a)anthracene	1	7.8	28	1.9	J J,i
50-32-8	Benzo(a)pyrene	1	11	28	2.3	J
205-99-2	Benzo(b)fluoranthene	1	14	28	4.9	J
207-08-9	Benzo(k)fluoranthene	1	10	28	2.2	J
191-24-2	Benzo(g,h,i)perylene	1	7.8	110	1.6	J
92-52-4	1,1'-Biphenyl	1	280	280	1.4	U
101-55-3	4-Bromophenyl Phenyl Ether	1	280	280	2.5	U
85-68-7	Butyl Benzyl Phthalate	1	16	280	8.2	J J,i
105-60-2	Caprolactam	1	550	550	21	U
86-74-8	Carbazole	1	550	550	140	U
59-50-7	4-Chloro-3-methylphenol	1	280	280	5.5	U
106-47-8	4-Chloroaniline	1	280	280	12	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	280	280	2.1	U
111-44-4	Bis(2-chloroethyl) Ether	1	280	280	3.1	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	280	280	11	U
91-58-7	2-Chloronaphthalene	1	280	280	3.6	U
95-57-8	2-Chlorophenol	1	280	280	6.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	280	280	5.6	U
218-01-9	Chrysene	1	12	28	5.8	J J,i
53-70-3	Dibenz(a,h)anthracene	1	110	110	13	U U,i
132-64-9	Dibenzofuran	1	280	280	15	U
84-74-2	Di-n-butyl Phthalate	1	280	280	42	U
91-94-1	3,3'-Dichlorobenzidine	1	400	400	47	U R,M
120-83-2	2,4-Dichlorophenol	1	280	280	5.7	U
84-66-2	Diethyl Phthalate	1	280	280	5.8	U
105-67-9	2,4-Dimethylphenol	1	280	280	2.5	U
131-11-3	Dimethyl Phthalate	1	280	280	1.5	U
534-52-1	4,6-Dinitro-2-methylphenol	1	280	280	34	U
51-28-5	2,4-Dinitrophenol	1	550	550	180	U R,M
121-14-2	2,4-Dinitrotoluene	1	280	280	31	U
606-20-2	2,6-Dinitrotoluene	1	280	280	3.8	U
117-84-0	Di-n-octyl Phthalate	1	280	280	8.9	U U,i
117-81-7	Bis(2-ethylhexyl) Phthalate	1	56	280	7.8	J B,Z
206-44-0	Fluoranthene	1	12	28	1.3	J
86-73-7	Fluorene	1	55	55	12	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: 0908176-07.D

Sampled: 08/10/09 15:40 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 17:07

Solids: 59.69 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	280	280	7.2	U
87-68-3	Hexachlorobutadiene	1	280	280	5.8	U
77-47-4	Hexachlorocyclopentadiene	1	280	280	3.4	U
67-72-1	Hexachloroethane	1	280	280	4.1	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	110	110	6.1	U UJ
78-59-1	Isophorone	1	280	280	10	U
91-57-6	2-Methylnaphthalene	1	3.4	280	0.76	J
95-48-7	2-Methylphenol	1	280	280	8.0	U
106-44-5	4-Methylphenol	1	280	280	7.4	U
91-20-3	Naphthalene	1	28	28	3.5	U
88-74-4	2-Nitroaniline	1	280	280	12	U
99-09-2	3-Nitroaniline	1	280	280	12	U
100-01-6	4-Nitroaniline	1	280	280	2.7	U
98-95-3	Nitrobenzene	1	280	280	8.6	U
100-02-7	4-Nitrophenol	1	1100	1100	220	U R,M
88-75-5	2-Nitrophenol	1	280	280	11	U
86-30-6	N-Nitroso-diphenylamine	1	280	280	16	U
621-64-7	N-Nitroso-di-n-propylamine	1	280	280	9.4	U
87-86-5	Pentachlorophenol	1	550	550	74	U
85-01-8	Phenanthrene	1	8.9	28	1.8	J
108-95-2	Phenol	1	280	280	75	U
129-00-0	Pyrene	1	17	28	2.0	J J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	280	280	3.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	280	280	16	U
88-06-2	2,4,6-Trichlorophenol	1	280	280	3.4	U
95-95-4	2,4,5-Trichlorophenol	1	280	280	4.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	1120	904	81	35 - 105	
Phenol-d6	1120	871	78	40 - 100	
Nitrobenzene-d5	556	425	76	35 - 100	
2-Fluorobiphenyl	564	408	72	45 - 105	
2,4,6-Tribromophenol	1120	967	87	35 - 125	
o-Terphenyl	558	342	61	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	163142	7.97	162142	8.052	
Naphthalene-d8	627130	10.71	631706	10.803	
Acenaphthene-d10	325369	14.837	345886	14.941	
Phenanthrene-d10	431832	18.206	512675	18.281	
Chrysene-d12	287841	21.732	651471	21.79	*

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07RE1 File ID: 0908176-07 5x.D

Sampled: 08/10/09 15:40 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 21:32

Solids: 59.69 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	5	140	140	6.5	U
208-96-8	Acenaphthylene	5	140	140	14	U
98-86-2	Acetophenone	5	1400	1400	31	U
120-12-7	Anthracene	5	140	140	21	U
1912-24-9	Atrazine	5	1400	1400	37	U
100-52-7	Benzaldehyde	5	1400	1400	52	U R,I
56-55-3	Benzo(a)anthracene	5	14	140	9.5	J
50-32-8	Benzo(a)pyrene	5	140	140	12	U
205-99-2	Benzo(b)fluoranthene	5	140	140	24	U
207-08-9	Benzo(k)fluoranthene	5	140	140	11	U
191-24-2	Benzo(g,h,i)perylene	5	8.4	560	7.8	J
92-52-4	1,1'-Biphenyl	5	1400	1400	6.9	U
101-55-3	4-Bromophenyl Phenyl Ether	5	1400	1400	12	U
85-68-7	Butyl Benzyl Phthalate	5	1400	1400	41	U
105-60-2	Caprolactam	5	2800	2800	110	U
86-74-8	Carbazole	5	2800	2800	700	U
59-50-7	4-Chloro-3-methylphenol	5	1400	1400	28	U
106-47-8	4-Chloroaniline	5	1400	1400	59	U R,M
111-91-1	Bis(2-chloroethoxy)methane	5	1400	1400	10	U
111-44-4	Bis(2-chloroethyl) Ether	5	1400	1400	16	U
108-60-1	Bis(2-chloroisopropyl) Ether	5	1400	1400	56	U
91-58-7	2-Chloronaphthalene	5	1400	1400	18	U
95-57-8	2-Chlorophenol	5	1400	1400	31	U
7005-72-3	4-Chlorophenyl Phenyl Ether	5	1400	1400	28	U
218-01-9	Chrysene	5	140	140	29	U
53-70-3	Dibenz(a,h)anthracene	5	560	560	65	U
132-64-9	Dibenzofuran	5	1400	1400	73	U
84-74-2	Di-n-butyl Phthalate	5	1400	1400	210	U
91-94-1	3,3'-Dichlorobenzidine	5	2000	2000	230	U R,M
120-83-2	2,4-Dichlorophenol	5	1400	1400	28	U
84-66-2	Diethyl Phthalate	5	1400	1400	29	U
105-67-9	2,4-Dimethylphenol	5	1400	1400	12	U
131-11-3	Dimethyl Phthalate	5	1400	1400	7.3	U
534-52-1	4,6-Dinitro-2-methylphenol	5	1400	1400	170	U
51-28-5	2,4-Dinitrophenol	5	2800	2800	880	U R,M
121-14-2	2,4-Dinitrotoluene	5	1400	1400	160	U
606-20-2	2,6-Dinitrotoluene	5	1400	1400	19	U
117-84-0	Di-n-octyl Phthalate	5	1400	1400	45	U
117-81-7	Bis(2-ethylhexyl) Phthalate	5	56	1400	39	J B,Z
206-44-0	Fluoranthene	5	14	140	6.4	J
86-73-7	Fluorene	5	280	280	58	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07RE1 File ID: 0908176-07 5x.D

Sampled: 08/10/09 15:40 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 21:32

Solids: 59.69 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	5	1400	1400	36	U
87-68-3	Hexachlorobutadiene	5	1400	1400	29	U
77-47-4	Hexachlorocyclopentadiene	5	1400	1400	17	U
67-72-1	Hexachloroethane	5	1400	1400	21	U
193-39-5	Indeno(1,2,3-cd)pyrene	5	560	560	31	U
78-59-1	Isophorone	5	1400	1400	52	U
91-57-6	2-Methylnaphthalene	5	1400	1400	3.8	U
95-48-7	2-Methylphenol	5	1400	1400	40	U
106-44-5	4-Methylphenol	5	1400	1400	37	U
91-20-3	Naphthalene	5	140	140	17	U
88-74-4	2-Nitroaniline	5	1400	1400	59	U
99-09-2	3-Nitroaniline	5	1400	1400	59	U
100-01-6	4-Nitroaniline	5	1400	1400	13	U
98-95-3	Nitrobenzene	5	1400	1400	43	U
100-02-7	4-Nitrophenol	5	5600	5600	1100	U RJM
88-75-5	2-Nitrophenol	5	1400	1400	55	U
86-30-6	N-Nitroso-diphenylamine	5	1400	1400	81	U
621-64-7	N-Nitroso-di-n-propylamine	5	1400	1400	47	U
87-86-5	Pentachlorophenol	5	2800	2800	370	U
85-01-8	Phenanthrene	5	140	140	8.8	U
108-95-2	Phenol	5	1400	1400	370	U
129-00-0	Pyrene	5	17	140	10	J
95-94-3	1,2,4,5-Tetrachlorobenzene	5	1400	1400	17	U
58-90-2	2,3,4,6-Tetrachlorophenol	5	1400	1400	78	U
88-06-2	2,4,6-Trichlorophenol	5	1400	1400	17	U
95-95-4	2,4,5-Trichlorophenol	5	1400	1400	21	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	1120	642	57	35 - 105	D
Phenol-d6	1120	662	59	40 - 100	D
Nitrobenzene-d5	556	313	56	35 - 100	D
2-Fluorobiphenyl	564	279	50	45 - 105	D
2,4,6-Tribromophenol	1120	567	51	35 - 125	D
o-Terphenyl	558	332	60	30 - 125	D

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	188548	7.939	162142	8.052	
Naphthalene-d8	738985	10.678	631706	10.803	
Acenaphthene-d10	379704	14.805	345886	14.941	
Phenanthrene-d10	495470	18.185	512675	18.281	
Chrysene-d12	439522	21.712	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: 0908176-08.D

Sampled: 08/10/09 00:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 17:42

Solids: 78.01 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	22	22	1.0	U
208-96-8	Acenaphthylene	1	22	22	2.1	U
98-86-2	Acetophenone	1	220	220	4.7	U
120-12-7	Anthracene	1	22	22	3.3	U
1912-24-9	Atrazine	1	220	220	5.7	U
100-52-7	Benzaldehyde	1	220	220	7.9	U R,I
56-55-3	Benzo(a)anthracene	1	6.8	22	1.4	J
50-32-8	Benzo(a)pyrene	1	7.7	22	1.8	J
205-99-2	Benzo(b)fluoranthene	1	16	22	3.7	J
207-08-9	Benzo(k)fluoranthene	1	5.6	22	1.7	J
191-24-2	Benzo(g,h,i)perylene	1	7.3	86	1.2	J
92-52-4	1,1'-Biphenyl	1	220	220	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	1.9	U
85-68-7	Butyl Benzyl Phthalate	1	8.1	220	6.3	J
105-60-2	Caprolactam	1	420	420	16	U
86-74-8	Carbazole	1	420	420	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.2	U
106-47-8	4-Chloroaniline	1	220	220	9.1	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.4	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.5	U
91-58-7	2-Chloronaphthalene	1	220	220	2.8	U
95-57-8	2-Chlorophenol	1	220	220	4.8	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.3	U
218-01-9	Chrysene	1	10	22	4.5	J
53-70-3	Dibenz(a,h)anthracene	1	86	86	9.9	U
132-64-9	Dibenzofuran	1	220	220	11	U
84-74-2	Di-n-butyl Phthalate	1	220	220	32	U
91-94-1	3,3'-Dichlorobenzidine	1	310	310	36	U R,M
120-83-2	2,4-Dichlorophenol	1	220	220	4.3	U
84-66-2	Diethyl Phthalate	1	220	220	4.4	U
105-67-9	2,4-Dimethylphenol	1	220	220	1.9	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	26	U
51-28-5	2,4-Dinitrophenol	1	420	420	130	U R,M
121-14-2	2,4-Dinitrotoluene	1	220	220	24	U
606-20-2	2,6-Dinitrotoluene	1	220	220	2.9	U
117-84-0	Di-n-octyl Phthalate	1	220	220	6.8	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	28	220	6.0	J B,Z
206-44-0	Fluoranthene	1	12	22	0.98	J
86-73-7	Fluorene	1	42	42	8.8	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: 0908176-08.D

Sampled: 08/10/09 00:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 17:42

Solids: 78.01 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.5	U
87-68-3	Hexachlorobutadiene	1	220	220	4.4	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.6	U
67-72-1	Hexachloroethane	1	220	220	3.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	6.0	86	4.7	J
78-59-1	Isophorone	1	220	220	8.0	U
91-57-6	2-Methylnaphthalene	1	1.7	220	0.58	J
95-48-7	2-Methylphenol	1	220	220	6.1	U
106-44-5	4-Methylphenol	1	220	220	5.7	U
91-20-3	Naphthalene	1	22	22	2.7	U
88-74-4	2-Nitroaniline	1	220	220	9.1	U
99-09-2	3-Nitroaniline	1	220	220	9.1	U
100-01-6	4-Nitroaniline	1	220	220	2.1	U
98-95-3	Nitrobenzene	1	220	220	6.6	U
100-02-7	4-Nitrophenol	1	860	860	170	U R,M
88-75-5	2-Nitrophenol	1	220	220	8.5	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.2	U
87-86-5	Pentachlorophenol	1	420	420	57	U
85-01-8	Phenanthrene	1	6.8	22	1.3	J
108-95-2	Phenol	1	220	220	57	U
129-00-0	Pyrene	1	17	22	1.5	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.7	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.6	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.2	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	855	686	80	35 - 105	
Phenol-d6	859	675	79	40 - 100	
Nitrobenzene-d5	425	332	78	35 - 100	
2-Fluorobiphenyl	432	324	75	45 - 105	
2,4,6-Tribromophenol	855	661	77	35 - 125	
o-Terphenyl	427	306	72	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	193657	7.964	162142	8.052	
Naphthalene-d8	739888	10.71	631706	10.803	
Acenaphthene-d10	395802	14.836	345886	14.941	
Phenanthrene-d10	544529	18.211	512675	18.281	
Chrysene-d12	424053	21.732	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: 0908185-02.D

Sampled: 08/11/09 11:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 18:16

Solids: 81.36 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.1	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U R1
56-55-3	Benzo(a)anthracene	1	21	21	1.4	U
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	11	210	6.0	J
105-60-2	Caprolactam	1	410	410	15	U
86-74-8	Carbazole	1	410	410	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.1	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.3	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.5	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	150	210	30	J
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U R,M
120-83-2	2,4-Dichlorophenol	1	210	210	4.2	U
84-66-2	Diethyl Phthalate	1	13	210	4.3	J
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	410	410	130	U R,M
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	20	210	5.7	J B,Z
206-44-0	Fluoranthene	1	21	21	0.94	U
86-73-7	Fluorene	1	41	41	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: 0908185-02.D

Sampled: 08/11/09 11:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 18:16

Solids: 81.36 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.9	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.6	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U KJM
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	410	410	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	21	21	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	819	608	74	35 - 105	
Phenol-d6	824	611	74	40 - 100	
Nitrobenzene-d5	408	295	72	35 - 100	
2-Fluorobiphenyl	414	291	70	45 - 105	
2,4,6-Tribromophenol	819	583	71	35 - 125	
o-Terphenyl	410	302	74	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	169997	7.97	162142	8.052	
Naphthalene-d8	658183	10.71	631706	10.803	
Acenaphthene-d10	355241	14.842	345886	14.941	
Phenanthrene-d10	523065	18.206	512675	18.281	
Chrysene-d12	591429	21.732	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03 File ID: 0908185-03.D

Sampled: 08/11/09 13:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 18:51

Solids: 79.99 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	2.5	21	0.98	J
208-96-8	Acenaphthylene	1	2.9	21	2.1	J
98-86-2	Acetophenone	1	210	210	4.6	U
120-12-7	Anthracene	1	5.8	21	3.2	J
1912-24-9	Atrazine	1	210	210	5.6	U
100-52-7	Benzaldehyde	1	210	210	7.7	U R,L
56-55-3	Benzo(a)anthracene	1	69	21	1.4	J,i
50-32-8	Benzo(a)pyrene	1	54	21	1.8	
205-99-2	Benzo(b)fluoranthene	1	110	21	3.7	
207-08-9	Benzo(k)fluoranthene	1	58	21	1.6	
191-24-2	Benzo(g,h,i)perylene	1	35	84	1.2	J
92-52-4	1,1'-Biphenyl	1	1.3	210	1.0	J
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.9	U
85-68-7	Butyl Benzyl Phthalate	1	25	210	6.1	J J,i
105-60-2	Caprolactam	1	410	410	16	U
86-74-8	Carbazole	1	410	410	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.1	U
106-47-8	4-Chloroaniline	1	210	210	8.8	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.3	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.7	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.2	U
218-01-9	Chrysene	1	67	21	4.4	J,i
53-70-3	Dibenz(a,h)anthracene	1	17	84	9.6	J J,i
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	230	210	31	K,M
91-94-1	3,3'-Dichlorobenzidine	1	300	300	35	U R,M
120-83-2	2,4-Dichlorophenol	1	210	210	4.2	U
84-66-2	Diethyl Phthalate	1	140	210	4.3	J L,M
105-67-9	2,4-Dimethylphenol	1	210	210	1.9	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	410	410	130	U R,M
121-14-2	2,4-Dinitrotoluene	1	36	210	24	J K,M
606-20-2	2,6-Dinitrotoluene	1	13	210	2.9	J
117-84-0	Di-n-octyl Phthalate	1	210	210	6.7	U U,i
117-81-7	Bis(2-ethylhexyl) Phthalate	1	150	210	5.8	J J,i
206-44-0	Fluoranthene	1	73	21	0.95	
86-73-7	Fluorene	1	41	41	8.6	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03 File ID: 0908185-03.D

Sampled: 08/11/09 13:00 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 18:51

Solids: 79.99 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.3	U
87-68-3	Hexachlorobutadiene	1	210	210	4.3	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.1	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	34	84	4.6	J J,i
78-59-1	Isophorone	1	210	210	7.8	U
91-57-6	2-Methylnaphthalene	1	4.6	210	0.57	J
95-48-7	2-Methylphenol	1	210	210	6.0	U
106-44-5	4-Methylphenol	1	210	210	5.5	U
91-20-3	Naphthalene	1	3.3	21	2.6	J
88-74-4	2-Nitroaniline	1	210	210	8.9	U
99-09-2	3-Nitroaniline	1	210	210	8.9	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U UL,m
98-95-3	Nitrobenzene	1	210	210	6.4	U
100-02-7	4-Nitrophenol	1	840	840	170	U K,m
88-75-5	2-Nitrophenol	1	210	210	8.3	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	7.0	U
87-86-5	Pentachlorophenol	1	410	410	55	U
85-01-8	Phenanthrene	1	40	21	1.3	K,m
108-95-2	Phenol	1	210	210	56	U
129-00-0	Pyrene	1	120	21	1.5	J,i
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	12	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.6	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	833	643	77	35 - 105	
Phenol-d6	838	631	75	40 - 100	
Nitrobenzene-d5	415	327	79	35 - 100	
2-Fluorobiphenyl	421	330	78	45 - 105	
2,4,6-Tribromophenol	833	589	71	35 - 125	
o-Terphenyl	417	304	73	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	163558	7.964	162142	8.052	
Naphthalene-d8	602914	10.71	631706	10.803	
Acenaphthene-d10	307188	14.842	345886	14.941	
Phenanthrene-d10	390129	18.211	512675	18.281	
Chrysene-d12	259411	21.743	651471	21.79	*

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03RE1 File ID: 0908185-03 10x.D

Sampled: 08/11/09 13:00 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 12:16

Solids: 79.99 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	10	210	210	9.8	U
208-96-8	Acenaphthylene	10	210	210	21	U
98-86-2	Acetophenone	10	2100	2100	46	U
120-12-7	Anthracene	10	210	210	32	U
1912-24-9	Atrazine	10	2100	2100	56	U
100-52-7	Benzaldehyde	10	2100	2100	77	U R,J
56-55-3	Benzo(a)anthracene	10	71	210	14	J
50-32-8	Benzo(a)pyrene	10	63	210	18	J
205-99-2	Benzo(b)fluoranthene	10	100	210	37	J
207-08-9	Benzo(k)fluoranthene	10	46	210	16	J
191-24-2	Benzo(g,h,i)perylene	10	54	840	12	J
92-52-4	1,1'-Biphenyl	10	2100	2100	10	U
101-55-3	4-Bromophenyl Phenyl Ether	10	2100	2100	19	U
85-68-7	Butyl Benzyl Phthalate	10	2100	2100	61	U
105-60-2	Caprolactam	10	4100	4100	160	U
86-74-8	Carbazole	10	4100	4100	1000	U
59-50-7	4-Chloro-3-methylphenol	10	2100	2100	41	U
106-47-8	4-Chloroaniline	10	2100	2100	88	U R,M
111-91-1	Bis(2-chloroethoxy)methane	10	2100	2100	16	U
111-44-4	Bis(2-chloroethyl) Ether	10	2100	2100	23	U
108-60-1	Bis(2-chloroisopropyl) Ether	10	2100	2100	83	U
91-58-7	2-Chloronaphthalene	10	2100	2100	27	U
95-57-8	2-Chlorophenol	10	2100	2100	47	U
7005-72-3	4-Chlorophenyl Phenyl Ether	10	2100	2100	42	U
218-01-9	Chrysene	10	58	210	44	J
53-70-3	Dibenz(a,h)anthracene	10	840	840	96	U
132-64-9	Dibenzofuran	10	2100	2100	110	U
84-74-2	Di-n-butyl Phthalate	10	2100	2100	310	U
91-94-1	3,3'-Dichlorobenzidine	10	3000	3000	350	U R,M
120-83-2	2,4-Dichlorophenol	10	2100	2100	42	U
84-66-2	Diethyl Phthalate	10	130	2100	43	J
105-67-9	2,4-Dimethylphenol	10	2100	2100	19	U
131-11-3	Dimethyl Phthalate	10	2100	2100	11	U
534-52-1	4,6-Dinitro-2-methylphenol	10	2100	2100	250	U
51-28-5	2,4-Dinitrophenol	10	4100	4100	1300	U R,M
121-14-2	2,4-Dinitrotoluene	10	2100	2100	240	U
606-20-2	2,6-Dinitrotoluene	10	2100	2100	29	U
117-84-0	Di-n-octyl Phthalate	10	2100	2100	67	U
117-81-7	Bis(2-ethylhexyl) Phthalate	10	130	2100	58	J B,Z
206-44-0	Fluoranthene	10	71	210	9.5	J
86-73-7	Fluorene	10	410	410	86	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03RE1 File ID: 0908185-03 10x.D

Sampled: 08/11/09 13:00 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 12:16

Solids: 79.99 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	10	2100	2100	53	U
87-68-3	Hexachlorobutadiene	10	2100	2100	43	U
77-47-4	Hexachlorocyclopentadiene	10	2100	2100	25	U
67-72-1	Hexachloroethane	10	2100	2100	31	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	840	840	46	U
78-59-1	Isophorone	10	2100	2100	78	U
91-57-6	2-Methylnaphthalene	10	2100	2100	5.7	U
95-48-7	2-Methylphenol	10	2100	2100	60	U
106-44-5	4-Methylphenol	10	2100	2100	55	U
91-20-3	Naphthalene	10	210	210	26	U
88-74-4	2-Nitroaniline	10	2100	2100	89	U
99-09-2	3-Nitroaniline	10	2100	2100	89	U
100-01-6	4-Nitroaniline	10	2100	2100	20	U
98-95-3	Nitrobenzene	10	2100	2100	64	U
100-02-7	4-Nitrophenol	10	8400	8400	1700	U
88-75-5	2-Nitrophenol	10	2100	2100	83	U
86-30-6	N-Nitroso-diphenylamine	10	2100	2100	120	U
621-64-7	N-Nitroso-di-n-propylamine	10	2100	2100	70	U
87-86-5	Pentachlorophenol	10	4100	4100	550	U
85-01-8	Phenanthrene	10	38	210	13	J
108-95-2	Phenol	10	2100	2100	560	U
129-00-0	Pyrene	10	96	210	15	J
95-94-3	1,2,4,5-Tetrachlorobenzene	10	2100	2100	26	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	2100	2100	120	U
88-06-2	2,4,6-Trichlorophenol	10	2100	2100	26	U
95-95-4	2,4,5-Trichlorophenol	10	2100	2100	31	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	833	638	76	35 - 105	D
Phenol-d6	838	629	75	40 - 100	D
Nitrobenzene-d5	415	308	74	35 - 100	D
2-Fluorobiphenyl	421	292	69	45 - 105	D
2,4,6-Tribromophenol	833	396	48	35 - 125	D
o-Terphenyl	417	263	63	30 - 125	D

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	184432	7.722	162142	8.052	
Naphthalene-d8	717653	10.45	631706	10.803	
Acenaphthene-d10	368743	14.559	345886	14.941	
Phenanthrene-d10	485692	17.981	512675	18.281	
Chrysene-d12	364602	21.577	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-04 File ID: 0908185-04.D

Sampled: 08/11/09 13:10 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 19:25

Solids: 71.95 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	24	24	1.1	U
208-96-8	Acenaphthylene	1	24	24	2.3	U
98-86-2	Acetophenone	1	240	240	5.1	U
120-12-7	Anthracene	1	24	24	3.5	U
1912-24-9	Atrazine	1	240	240	6.2	U
100-52-7	Benzaldehyde	1	240	240	8.6	U R,I
56-55-3	Benzo(a)anthracene	1	1.9	24	1.6	J
50-32-8	Benzo(a)pyrene	1	24	24	1.9	U
205-99-2	Benzo(b)fluoranthene	1	24	24	4.1	U
207-08-9	Benzo(k)fluoranthene	1	1.9	24	1.8	J
191-24-2	Benzo(g,h,i)perylene	1	93	93	1.3	U
92-52-4	1,1'-Biphenyl	1	240	240	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	240	240	2.1	U
85-68-7	Butyl Benzyl Phthalate	1	240	240	6.8	U
105-60-2	Caprolactam	1	460	460	18	U
86-74-8	Carbazole	1	460	460	120	U
59-50-7	4-Chloro-3-methylphenol	1	240	240	4.6	U
106-47-8	4-Chloroaniline	1	240	240	9.8	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	240	240	1.7	U
111-44-4	Bis(2-chloroethyl) Ether	1	240	240	2.6	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	240	240	9.2	U
91-58-7	2-Chloronaphthalene	1	240	240	3.0	U
95-57-8	2-Chlorophenol	1	240	240	5.2	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	240	240	4.7	U
218-01-9	Chrysene	1	24	24	4.8	U
53-70-3	Dibenz(a,h)anthracene	1	93	93	11	U
132-64-9	Dibenzofuran	1	240	240	12	U
84-74-2	Di-n-butyl Phthalate	1	240	240	34	U
91-94-1	3,3'-Dichlorobenzidine	1	330	330	39	U R,M
120-83-2	2,4-Dichlorophenol	1	240	240	4.7	U
84-66-2	Diethyl Phthalate	1	240	240	4.8	U
105-67-9	2,4-Dimethylphenol	1	240	240	2.1	U
131-11-3	Dimethyl Phthalate	1	240	240	1.2	U
534-52-1	4,6-Dinitro-2-methylphenol	1	240	240	28	U
51-28-5	2,4-Dinitrophenol	1	460	460	150	U R,M
121-14-2	2,4-Dinitrotoluene	1	240	240	26	U
606-20-2	2,6-Dinitrotoluene	1	240	240	3.2	U
117-84-0	Di-n-octyl Phthalate	1	240	240	7.4	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	85	240	6.5	J B,J
206-44-0	Fluoranthene	1	1.4	24	1.1	J
86-73-7	Fluorene	1	46	46	9.5	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-04 File ID: 0908185-04.D

Sampled: 08/11/09 13:10 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 19:25

Solids: 71.95 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	240	240	5.9	U
87-68-3	Hexachlorobutadiene	1	240	240	4.8	U
77-47-4	Hexachlorocyclopentadiene	1	240	240	2.8	U
67-72-1	Hexachloroethane	1	240	240	3.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	93	93	5.1	U
78-59-1	Isophorone	1	240	240	8.6	U
91-57-6	2-Methylnaphthalene	1	240	240	0.63	U
95-48-7	2-Methylphenol	1	240	240	6.6	U
106-44-5	4-Methylphenol	1	240	240	6.2	U
91-20-3	Naphthalene	1	24	24	2.9	U
88-74-4	2-Nitroaniline	1	240	240	9.9	U
99-09-2	3-Nitroaniline	1	240	240	9.8	U
100-01-6	4-Nitroaniline	1	240	240	2.2	U
98-95-3	Nitrobenzene	1	240	240	7.2	U
100-02-7	4-Nitrophenol	1	930	930	180	U R,M
88-75-5	2-Nitrophenol	1	240	240	9.2	U
86-30-6	N-Nitroso-diphenylamine	1	240	240	13	U
621-64-7	N-Nitroso-di-n-propylamine	1	240	240	7.8	U
87-86-5	Pentachlorophenol	1	460	460	61	U
85-01-8	Phenanthrene	1	24	24	1.5	U
108-95-2	Phenol	1	240	240	62	U
129-00-0	Pyrene	1	1.9	24	1.7	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	240	240	2.9	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	240	240	13	U
88-06-2	2,4,6-Trichlorophenol	1	240	240	2.8	U
95-95-4	2,4,5-Trichlorophenol	1	240	240	3.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	927	806	87	35 - 105	
Phenol-d6	931	785	84	40 - 100	
Nitrobenzene-d5	461	399	87	35 - 100	
2-Fluorobiphenyl	468	379	81	45 - 105	
2,4,6-Tribromophenol	927	792	85	35 - 125	
o-Terphenyl	463	384	83	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	182895	7.976	162142	8.052	
Naphthalene-d8	694561	10.716	631706	10.803	
Acenaphthene-d10	379929	14.848	345886	14.941	
Phenanthrene-d10	537739	18.217	512675	18.281	
Chrysene-d12	496033	21.744	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: 0908185-05.D

Sampled: 08/11/09 13:40 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 19:59

Solids: 70.86 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	24	24	1.1	U
208-96-8	Acenaphthylene	1	24	24	2.4	U
98-86-2	Acetophenone	1	240	240	5.2	U
120-12-7	Anthracene	1	24	24	3.6	U
1912-24-9	Atrazine	1	240	240	6.3	U
100-52-7	Benzaldehyde	1	240	240	8.7	U R,I
56-55-3	Benzo(a)anthracene	1	14	24	1.6	J J,i
50-32-8	Benzo(a)pyrene	1	13	24	2.0	J
205-99-2	Benzo(b)fluoranthene	1	27	24	4.1	
207-08-9	Benzo(k)fluoranthene	1	13	24	1.8	J
191-24-2	Benzo(g,h,i)perylene	1	95	95	1.3	U UJ,i
92-52-4	1,1'-Biphenyl	1	240	240	1.2	U
101-55-3	4-Bromophenyl Phenyl Ether	1	240	240	2.1	U
85-68-7	Butyl Benzyl Phthalate	1	240	240	6.9	U UJ,i
105-60-2	Caprolactam	1	470	470	18	U
86-74-8	Carbazole	1	470	470	120	U
59-50-7	4-Chloro-3-methylphenol	1	240	240	4.7	U
106-47-8	4-Chloroaniline	1	240	240	10	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	240	240	1.8	U
111-44-4	Bis(2-chloroethyl) Ether	1	240	240	2.6	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	240	240	9.4	U
91-58-7	2-Chloronaphthalene	1	240	240	3.1	U
95-57-8	2-Chlorophenol	1	240	240	5.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	240	240	4.7	U
218-01-9	Chrysene	1	15	24	4.9	J J,i
53-70-3	Dibenz(a,h)anthracene	1	95	95	11	U UJ,i
132-64-9	Dibenzofuran	1	240	240	12	U
84-74-2	Di-n-butyl Phthalate	1	240	240	35	U
91-94-1	3,3´-Dichlorobenzidine	1	340	340	39	U R,M
120-83-2	2,4-Dichlorophenol	1	240	240	4.8	U
84-66-2	Diethyl Phthalate	1	12	240	4.9	J
105-67-9	2,4-Dimethylphenol	1	240	240	2.1	U
131-11-3	Dimethyl Phthalate	1	240	240	1.2	U
534-52-1	4,6-Dinitro-2-methylphenol	1	240	240	29	U
51-28-5	2,4-Dinitrophenol	1	470	470	150	U R,M
121-14-2	2,4-Dinitrotoluene	1	240	240	27	U
606-20-2	2,6-Dinitrotoluene	1	240	240	3.2	U
117-84-0	Di-n-octyl Phthalate	1	240	240	7.5	U UJ,i
117-81-7	Bis(2-ethylhexyl) Phthalate	1	42	240	6.6	J B,J
206-44-0	Fluoranthene	1	16	24	1.1	J
86-73-7	Fluorene	1	47	47	9.7	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: 0908185-05.D

Sampled: 08/11/09 13:40 Prepared: 08/18/09 07:41 Analyzed: 08/20/09 19:59

Solids: 70.86 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	240	240	6.0	U
87-68-3	Hexachlorobutadiene	1	240	240	4.9	U
77-47-4	Hexachlorocyclopentadiene	1	240	240	2.8	U
67-72-1	Hexachloroethane	1	240	240	3.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	95	95	5.2	U UJ
78-59-1	Isophorone	1	240	240	8.8	U
91-57-6	2-Methylnaphthalene	1	1.9	240	0.64	J
95-48-7	2-Methylphenol	1	240	240	6.7	U
106-44-5	4-Methylphenol	1	240	240	6.3	U
91-20-3	Naphthalene	1	24	24	2.9	U
88-74-4	2-Nitroaniline	1	240	240	10	U
99-09-2	3-Nitroaniline	1	240	240	10	U
100-01-6	4-Nitroaniline	1	240	240	2.3	U
98-95-3	Nitrobenzene	1	240	240	7.3	U
100-02-7	4-Nitrophenol	1	950	950	190	U R,M
88-75-5	2-Nitrophenol	1	240	240	9.3	U
86-30-6	N-Nitroso-diphenylamine	1	240	240	14	U
621-64-7	N-Nitroso-di-n-propylamine	1	240	240	7.9	U
87-86-5	Pentachlorophenol	1	470	470	62	U
85-01-8	Phenanthrene	1	9.4	24	1.5	J
108-95-2	Phenol	1	240	240	63	U
129-00-0	Pyrene	1	25	24	1.7	J,i
95-94-3	1,2,4,5-Tetrachlorobenzene	1	240	240	2.9	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	240	240	13	U
88-06-2	2,4,6-Trichlorophenol	1	240	240	2.9	U
95-95-4	2,4,5-Trichlorophenol	1	240	240	3.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	941	815	87	35 - 105	
Phenol-d6	945	776	82	40 - 100	
Nitrobenzene-d5	468	405	87	35 - 100	
2-Fluorobiphenyl	475	391	82	45 - 105	
2,4,6-Tribromophenol	941	729	78	35 - 125	
o-Terphenyl	470	381	81	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	179961	7.97	162142	8.052	
Naphthalene-d8	663096	10.716	631706	10.803	
Acenaphthene-d10	338822	14.848	345886	14.941	
Phenanthrene-d10	405848	18.217	512675	18.281	
Chrysene-d12	246714	21.744	651471	21.79	*

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05RE1 File ID: 0908185-05 10x.D

Sampled: 08/11/09 13:40 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 12:51

Solids: 70.86 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	10	240	240	11	U
208-96-8	Acenaphthylene	10	240	240	24	U
98-86-2	Acetophenone	10	2400	2400	52	U
120-12-7	Anthracene	10	240	240	36	U
1912-24-9	Atrazine	10	2400	2400	63	U
100-52-7	Benzaldehyde	10	2400	2400	87	U RJ
56-55-3	Benzo(a)anthracene	10	28	240	16	J
50-32-8	Benzo(a)pyrene	10	240	240	20	U
205-99-2	Benzo(b)fluoranthene	10	240	240	41	U
207-08-9	Benzo(k)fluoranthene	10	240	240	18	U
191-24-2	Benzo(g,h,i)perylene	10	19	950	13	J
92-52-4	1,1'-Biphenyl	10	2400	2400	12	U
101-55-3	4-Bromophenyl Phenyl Ether	10	2400	2400	21	U
85-68-7	Butyl Benzyl Phthalate	10	2400	2400	69	U
105-60-2	Caprolactam	10	4700	4700	180	U
86-74-8	Carbazole	10	4700	4700	1200	U
59-50-7	4-Chloro-3-methylphenol	10	2400	2400	47	U
106-47-8	4-Chloroaniline	10	2400	2400	100	U RM
111-91-1	Bis(2-chloroethoxy)methane	10	2400	2400	18	U
111-44-4	Bis(2-chloroethyl) Ether	10	2400	2400	26	U
108-60-1	Bis(2-chloroisopropyl) Ether	10	2400	2400	94	U
91-58-7	2-Chloronaphthalene	10	2400	2400	31	U
95-57-8	2-Chlorophenol	10	2400	2400	53	U
7005-72-3	4-Chlorophenyl Phenyl Ether	10	2400	2400	47	U
218-01-9	Chrysene	10	240	240	49	U
53-70-3	Dibenz(a,h)anthracene	10	950	950	110	U
132-64-9	Dibenzofuran	10	2400	2400	120	U
84-74-2	Di-n-butyl Phthalate	10	2400	2400	350	U
91-94-1	3,3´-Dichlorobenzidine	10	3400	3400	390	U RM
120-83-2	2,4-Dichlorophenol	10	2400	2400	48	U
84-66-2	Diethyl Phthalate	10	2400	2400	49	U
105-67-9	2,4-Dimethylphenol	10	2400	2400	21	U
131-11-3	Dimethyl Phthalate	10	2400	2400	12	U
534-52-1	4,6-Dinitro-2-methylphenol	10	2400	2400	290	U
51-28-5	2,4-Dinitrophenol	10	4700	4700	1500	U RM
121-14-2	2,4-Dinitrotoluene	10	2400	2400	270	U
606-20-2	2,6-Dinitrotoluene	10	2400	2400	32	U
117-84-0	Di-n-octyl Phthalate	10	2400	2400	75	U
117-81-7	Bis(2-ethylhexyl) Phthalate	10	2400	2400	66	U
206-44-0	Fluoranthene	10	28	240	11	J
86-73-7	Fluorene	10	470	470	97	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05RE1 File ID: 0908185-05 10x,D

Sampled: 08/11/09 13:40 Prepared: 08/18/09 07:41 Analyzed: 08/26/09 12:51

Solids: 70.86 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	10	2400	2400	60	U
87-68-3	Hexachlorobutadiene	10	2400	2400	49	U
77-47-4	Hexachlorocyclopentadiene	10	2400	2400	28	U
67-72-1	Hexachloroethane	10	2400	2400	35	U
193-39-5	Indeno(1,2,3-cd)pyrene	10	950	950	52	U
78-59-1	Isophorone	10	2400	2400	88	U
91-57-6	2-Methylnaphthalene	10	2400	2400	6.4	U
95-48-7	2-Methylphenol	10	2400	2400	67	U
106-44-5	4-Methylphenol	10	2400	2400	63	U
91-20-3	Naphthalene	10	240	240	29	U
88-74-4	2-Nitroaniline	10	2400	2400	100	U
99-09-2	3-Nitroaniline	10	2400	2400	100	U
100-01-6	4-Nitroaniline	10	2400	2400	23	U
98-95-3	Nitrobenzene	10	2400	2400	73	U
100-02-7	4-Nitrophenol	10	9500	9500	1900	U
88-75-5	2-Nitrophenol	10	2400	2400	93	U
86-30-6	N-Nitroso-diphenylamine	10	2400	2400	140	U
621-64-7	N-Nitroso-di-n-propylamine	10	2400	2400	79	U
87-86-5	Pentachlorophenol	10	4700	4700	620	U
85-01-8	Phenanthrene	10	240	240	15	U
108-95-2	Phenol	10	2400	2400	630	U
129-00-0	Pyrene	10	33	240	17	J
95-94-3	1,2,4,5-Tetrachlorobenzene	10	2400	2400	29	U
58-90-2	2,3,4,6-Tetrachlorophenol	10	2400	2400	130	U
88-06-2	2,4,6-Trichlorophenol	10	2400	2400	29	U
95-95-4	2,4,5-Trichlorophenol	10	2400	2400	35	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	941	931	99	35 - 105	D
Phenol-d6	945	884	94	40 - 100	D
Nitrobenzene-d5	468	433	92	35 - 100	D
2-Fluorobiphenyl	475	409	86	45 - 105	D
2,4,6-Tribromophenol	941	593	63	35 - 125	D
o-Terphenyl	470	381	81	30 - 125	D

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	186932	7.728	162142	8.052	
Naphthalene-d8	723065	10.45	631706	10.803	
Acenaphthene-d10	375572	14.565	345886	14.941	
Phenanthrene-d10	499846	17.981	512675	18.281	
Chrysene-d12	442803	21.577	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: 0908185-06.D

Sampled: 08/11/09 14:00 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 18:04

Solids: 68.83 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	25	25	1.1	U
208-96-8	Acenaphthylene	1	25	25	2.4	U
98-86-2	Acetophenone	1	250	250	5.4	U
120-12-7	Anthracene	1	25	25	3.7	U
1912-24-9	Atrazine	1	250	250	6.5	U
100-52-7	Benzaldehyde	1	250	250	9.0	U R,I
56-55-3	Benzo(a)anthracene	1	25	25	1.6	U
50-32-8	Benzo(a)pyrene	1	25	25	2.0	U
205-99-2	Benzo(b)fluoranthene	1	25	25	4.2	U
207-08-9	Benzo(k)fluoranthene	1	25	25	1.9	U
191-24-2	Benzo(g,h,i)perylene	1	97	97	1.4	U
92-52-4	1,1'-Biphenyl	1	250	250	1.2	U
101-55-3	4-Bromophenyl Phenyl Ether	1	250	250	2.2	U
85-68-7	Butyl Benzyl Phthalate	1	11	250	7.1	J
105-60-2	Caprolactam	1	480	480	18	U
86-74-8	Carbazole	1	480	480	120	U
59-50-7	4-Chloro-3-methylphenol	1	250	250	4.8	U
106-47-8	4-Chloroaniline	1	250	250	10	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	250	250	1.8	U
111-44-4	Bis(2-chloroethyl) Ether	1	250	250	2.7	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	250	250	9.7	U
91-58-7	2-Chloronaphthalene	1	250	250	3.2	U
95-57-8	2-Chlorophenol	1	250	250	5.5	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	250	250	4.9	U
218-01-9	Chrysene	1	25	25	5.1	U
53-70-3	Dibenz(a,h)anthracene	1	97	97	11	U
132-64-9	Dibenzofuran	1	250	250	13	U
84-74-2	Di-n-butyl Phthalate	1	250	250	36	U
91-94-1	3,3'-Dichlorobenzidine	1	350	350	40	U R,M
120-83-2	2,4-Dichlorophenol	1	250	250	4.9	U
84-66-2	Diethyl Phthalate	1	250	250	5.0	U
105-67-9	2,4-Dimethylphenol	1	250	250	2.2	U
131-11-3	Dimethyl Phthalate	1	250	250	1.3	U
534-52-1	4,6-Dinitro-2-methylphenol	1	250	250	29	U
51-28-5	2,4-Dinitrophenol	1	480	480	150	U R,M
121-14-2	2,4-Dinitrotoluene	1	250	250	27	U
606-20-2	2,6-Dinitrotoluene	1	250	250	3.3	U
117-84-0	Di-n-octyl Phthalate	1	250	250	7.7	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	26	250	6.8	J B
206-44-0	Fluoranthene	1	25	25	1.1	U
86-73-7	Fluorene	1	48	48	10	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: 0908185-06.D

Sampled: 08/11/09 14:00 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 18:04

Solids: 68.83 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	250	250	6.2	U
87-68-3	Hexachlorobutadiene	1	250	250	5.0	U
77-47-4	Hexachlorocyclopentadiene	1	250	250	2.9	U
67-72-1	Hexachloroethane	1	250	250	3.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	97	97	5.3	U
78-59-1	Isophorone	1	250	250	9.0	U
91-57-6	2-Methylnaphthalene	1	250	250	0.66	U
95-48-7	2-Methylphenol	1	250	250	6.9	U
106-44-5	4-Methylphenol	1	250	250	6.4	U
91-20-3	Naphthalene	1	25	25	3.0	U
88-74-4	2-Nitroaniline	1	250	250	10	U
99-09-2	3-Nitroaniline	1	250	250	10	U
100-01-6	4-Nitroaniline	1	250	250	2.3	U
98-95-3	Nitrobenzene	1	250	250	7.5	U
100-02-7	4-Nitrophenol	1	970	970	190	U RM
88-75-5	2-Nitrophenol	1	250	250	9.6	U
86-30-6	N-Nitroso-diphenylamine	1	250	250	14	U
621-64-7	N-Nitroso-di-n-propylamine	1	250	250	8.1	U
87-86-5	Pentachlorophenol	1	480	480	64	U
85-01-8	Phenanthrene	1	25	25	1.5	U
108-95-2	Phenol	1	250	250	65	U
129-00-0	Pyrene	1	25	25	1.7	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	250	250	3.0	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	250	250	14	U
88-06-2	2,4,6-Trichlorophenol	1	250	250	3.0	U
95-95-4	2,4,5-Trichlorophenol	1	250	250	3.6	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	969	902	93	35 - 105	
Phenol-d6	973	927	95	40 - 100	
Nitrobenzene-d5	482	447	93	35 - 100	
2-Fluorobiphenyl	489	428	88	45 - 105	
2,4,6-Tribromophenol	969	775	80	35 - 125	
o-Terphenyl	484	432	89	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	175497	7.939	162142	8.052	
Naphthalene-d8	730273	10.672	631706	10.803	
Acenaphthene-d10	362575	14.805	345886	14.941	
Phenanthrene-d10	534905	18.18	512675	18.281	
Chrysene-d12	624815	21.712	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-07 File ID: 0908185-07.D

Sampled: 08/11/09 14:15 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 18:39

Solids: 69.36 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	25	25	1.1	U
208-96-8	Acenaphthylene	1	25	25	2.4	U
98-86-2	Acetophenone	1	250	250	5.3	U
120-12-7	Anthracene	1	25	25	3.7	U
1912-24-9	Atrazine	1	250	250	6.4	U
100-52-7	Benzaldehyde	1	250	250	8.9	U R,I
56-55-3	Benzo(a)anthracene	1	25	25	1.6	U
50-32-8	Benzo(a)pyrene	1	25	25	2.0	U
205-99-2	Benzo(b)fluoranthene	1	25	25	4.2	U
207-08-9	Benzo(k)fluoranthene	1	25	25	1.9	U
191-24-2	Benzo(g,h,i)perylene	1	97	97	1.3	U
92-52-4	1,1'-Biphenyl	1	250	250	1.2	U
101-55-3	4-Bromophenyl Phenyl Ether	1	250	250	2.1	U
85-68-7	Butyl Benzyl Phthalate	1	250	250	7.1	U
105-60-2	Caprolactam	1	480	480	18	U
86-74-8	Carbazole	1	480	480	120	U
59-50-7	4-Chloro-3-methylphenol	1	250	250	4.8	U
106-47-8	4-Chloroaniline	1	250	250	10	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	250	250	1.8	U
111-44-4	Bis(2-chloroethyl) Ether	1	250	250	2.7	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	250	250	9.6	U
91-58-7	2-Chloronaphthalene	1	250	250	3.1	U
95-57-8	2-Chlorophenol	1	250	250	5.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	250	250	4.8	U
218-01-9	Chrysene	1	25	25	5.0	U
53-70-3	Dibenz(a,h)anthracene	1	97	97	11	U
132-64-9	Dibenzofuran	1	250	250	13	U
84-74-2	Di-n-butyl Phthalate	1	250	250	36	U
91-94-1	3,3'-Dichlorobenzidine	1	350	350	40	U R,M
120-83-2	2,4-Dichlorophenol	1	250	250	4.9	U
84-66-2	Diethyl Phthalate	1	250	250	5.0	U
105-67-9	2,4-Dimethylphenol	1	250	250	2.1	U
131-11-3	Dimethyl Phthalate	1	250	250	1.3	U
534-52-1	4,6-Dinitro-2-methylphenol	1	250	250	29	U
51-28-5	2,4-Dinitrophenol	1	480	480	150	U R,M
121-14-2	2,4-Dinitrotoluene	1	250	250	27	U
606-20-2	2,6-Dinitrotoluene	1	250	250	3.3	U
117-84-0	Di-n-octyl Phthalate	1	250	250	7.7	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	17	250	6.7	J BZ
206-44-0	Fluoranthene	1	25	25	1.1	U
86-73-7	Fluorene	1	48	48	9.9	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-07 File ID: 0908185-07.D

Sampled: 08/11/09 14:15 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 18:39

Solids: 69.36 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	250	250	6.2	U
87-68-3	Hexachlorobutadiene	1	250	250	5.0	U
77-47-4	Hexachlorocyclopentadiene	1	250	250	2.9	U
67-72-1	Hexachloroethane	1	250	250	3.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	97	97	5.3	U
78-59-1	Isophorone	1	250	250	9.0	U
91-57-6	2-Methylnaphthalene	1	250	250	0.65	U
95-48-7	2-Methylphenol	1	250	250	6.9	U
106-44-5	4-Methylphenol	1	250	250	6.4	U
91-20-3	Naphthalene	1	25	25	3.0	U
88-74-4	2-Nitroaniline	1	250	250	10	U
99-09-2	3-Nitroaniline	1	250	250	10	U
100-01-6	4-Nitroaniline	1	250	250	2.3	U
98-95-3	Nitrobenzene	1	250	250	7.4	U
100-02-7	4-Nitrophenol	1	970	970	190	U
88-75-5	2-Nitrophenol	1	250	250	9.5	U
86-30-6	N-Nitroso-diphenylamine	1	250	250	14	U
621-64-7	N-Nitroso-di-n-propylamine	1	250	250	8.1	U
87-86-5	Pentachlorophenol	1	480	480	64	U
85-01-8	Phenanthrene	1	25	25	1.5	U
108-95-2	Phenol	1	250	250	64	U
129-00-0	Pyrene	1	25	25	1.7	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	250	250	3.0	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	250	250	13	U
88-06-2	2,4,6-Trichlorophenol	1	250	250	2.9	U
95-95-4	2,4,5-Trichlorophenol	1	250	250	3.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	961	878	91	35 - 105	
Phenol-d6	966	892	92	40 - 100	
Nitrobenzene-d5	478	458	96	35 - 100	
2-Fluorobiphenyl	485	425	88	45 - 105	
2,4,6-Tribromophenol	961	780	81	35 - 125	
o-Terphenyl	481	441	92	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	188818	7.939	162142	8.052	
Naphthalene-d8	733655	10.672	631706	10.803	
Acenaphthene-d10	368830	14.805	345886	14.941	
Phenanthrene-d10	533384	18.185	512675	18.281	
Chrysene-d12	633074	21.712	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: 0908185-08.D

Sampled: 08/11/09 14:30 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 19:13

Solids: 72.01 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	24	24	1.1	U
208-96-8	Acenaphthylene	1	24	24	2.3	U
98-86-2	Acetophenone	1	240	240	5.1	U
120-12-7	Anthracene	1	24	24	3.5	U
1912-24-9	Atrazine	1	240	240	6.2	U
100-52-7	Benzaldehyde	1	240	240	8.6	U R,I
56-55-3	Benzo(a)anthracene	1	24	24	1.6	U
50-32-8	Benzo(a)pyrene	1	24	24	1.9	U
205-99-2	Benzo(b)fluoranthene	1	24	24	4.1	U
207-08-9	Benzo(k)fluoranthene	1	24	24	1.8	U
191-24-2	Benzo(g,h,i)perylene	1	93	93	1.3	U
92-52-4	1,1'-Biphenyl	1	240	240	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	240	240	2.1	U
85-68-7	Butyl Benzyl Phthalate	1	9.3	240	6.8	J
105-60-2	Caprolactam	1	460	460	17	U
86-74-8	Carbazole	1	460	460	120	U
59-50-7	4-Chloro-3-methylphenol	1	240	240	4.6	U
106-47-8	4-Chloroaniline	1	240	240	9.8	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	240	240	1.7	U
111-44-4	Bis(2-chloroethyl) Ether	1	240	240	2.6	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	240	240	9.2	U
91-58-7	2-Chloronaphthalene	1	240	240	3.0	U
95-57-8	2-Chlorophenol	1	240	240	5.2	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	240	240	4.7	U
218-01-9	Chrysene	1	24	24	4.8	U
53-70-3	Dibenz(a,h)anthracene	1	93	93	11	U
132-64-9	Dibenzofuran	1	240	240	12	U
84-74-2	Di-n-butyl Phthalate	1	240	240	34	U
91-94-1	3,3'-Dichlorobenzidine	1	330	330	39	U R,M
120-83-2	2,4-Dichlorophenol	1	240	240	4.7	U
84-66-2	Diethyl Phthalate	1	240	240	4.8	U
105-67-9	2,4-Dimethylphenol	1	240	240	2.1	U
131-11-3	Dimethyl Phthalate	1	240	240	1.2	U
534-52-1	4,6-Dinitro-2-methylphenol	1	240	240	28	U
51-28-5	2,4-Dinitrophenol	1	460	460	150	U R,M
121-14-2	2,4-Dinitrotoluene	1	240	240	26	U
606-20-2	2,6-Dinitrotoluene	1	240	240	3.2	U
117-84-0	Di-n-octyl Phthalate	1	240	240	7.4	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	23	240	6.5	J B,Z
206-44-0	Fluoranthene	1	24	24	1.1	U
86-73-7	Fluorene	1	46	46	9.5	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: 0908185-08.D

Sampled: 08/11/09 14:30 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 19:13

Solids: 72.01 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	240	240	5.9	U
87-68-3	Hexachlorobutadiene	1	240	240	4.8	U
77-47-4	Hexachlorocyclopentadiene	1	240	240	2.8	U
67-72-1	Hexachloroethane	1	240	240	3.4	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	93	93	5.1	U
78-59-1	Isophorone	1	240	240	8.6	U
91-57-6	2-Methylnaphthalene	1	240	240	0.63	U
95-48-7	2-Methylphenol	1	240	240	6.6	U
106-44-5	4-Methylphenol	1	240	240	6.2	U
91-20-3	Naphthalene	1	24	24	2.9	U
88-74-4	2-Nitroaniline	1	240	240	9.8	U
99-09-2	3-Nitroaniline	1	240	240	9.8	U
100-01-6	4-Nitroaniline	1	240	240	2.2	U
98-95-3	Nitrobenzene	1	240	240	7.2	U
100-02-7	4-Nitrophenol	1	930	930	180	U RJM
88-75-5	2-Nitrophenol	1	240	240	9.2	U
86-30-6	N-Nitroso-diphenylamine	1	240	240	13	U
621-64-7	N-Nitroso-di-n-propylamine	1	240	240	7.8	U
87-86-5	Pentachlorophenol	1	460	460	61	U
85-01-8	Phenanthrene	1	24	24	1.5	U
108-95-2	Phenol	1	240	240	62	U
129-00-0	Pyrene	1	24	24	1.7	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	240	240	2.9	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	240	240	13	U
88-06-2	2,4,6-Trichlorophenol	1	240	240	2.8	U
95-95-4	2,4,5-Trichlorophenol	1	240	240	3.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	926	848	92	35 - 105	
Phenol-d6	930	865	93	40 - 100	
Nitrobenzene-d5	461	449	97	35 - 100	
2-Fluorobiphenyl	468	391	84	45 - 105	
2,4,6-Tribromophenol	926	743	80	35 - 125	
o-Terphenyl	463	427	92	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	185952	7.939	162142	8.052	
Naphthalene-d8	717831	10.672	631706	10.803	
Acenaphthene-d10	384208	14.805	345886	14.941	
Phenanthrene-d10	556445	18.18	512675	18.281	
Chrysene-d12	686233	21.712	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-09 File ID: 0908185-09.D

Sampled: 08/11/09 15:30 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 19:48

Solids: 75.68 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	22	22	1.0	U
208-96-8	Acenaphthylene	1	22	22	2.2	U
98-86-2	Acetophenone	1	220	220	4.9	U
120-12-7	Anthracene	1	22	22	3.4	U
1912-24-9	Atrazine	1	220	220	5.9	U
100-52-7	Benzaldehyde	1	220	220	8.2	U R,I
56-55-3	Benzo(a)anthracene	1	22	22	1.5	U
50-32-8	Benzo(a)pyrene	1	22	22	1.8	U
205-99-2	Benzo(b)fluoranthene	1	22	22	3.9	U
207-08-9	Benzo(k)fluoranthene	1	22	22	1.7	U
191-24-2	Benzo(g,h,i)perylene	1	89	89	1.2	U
92-52-4	1,1'-Biphenyl	1	220	220	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	2.0	U
85-68-7	Butyl Benzyl Phthalate	1	7.9	220	6.5	J
105-60-2	Caprolactam	1	440	440	17	U
86-74-8	Carbazole	1	440	440	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.4	U
106-47-8	4-Chloroaniline	1	220	220	9.3	U R,M
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.7	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.5	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.8	U
91-58-7	2-Chloronaphthalene	1	220	220	2.9	U
95-57-8	2-Chlorophenol	1	220	220	5.0	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.4	U
218-01-9	Chrysene	1	22	22	4.6	U
53-70-3	Dibenz(a,h)anthracene	1	89	89	10	U
132-64-9	Dibenzofuran	1	220	220	12	U
84-74-2	Di-n-butyl Phthalate	1	220	220	33	U
91-94-1	3,3'-Dichlorobenzidine	1	320	320	37	U R,M
120-83-2	2,4-Dichlorophenol	1	220	220	4.5	U
84-66-2	Diethyl Phthalate	1	220	220	4.6	U
105-67-9	2,4-Dimethylphenol	1	220	220	2.0	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	27	U
51-28-5	2,4-Dinitrophenol	1	440	440	140	U R,M
121-14-2	2,4-Dinitrotoluene	1	220	220	25	U
606-20-2	2,6-Dinitrotoluene	1	220	220	3.0	U
117-84-0	Di-n-octyl Phthalate	1	220	220	7.0	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	26	220	6.1	J B,J
206-44-0	Fluoranthene	1	22	22	1.0	U
86-73-7	Fluorene	1	44	44	9.1	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

77SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-09 File ID: 0908185-09.D

Sampled: 08/11/09 15:30 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 19:48

Solids: 75.68 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.6	U
87-68-3	Hexachlorobutadiene	1	220	220	4.5	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.7	U
67-72-1	Hexachloroethane	1	220	220	3.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	89	89	4.8	U
78-59-1	Isophorone	1	220	220	8.2	U
91-57-6	2-Methylnaphthalene	1	220	220	0.60	U
95-48-7	2-Methylphenol	1	220	220	6.3	U
106-44-5	4-Methylphenol	1	220	220	5.9	U
91-20-3	Naphthalene	1	22	22	2.7	U
88-74-4	2-Nitroaniline	1	220	220	9.4	U
99-09-2	3-Nitroaniline	1	220	220	9.4	U
100-01-6	4-Nitroaniline	1	220	220	2.1	U
98-95-3	Nitrobenzene	1	220	220	6.8	U
100-02-7	4-Nitrophenol	1	890	890	180	U R,M
88-75-5	2-Nitrophenol	1	220	220	8.7	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	13	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.4	U
87-86-5	Pentachlorophenol	1	440	440	58	U
85-01-8	Phenanthrene	1	22	22	1.4	U
108-95-2	Phenol	1	220	220	59	U
129-00-0	Pyrene	1	22	22	1.6	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.7	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.7	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	881	879	100	35 - 105	
Phenol-d6	885	868	98	40 - 100	
Nitrobenzene-d5	438	432	99	35 - 100	
2-Fluorobiphenyl	445	395	89	45 - 105	
2,4,6-Tribromophenol	881	709	80	35 - 125	
o-Terphenyl	440	422	96	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	164478	7.939	162142	8.052	
Naphthalene-d8	660469	10.672	631706	10.803	
Acenaphthene-d10	344789	14.805	345886	14.941	
Phenanthrene-d10	491149	18.185	512675	18.281	
Chrysene-d12	591313	21.712	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

EQBK-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-10 File ID: 0908185-10.D

Sampled: 08/11/09 11:10 Prepared: 08/14/09 08:51 Analyzed: 08/18/09 05:19

Solids: Preparation: 3510C Liquid-Liquid Ext Initial/Final: 990 mL / 1 mL

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
83-32-9	Acenaphthene	1	0.50	0.50	0.030	U
208-96-8	Acenaphthylene	1	0.50	0.50	0.020	U
98-86-2	Acetophenone	1	0.081	5.0	0.068	J
120-12-7	Anthracene	1	0.50	0.50	0.036	U
1912-24-9	Atrazine	1	5.0	5.0	0.051	U
100-52-7	Benzaldehyde	1	5.0	5.0	0.22	U
56-55-3	Benzo(a)anthracene	1	0.50	0.50	0.022	U
50-32-8	Benzo(a)pyrene	1	0.50	0.50	0.042	U
205-99-2	Benzo(b)fluoranthene	1	0.50	0.50	0.11	U
207-08-9	Benzo(k)fluoranthene	1	0.50	0.50	0.12	U
191-24-2	Benzo(g,h,i)perylene	1	0.50	0.50	0.098	U
92-52-4	1,1'-Biphenyl	1	5.0	5.0	0.10	U
101-55-3	4-Bromophenyl Phenyl Ether	1	5.0	5.0	0.036	U
85-68-7	Butyl Benzyl Phthalate	1	0.39	5.0	0.058	J Bz
105-60-2	Caprolactam	1	5.0	5.0	0.21	U RL
86-74-8	Carbazole	1	5.0	5.0	0.047	U
59-50-7	4-Chloro-3-methylphenol	1	5.0	5.0	0.031	U
106-47-8	4-Chloroaniline	1	5.0	5.0	0.15	U RM
111-91-1	Bis(2-chloroethoxy)methane	1	5.0	5.0	0.035	U
111-44-4	Bis(2-chloroethyl) Ether	1	5.0	5.0	0.035	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	5.0	5.0	0.059	U
91-58-7	2-Chloronaphthalene	1	5.0	5.0	0.029	U
95-57-8	2-Chlorophenol	1	5.0	5.0	0.080	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	5.0	5.0	0.031	U
218-01-9	Chrysene	1	0.50	0.50	0.036	U
53-70-3	Dibenz(a,h)anthracene	1	0.50	0.50	0.070	U
132-64-9	Dibenzofuran	1	5.0	5.0	0.039	U
84-74-2	Di-n-butyl Phthalate	1	0.71	5.0	0.27	J Bz
91-94-1	3,3´-Dichlorobenzidine	1	5.0	5.0	0.64	U RM
120-83-2	2,4-Dichlorophenol	1	5.0	5.0	0.056	U
84-66-2	Diethyl Phthalate	1	0.081	5.0	0.043	J Bz
105-67-9	2,4-Dimethylphenol	1	5.0	5.0	0.24	U
131-11-3	Dimethyl Phthalate	1	5.0	5.0	0.045	U
534-52-1	4,6-Dinitro-2-methylphenol	1	5.0	5.0	0.17	U
51-28-5	2,4-Dinitrophenol	1	10	10	2.2	U RM
121-14-2	2,4-Dinitrotoluene	1	5.0	5.0	0.096	U
606-20-2	2,6-Dinitrotoluene	1	5.0	5.0	0.13	U
117-84-0	Di-n-octyl Phthalate	1	5.0	5.0	0.064	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	0.30	5.0	0.24	J
206-44-0	Fluoranthene	1	0.50	0.50	0.030	U
86-73-7	Fluorene	1	0.50	0.50	0.031	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

EQBK-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-10 File ID: 0908185-10.D

Sampled: 08/11/09 11:10 Prepared: 08/14/09 08:51 Analyzed: 08/18/09 05:19

Solids: Preparation: 3510C Liquid-Liquid Ext Initial/Final: 990 mL / 1 mL

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	5.0	5.0	0.062	U
87-68-3	Hexachlorobutadiene	1	5.0	5.0	0.057	U
77-47-4	Hexachlorocyclopentadiene	1	5.0	5.0	0.057	U
67-72-1	Hexachloroethane	1	5.0	5.0	0.035	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	0.50	0.038	U
78-59-1	Isophorone	1	5.0	5.0	0.056	U
91-57-6	2-Methylnaphthalene	1	5.0	5.0	0.024	U
95-48-7	2-Methylphenol	1	5.0	5.0	0.044	U
106-44-5	4-Methylphenol	1	5.0	5.0	0.18	U
91-20-3	Naphthalene	1	0.50	0.50	0.024	U
88-74-4	2-Nitroaniline	1	5.0	5.0	0.16	U
99-09-2	3-Nitroaniline	1	5.0	5.0	0.050	U
100-01-6	4-Nitroaniline	1	5.0	5.0	0.070	U
98-95-3	Nitrobenzene	1	5.0	5.0	0.076	U
100-02-7	4-Nitrophenol	1	5.0	5.0	0.19	U 8μM
88-75-5	2-Nitrophenol	1	5.0	5.0	0.071	U
86-30-6	N-Nitroso-diphenylamine	1	5.0	5.0	0.042	U
621-64-7	N-Nitroso-di-n-propylamine	1	5.0	5.0	0.044	U
87-86-5	Pentachlorophenol	1	5.0	5.0	0.11	U
85-01-8	Phenanthrene	1	0.50	0.50	0.031	U
108-95-2	Phenol	1	5.0	5.0	0.49	U
129-00-0	Pyrene	1	0.50	0.50	0.022	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	5.0	5.0	0.018	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	5.0	5.0	0.29	U
88-06-2	2,4,6-Trichlorophenol	1	5.0	5.0	0.059	U
95-95-4	2,4,5-Trichlorophenol	1	5.0	5.0	0.099	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
2-Fluorophenol	20.2	12.8	63	20 - 110	
Phenol-d6	20.3	8.14	40	10 - 115	
Nitrobenzene-d5	10.1	9.24	92	40 - 110	
2-Fluorobiphenyl	10.2	7.68	75	50 - 110	
2,4,6-Tribromophenol	20.2	18.7	93	40 - 125	
o-Terphenyl	10.1	9.55	94	50 - 135	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	123938	8.052	162142	8.052	
Naphthalene-d8	479694	10.797	631706	10.803	
Acenaphthene-d10	254515	14.93	345886	14.941	
Phenanthrene-d10	376283	18.276	512675	18.281	
Chrysene-d12	429383	21.784	651471	21.79	

ANALYSIS DATA SHEET

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: A85_143-0

Sampled: 08/10/09 13:15 Prepared: 08/17/09 08:13 Analyzed: 08/25/09 12:08

Solids: 86.40 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9H27083 Calibration: 9H27029 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00046	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00033	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00034	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00029	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00030	U
309-00-2	Aldrin	1	0.020	0.020	0.0014	U
60-57-1	Dieldrin	1	0.00058	0.020	0.00029	J JG
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00038	U
72-20-8	Endrin	1	0.020	0.020	0.00032	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0010	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00042	U
76-44-8	Heptachlor	1	0.020	0.020	0.00050	U
1024-57-3	Heptachlor Epoxide	1	0.0022	0.020	0.00025	J JG
72-43-5	Methoxychlor	1	0.020	0.020	0.00042	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0386	0.0383	99	70 - 125	
Decachlorobiphenyl	0.0386	0.0409	106	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: A85_142-0

Sampled: 08/10/09 13:50 Prepared: 08/17/09 08:13 Analyzed: 08/25/09 11:30

Solids: 76.49 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9H27083 Calibration: 9H27029 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00029	U
319-85-7	beta-BHC	1	0.022	0.022	0.00037	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00034	U
319-86-8	delta-BHC	1	0.022	0.022	0.00035	U
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00052	U
5103-74-2	gamma-Chlordane	1	0.022	0.022	0.00037	U
72-54-8	4,4'-DDD	1	0.022	0.022	0.00039	U
72-55-9	4,4'-DDE	1	0.022	0.022	0.00033	U
50-29-3	4,4'-DDT	1	0.022	0.022	0.00034	U
309-00-2	Aldrin	1	0.022	0.022	0.0016	U
60-57-1	Dieldrin	1	0.022	0.022	0.00033	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00033	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00036	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00043	U
72-20-8	Endrin	1	0.022	0.022	0.00036	U
7421-93-4	Endrin Aldehyde	1	0.022	0.022	0.0012	U
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00047	U
76-44-8	Heptachlor	1	0.022	0.022	0.00057	U
1024-57-3	Heptachlor Epoxide	1	0.022	0.022	0.00028	U
72-43-5	Methoxychlor	1	0.022	0.022	0.00048	U
8001-35-2	Toxaphene	1	0.22	0.22	0.0038	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0436	0.0441	101	70 - 125	
Decachlorobiphenyl	0.0436	0.0451	104	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: A85_141-0

Sampled: 08/10/09 14:10 Prepared: 08/17/09 08:13 Analyzed: 08/25/09 10:53

Solids: 92.04 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9H27083 Calibration: 9H27029 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.018	0.018	0.00024	U
319-85-7	beta-BHC	1	0.018	0.018	0.00031	U
58-89-9	gamma-BHC (Lindane)	1	0.018	0.018	0.00028	U
319-86-8	delta-BHC	1	0.018	0.018	0.00029	U
5103-71-9	alpha-Chlordane	1	0.018	0.018	0.00043	U
5103-74-2	gamma-Chlordane	1	0.018	0.018	0.00031	U
72-54-8	4,4'-DDD	1	0.018	0.018	0.00032	U
72-55-9	4,4'-DDE	1	0.0021	0.018	0.00027	J
50-29-3	4,4'-DDT	1	0.018	0.018	0.00028	U
309-00-2	Aldrin	1	0.018	0.018	0.0014	U
60-57-1	Dieldrin	1	0.018	0.018	0.00027	U
959-98-8	Endosulfan I	1	0.018	0.018	0.00028	U
33213-65-9	Endosulfan II	1	0.018	0.018	0.00030	U
1031-07-8	Endosulfan Sulfate	1	0.018	0.018	0.00036	U
72-20-8	Endrin	1	0.018	0.018	0.00030	U
7421-93-4	Endrin Aldehyde	1	0.018	0.018	0.00098	U
53494-70-5	Endrin Ketone	1	0.018	0.018	0.00039	U
76-44-8	Heptachlor	1	0.018	0.018	0.00047	U
1024-57-3	Heptachlor Epoxide	1	0.018	0.018	0.00023	U
72-43-5	Methoxychlor	1	0.018	0.018	0.00040	U
8001-35-2	Toxaphene	1	0.18	0.18	0.0032	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0362	0.0339	94	70 - 125	
Decachlorobiphenyl	0.0362	0.0338	93	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS4

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-04
File ID: A85_231-0
Sampled: 08/10/09 16:15
Prepared: 08/17/09 08:13
Analyzed: 08/27/09 21:07
Solids: 78.77
Preparation: 3550B Sonication Extrac
Initial/Final: 30 g / 10 mL
QC Batch: 0909442
Sequence: 9I01016
Calibration: 9I08007
Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00028	U
319-85-7	beta-BHC	1	0.022	0.022	0.00036	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00033	U
319-86-8	delta-BHC	1	0.022	0.022	0.00034	U
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00051	U
5103-74-2	gamma-Chlordane	1	0.022	0.022	0.00036	U
72-54-8	4,4'-DDD	1	0.0025	0.022	0.00038	J
72-55-9	4,4'-DDE	1	0.032	0.022	0.00032	
50-29-3	4,4'-DDT	1	0.022	0.022	0.00033	U
309-00-2	Aldrin	1	0.022	0.022	0.0016	U
60-57-1	Dieldrin	1	0.022	0.022	0.00032	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00032	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00035	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00042	U
72-20-8	Endrin	1	0.022	0.022	0.00035	U
7421-93-4	Endrin Aldehyde	1	0.022	0.022	0.0011	U
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00046	U
76-44-8	Heptachlor	1	0.022	0.022	0.00055	U
1024-57-3	Heptachlor Epoxide	1	0.022	0.022	0.00027	U
72-43-5	Methoxychlor	1	0.022	0.022	0.00046	U
8001-35-2	Toxaphene	1	0.22	0.22	0.0037	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0423	0.0450	106	70 - 125	
Decachlorobiphenyl	0.0423	0.0438	104	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: A85_325-0

Sampled: 08/10/09 16:00 Prepared: 08/17/09 08:13 Analyzed: 08/31/09 02:11

Solids: 70.71 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I02022 Calibration: 9I02009 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.024	0.024	0.00031	U
319-85-7	beta-BHC	1	0.024	0.024	0.00040	U
58-89-9	gamma-BHC (Lindane)	1	0.024	0.024	0.00036	U
319-86-8	delta-BHC	1	0.024	0.024	0.00037	U
5103-71-9	alpha-Chlordane	1	0.024	0.024	0.00056	U
5103-74-2	gamma-Chlordane	1	0.024	0.024	0.00040	U
72-54-8	4,4'-DDD	1	0.024	0.024	0.00042	U
72-55-9	4,4'-DDE	1	0.024	0.024	0.00035	U
50-29-3	4,4'-DDT	1	0.024	0.024	0.00037	U
309-00-2	Aldrin	1	0.024	0.024	0.0018	U
60-57-1	Dieldrin	1	0.024	0.024	0.00036	U
959-98-8	Endosulfan I	1	0.024	0.024	0.00036	U
33213-65-9	Endosulfan II	1	0.024	0.024	0.00039	U
1031-07-8	Endosulfan Sulfate	1	0.024	0.024	0.00047	U
72-20-8	Endrin	1	0.024	0.024	0.00039	U
7421-93-4	Endrin Aldehyde	1	0.024	0.024	0.0013	U
53494-70-5	Endrin Ketone	1	0.024	0.024	0.00051	U
76-44-8	Heptachlor	1	0.024	0.024	0.00061	U
1024-57-3	Heptachlor Epoxide	1	0.024	0.024	0.00030	U
72-43-5	Methoxychlor	1	0.024	0.024	0.00052	U
8001-35-2	Toxaphene	1	0.24	0.24	0.0041	U UJ

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0471	0.0508	108	70 - 125	
Decachlorobiphenyl	0.0471	0.0511	108	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SE1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-06
File ID: A85_323-0
Sampled: 08/10/09 15:55
Prepared: 08/17/09 08:13
Analyzed: 08/31/09 00:56
Solids: 67.98
Preparation: 3550B Sonication Extrac
Initial/Final: 30 g / 10 mL
QC Batch: 0909442
Sequence: 9I02022
Calibration: 9I02009
Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.025	0.025	0.00033	U
319-85-7	beta-BHC	1	0.025	0.025	0.00042	U
58-89-9	gamma-BHC (Lindane)	1	0.025	0.025	0.00038	U
319-86-8	delta-BHC	1	0.025	0.025	0.00039	U
5103-71-9	alpha-Chlordane	1	0.025	0.025	0.00059	U
5103-74-2	gamma-Chlordane	1	0.025	0.025	0.00042	U
72-54-8	4,4'-DDD	1	0.025	0.025	0.00044	U
72-55-9	4,4'-DDE	1	0.025	0.025	0.00037	U
50-29-3	4,4'-DDT	1	0.025	0.025	0.00038	U
309-00-2	Aldrin	1	0.025	0.025	0.0018	U
60-57-1	Dieldrin	1	0.025	0.025	0.00037	U
959-98-8	Endosulfan I	1	0.025	0.025	0.00038	U
33213-65-9	Endosulfan II	1	0.025	0.025	0.00040	U
1031-07-8	Endosulfan Sulfate	1	0.025	0.025	0.00049	U
72-20-8	Endrin	1	0.025	0.025	0.00040	U
7421-93-4	Endrin Aldehyde	1	0.025	0.025	0.0013	U
53494-70-5	Endrin Ketone	1	0.025	0.025	0.00053	U
76-44-8	Heptachlor	1	0.025	0.025	0.00064	U
1024-57-3	Heptachlor Epoxide	1	0.025	0.025	0.00031	U
72-43-5	Methoxychlor	1	0.025	0.025	0.00054	U
8001-35-2	Toxaphene	1	0.25	0.25	0.0043	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0490	0.0479	98	70 - 125	
Decachlorobiphenyl	0.0490	0.0441	90	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: A85_230-0

Sampled: 08/10/09 15:40 Prepared: 08/17/09 08:13 Analyzed: 08/27/09 20:29

Solids: 59.69 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.028	0.028	0.00037	U
319-85-7	beta-BHC	1	0.028	0.028	0.00048	U
58-89-9	gamma-BHC (Lindane)	1	0.028	0.028	0.00043	U
319-86-8	delta-BHC	1	0.028	0.028	0.00044	U
5103-71-9	alpha-Chlordane	1	0.028	0.028	0.00067	U
5103-74-2	gamma-Chlordane	1	0.028	0.028	0.00048	U
72-54-8	4,4'-DDD	1	0.028	0.028	0.00050	U
72-55-9	4,4'-DDE	1	0.028	0.028	0.00042	U
50-29-3	4,4'-DDT	1	0.028	0.028	0.00043	U
309-00-2	Aldrin	1	0.028	0.028	0.0021	U
60-57-1	Dieldrin	1	0.028	0.028	0.00042	U
959-98-8	Endosulfan I	1	0.028	0.028	0.00043	U
33213-65-9	Endosulfan II	1	0.028	0.028	0.00046	U
1031-07-8	Endosulfan Sulfate	1	0.028	0.028	0.00055	U
72-20-8	Endrin	1	0.028	0.028	0.00046	U
7421-93-4	Endrin Aldehyde	1	0.028	0.028	0.0015	U
53494-70-5	Endrin Ketone	1	0.028	0.028	0.00060	U
76-44-8	Heptachlor	1	0.028	0.028	0.00073	U
1024-57-3	Heptachlor Epoxide	1	0.0015	0.028	0.00036	J b,x
72-43-5	Methoxychlor	1	0.028	0.028	0.00061	U
8001-35-2	Toxaphene	1	0.28	0.28	0.0049	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0558	0.0543	97	70 - 125	
Decachlorobiphenyl	0.0558	0.0552	99	55 - 130	

* Values outside of QC limits

: 91212

ANALYSIS DATA SHEET

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: A85_232-0

Sampled: 08/10/09 00:00 Prepared: 08/17/09 08:13 Analyzed: 08/27/09 21:44

Solids: 78.01 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00028	U
319-85-7	beta-BHC	1	0.022	0.022	0.00037	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00033	U
319-86-8	delta-BHC	1	0.022	0.022	0.00034	U
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00051	U
5103-74-2	gamma-Chlordane	1	0.0023	0.022	0.00036	J I,8
72-54-8	4,4'-DDD	1	0.022	0.022	0.00038	U
72-55-9	4,4'-DDE	1	0.022	0.022	0.00032	U
50-29-3	4,4'-DDT	1	0.022	0.022	0.00033	U
309-00-2	Aldrin	1	0.022	0.022	0.0016	U
60-57-1	Dieldrin	1	0.022	0.022	0.00032	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00033	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00035	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00042	U
72-20-8	Endrin	1	0.022	0.022	0.00035	U
7421-93-4	Endrin Aldehyde	1	0.022	0.022	0.0012	U
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00046	U
76-44-8	Heptachlor	1	0.022	0.022	0.00056	U
1024-57-3	Heptachlor Epoxide	1	0.0016	0.022	0.00027	J B,X
72-43-5	Methoxychlor	1	0.022	0.022	0.00047	U
8001-35-2	Toxaphene	1	0.22	0.22	0.0037	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0427	0.0491	115	70 - 125	
Decachlorobiphenyl	0.0427	0.0470	110	55 - 130	

* Values outside of QC limits

01221

ANALYSIS DATA SHEET

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: A85_328-0

Sampled: 08/11/09 11:00 Prepared: 08/17/09 08:13 Analyzed: 08/31/09 04:03

Solids: 81.36 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I02022 Calibration: 9I02009 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00033	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00034	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0410	0.0402	98	70 - 125	
Decachlorobiphenyl	0.0410	0.0407	99	55 - 130	

* Values outside of QC limits

01230

ANALYSIS DATA SHEET

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03 File ID: A85_233-0

Sampled: 08/11/09 13:00 Prepared: 08/17/09 08:13 Analyzed: 08/27/09 22:22

Solids: 79.99 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00028	U
319-85-7	beta-BHC	1	0.021	0.021	0.00036	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00033	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00050	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00036	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.0077	0.021	0.00031	J
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0016	U
60-57-1	Dieldrin	1	0.0090	0.021	0.00032	J
959-98-8	Endosulfan I	1	0.021	0.021	0.00032	U
33213-65-9	Endosulfan II	1	0.0010	0.021	0.00034	J
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.0027	0.021	0.00034	J
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00045	U
76-44-8	Heptachlor	1	0.021	0.021	0.00054	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00027	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00046	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0417	0.0454	109	70 - 125	
Decachlorobiphenyl	0.0417	0.0481	115	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB1B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908185-04
File ID: A85_326-0
Sampled: 08/11/09 13:10
Prepared: 08/17/09 08:13
Analyzed: 08/31/09 02:48
Solids: 71.95
Preparation: 3550B Sonication Extrac
Initial/Final: 30 g / 10 mL
QC Batch: 0909442
Sequence: 9I02022
Calibration: 9I02009
Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.024	0.024	0.00031	U
319-85-7	beta-BHC	1	0.024	0.024	0.00040	U
58-89-9	gamma-BHC (Lindane)	1	0.024	0.024	0.00036	U
319-86-8	delta-BHC	1	0.024	0.024	0.00037	U
5103-71-9	alpha-Chlordane	1	0.024	0.024	0.00055	U
5103-74-2	gamma-Chlordane	1	0.024	0.024	0.00039	U
72-54-8	4,4'-DDD	1	0.024	0.024	0.00041	U
72-55-9	4,4'-DDE	1	0.024	0.024	0.00035	U
50-29-3	4,4'-DDT	1	0.024	0.024	0.00036	U
309-00-2	Aldrin	1	0.024	0.024	0.0017	U
60-57-1	Dieldrin	1	0.024	0.024	0.00035	U
959-98-8	Endosulfan I	1	0.024	0.024	0.00035	U
33213-65-9	Endosulfan II	1	0.024	0.024	0.00038	U
1031-07-8	Endosulfan Sulfate	1	0.024	0.024	0.00046	U
72-20-8	Endrin	1	0.024	0.024	0.00038	U
7421-93-4	Endrin Aldehyde	1	0.0022	0.024	0.0013	J
53494-70-5	Endrin Ketone	1	0.024	0.024	0.00050	U
76-44-8	Heptachlor	1	0.024	0.024	0.00060	U
1024-57-3	Heptachlor Epoxide	1	0.024	0.024	0.00029	U
72-43-5	Methoxychlor	1	0.024	0.024	0.00051	U
8001-35-2	Toxaphene	1	0.24	0.24	0.0040	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0463	0.0451	97	70 - 125	
Decachlorobiphenyl	0.0463	0.0467	101	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: A85_324-0

Sampled: 08/11/09 13:40 Prepared: 08/17/09 08:13 Analyzed: 08/31/09 01:33

Solids: 70.86 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I02022 Calibration: 9I02009 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.024	0.024	0.00031	U
319-85-7	beta-BHC	1	0.024	0.024	0.00040	U
58-89-9	gamma-BHC (Lindane)	1	0.024	0.024	0.00036	U
319-86-8	delta-BHC	1	0.024	0.024	0.00037	U
5103-71-9	alpha-Chlordane	1	0.0041	0.024	0.00056	J
5103-74-2	gamma-Chlordane	1	0.0048	0.024	0.00040	J J,q
72-54-8	4,4'-DDD	1	0.024	0.024	0.00042	U
72-55-9	4,4'-DDE	1	0.0063	0.024	0.00035	J
50-29-3	4,4'-DDT	1	0.017	0.024	0.00037	J J,q
309-00-2	Aldrin	1	0.024	0.024	0.0018	U
60-57-1	Dieldrin	1	0.0054	0.024	0.00036	J J,q
959-98-8	Endosulfan I	1	0.024	0.024	0.00036	U
33213-65-9	Endosulfan II	1	0.024	0.024	0.00039	U
1031-07-8	Endosulfan Sulfate	1	0.0022	0.024	0.00047	J J,q
72-20-8	Endrin	1	0.0015	0.024	0.00039	J J,q
7421-93-4	Endrin Aldehyde	1	0.0059	0.024	0.0013	J J,q
53494-70-5	Endrin Ketone	1	0.024	0.024	0.00051	U
76-44-8	Heptachlor	1	0.024	0.024	0.00061	U
1024-57-3	Heptachlor Epoxide	1	0.024	0.024	0.00030	U
72-43-5	Methoxychlor	1	0.024	0.024	0.00052	U
8001-35-2	Toxaphene	1	0.24	0.24	0.0041	U UJc

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0470	0.0451	96	70 - 125	
Decachlorobiphenyl	0.0470	0.0520	111	55 - 130	

* Values outside of QC limits

012557

ANALYSIS DATA SHEET

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: A85_244-0

Sampled: 08/11/09 14:00 Prepared: 08/17/09 08:13 Analyzed: 08/28/09 05:13

Solids: 68.83 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.025	0.025	0.00032	U
319-85-7	beta-BHC	1	0.025	0.025	0.00042	U
58-89-9	gamma-BHC (Lindane)	1	0.025	0.025	0.00037	U
319-86-8	delta-BHC	1	0.025	0.025	0.00038	U
5103-71-9	alpha-Chlordane	1	0.025	0.025	0.00058	U
5103-74-2	gamma-Chlordane	1	0.025	0.025	0.00041	U
72-54-8	4,4'-DDD	1	0.025	0.025	0.00043	U
72-55-9	4,4'-DDE	1	0.025	0.025	0.00036	U
50-29-3	4,4'-DDT	1	0.025	0.025	0.00038	U
309-00-2	Aldrin	1	0.025	0.025	0.0018	U
60-57-1	Dieldrin	1	0.025	0.025	0.00037	U
959-98-8	Endosulfan I	1	0.025	0.025	0.00037	U
33213-65-9	Endosulfan II	1	0.025	0.025	0.00040	U
1031-07-8	Endosulfan Sulfate	1	0.025	0.025	0.00048	U
72-20-8	Endrin	1	0.025	0.025	0.00040	U
7421-93-4	Endrin Aldehyde	1	0.025	0.025	0.0013	U
53494-70-5	Endrin Ketone	1	0.025	0.025	0.00052	U
76-44-8	Heptachlor	1	0.025	0.025	0.00063	U
1024-57-3	Heptachlor Epoxide	1	0.025	0.025	0.00031	U
72-43-5	Methoxychlor	1	0.025	0.025	0.00053	U
8001-35-2	Toxaphene	1	0.25	0.25	0.0042	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0484	0.0529	109	70 - 125	
Decachlorobiphenyl	0.0484	0.0510	105	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-07 File ID: A85_245-0

Sampled: 08/11/09 14:15 Prepared: 08/17/09 08:13 Analyzed: 08/28/09 05:50

Solids: 69.36 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.025	0.025	0.00032	U
319-85-7	beta-BHC	1	0.025	0.025	0.00041	U
58-89-9	gamma-BHC (Lindane)	1	0.025	0.025	0.00037	U
319-86-8	delta-BHC	1	0.025	0.025	0.00038	U
5103-71-9	alpha-Chlordane	1	0.025	0.025	0.00058	U
5103-74-2	gamma-Chlordane	1	0.0016	0.025	0.00041	J
72-54-8	4,4'-DDD	1	0.025	0.025	0.00043	U
72-55-9	4,4'-DDE	1	0.025	0.025	0.00036	U
50-29-3	4,4'-DDT	1	0.025	0.025	0.00037	U
309-00-2	Aldrin	1	0.025	0.025	0.0018	U
60-57-1	Dieldrin	1	0.025	0.025	0.00036	U
959-98-8	Endosulfan I	1	0.025	0.025	0.00037	U
33213-65-9	Endosulfan II	1	0.025	0.025	0.00039	U
1031-07-8	Endosulfan Sulfate	1	0.025	0.025	0.00048	U
72-20-8	Endrin	1	0.025	0.025	0.00040	U
7421-93-4	Endrin Aldehyde	1	0.0050	0.025	0.0013	J
53494-70-5	Endrin Ketone	1	0.025	0.025	0.00052	U
76-44-8	Heptachlor	1	0.025	0.025	0.00063	U
1024-57-3	Heptachlor Epoxide	1	0.00048	0.025	0.00031	J
72-43-5	Methoxychlor	1	0.025	0.025	0.00053	U
8001-35-2	Toxaphene	1	0.25	0.25	0.0042	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0481	0.0573	119	70 - 125	
Decachlorobiphenyl	0.0481	0.0534	111	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: A85_193-0

Sampled: 08/11/09 14:30 Prepared: 08/17/09 08:13 Analyzed: 08/26/09 20:47

Solids: 72.01 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9H27089 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.024	0.024	0.00031	U
319-85-7	beta-BHC	1	0.024	0.024	0.00040	U
58-89-9	gamma-BHC (Lindane)	1	0.024	0.024	0.00036	U
319-86-8	delta-BHC	1	0.024	0.024	0.00037	U
5103-71-9	alpha-Chlordane	1	0.024	0.024	0.00055	U
5103-74-2	gamma-Chlordane	1	0.024	0.024	0.00039	U
72-54-8	4,4'-DDD	1	0.024	0.024	0.00041	U
72-55-9	4,4'-DDE	1	0.024	0.024	0.00035	U
50-29-3	4,4'-DDT	1	0.024	0.024	0.00036	U
309-00-2	Aldrin	1	0.024	0.024	0.0017	U
60-57-1	Dieldrin	1	0.024	0.024	0.00035	U
959-98-8	Endosulfan I	1	0.024	0.024	0.00035	U
33213-65-9	Endosulfan II	1	0.024	0.024	0.00038	U
1031-07-8	Endosulfan Sulfate	1	0.024	0.024	0.00046	U
72-20-8	Endrin	1	0.024	0.024	0.00038	U
7421-93-4	Endrin Aldehyde	1	0.0031	0.024	0.0013	J
53494-70-5	Endrin Ketone	1	0.024	0.024	0.00050	U
76-44-8	Heptachlor	1	0.024	0.024	0.00060	U
1024-57-3	Heptachlor Epoxide	1	0.024	0.024	0.00029	U
72-43-5	Methoxychlor	1	0.024	0.024	0.00051	U
8001-35-2	Toxaphene	1	0.24	0.24	0.0040	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0463	0.0506	109	70 - 125	
Decachlorobiphenyl	0.0463	0.0447	97	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-09 File ID: A85_246-0

Sampled: 08/11/09 15:30 Prepared: 08/17/09 08:13 Analyzed: 08/28/09 06:28

Solids: 75.68 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00029	U
319-85-7	beta-BHC	1	0.022	0.022	0.00038	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00034	U
319-86-8	delta-BHC	1	0.022	0.022	0.00035	U
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00053	U
5103-74-2	gamma-Chlordane	1	0.022	0.022	0.00038	U
72-54-8	4,4'-DDD	1	0.022	0.022	0.00039	U
72-55-9	4,4'-DDE	1	0.022	0.022	0.00033	U
50-29-3	4,4'-DDT	1	0.022	0.022	0.00034	U
309-00-2	Aldrin	1	0.022	0.022	0.0017	U
60-57-1	Dieldrin	1	0.022	0.022	0.00033	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00034	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00036	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00044	U
72-20-8	Endrin	1	0.022	0.022	0.00036	U
7421-93-4	Endrin Aldehyde	1	0.0043	0.022	0.0012	J
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00048	U
76-44-8	Heptachlor	1	0.022	0.022	0.00057	U
1024-57-3	Heptachlor Epoxide	1	0.022	0.022	0.00028	U
72-43-5	Methoxychlor	1	0.022	0.022	0.00048	U
8001-35-2	Toxaphene	1	0.22	0.22	0.0038	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0440	0.0519	118	70 - 125	
Decachlorobiphenyl	0.0440	0.0509	116	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

EQBK-1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Laboratory ID: 0908185-10
File ID: A85_234-0
Sampled: 08/11/09 11:10
Prepared: 08/13/09 09:24
Analyzed: 08/27/09 22:59
Solids:
Preparation: 3510C Liquid-Liquid Ex
Initial/Final: 990 mL / 2 mL
QC Batch: 0909501
Sequence: 9I01016
Calibration: 9I08007
Instrument: 199

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.050	0.050	0.00063	U
319-85-7	beta-BHC	1	0.050	0.050	0.00052	U
58-89-9	gamma-BHC (Lindane)	1	0.0022	0.050	0.00064	J J,q
319-86-8	delta-BHC	1	0.10	0.10	0.0011	U
5103-71-9	alpha-Chlordane	1	0.050	0.050	0.00052	U
5103-74-2	gamma-Chlordane	1	0.050	0.050	0.00046	U
72-54-8	4,4'-DDD	1	0.10	0.10	0.00072	U
72-55-9	4,4'-DDE	1	0.10	0.10	0.00058	U
50-29-3	4,4'-DDT	1	0.10	0.10	0.00065	U
309-00-2	Aldrin	1	0.050	0.050	0.00080	U
60-57-1	Dieldrin	1	0.050	0.050	0.00048	U
959-98-8	Endosulfan I	1	0.10	0.10	0.00046	U
33213-65-9	Endosulfan II	1	0.10	0.10	0.00045	U
1031-07-8	Endosulfan Sulfate	1	0.10	0.10	0.00076	U
72-20-8	Endrin	1	0.10	0.10	0.0062	U
7421-93-4	Endrin Aldehyde	1	0.10	0.10	0.0039	U
53494-70-5	Endrin Ketone	1	0.050	0.050	0.00093	U
76-44-8	Heptachlor	1	0.050	0.050	0.00043	U
1024-57-3	Heptachlor Epoxide	1	0.0016	0.050	0.00056	J J,q
72-43-5	Methoxychlor	1	0.50	0.50	0.0014	U
8001-35-2	Toxaphene	1	5.0	5.0	0.0087	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.202	0.168	83	25 - 140	
Decachlorobiphenyl	0.202	0.191	95	30 - 135	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: A41_209-0

Sampled: 08/10/09 13:15 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 18:01

Solids: 86.40 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	38	38	4.9	U
11104-28-2	PCB-1221	1	38	38	9.0	U
11141-16-5	PCB-1232	1	38	38	5.2	U
53469-21-9	PCB-1242	1	78	78	5.3	U
12672-29-6	PCB-1248	1	38	38	7.5	U
11097-69-1	PCB-1254	1	89	38	6.8	
11096-82-5	PCB-1260	1	50	78	5.8	J
37324-23-5	PCB-1262	1	38	38	6.0	U
11100-14-4	PCB-1268	1	38	38	7.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.6	42.0	109	60 - 125	
Tetrachloro-m-xylene	38.6	39.9	103	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: A41_208-0

Sampled: 08/10/09 13:50 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 17:37

Solids: 76.49 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	43	43	5.5	U
11104-28-2	PCB-1221	1	43	43	10	U
11141-16-5	PCB-1232	1	43	43	5.9	U
53469-21-9	PCB-1242	1	88	88	6.0	U
12672-29-6	PCB-1248	1	43	43	8.5	U
11097-69-1	PCB-1254	1	43	43	7.7	U
11096-82-5	PCB-1260	1	88	88	6.5	U
37324-23-5	PCB-1262	1	43	43	6.8	U
11100-14-4	PCB-1268	1	43	43	8.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	43.6	50.1	115	60 - 125	
Tetrachloro-m-xylene	43.6	44.5	102	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: A41_207-0

Sampled: 08/10/09 14:10 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 17:13

Solids: 92.04 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	36	36	4.6	U
11104-28-2	PCB-1221	1	36	36	8.5	U
11141-16-5	PCB-1232	1	36	36	4.9	U
53469-21-9	PCB-1242	1	73	73	5.0	U
12672-29-6	PCB-1248	1	36	36	7.1	U
11097-69-1	PCB-1254	1	53	36	6.4	
11096-82-5	PCB-1260	1	25	73	5.4	J
37324-23-5	PCB-1262	1	36	36	5.6	U
11100-14-4	PCB-1268	1	36	36	7.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	36.2	38.7	107	60 - 125	
Tetrachloro-m-xylene	36.2	32.8	91	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS4

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-04 File ID: A41_206-0

Sampled: 08/10/09 16:15 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 16:48

Solids: 78.77 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	42	42	5.3	U
11104-28-2	PCB-1221	1	42	42	9.9	U
11141-16-5	PCB-1232	1	42	42	5.7	U
53469-21-9	PCB-1242	1	85	85	5.8	U
12672-29-6	PCB-1248	1	42	42	8.3	U
11097-69-1	PCB-1254	1	23	42	7.5	J
11096-82-5	PCB-1260	1	19	85	6.3	J
37324-23-5	PCB-1262	1	42	42	6.6	U
11100-14-4	PCB-1268	1	42	42	8.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	42.3	47.8	113	60 - 125	
Tetrachloro-m-xylene	42.3	42.8	101	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: A41_205-0

Sampled: 08/10/09 16:00 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 16:24

Solids: 70.71 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	47	47	5.9	U
11104-28-2	PCB-1221	1	47	47	11	U
11141-16-5	PCB-1232	1	47	47	6.4	U
53469-21-9	PCB-1242	1	95	95	6.5	U
12672-29-6	PCB-1248	1	47	47	9.2	U
11097-69-1	PCB-1254	1	12	47	8.3	J
11096-82-5	PCB-1260	1	14	95	7.1	J
37324-23-5	PCB-1262	1	47	47	7.4	U
11100-14-4	PCB-1268	1	47	47	9.2	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	47.1	52.5	111	60 - 125	
Tetrachloro-m-xylene	47.1	45.4	96	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: A41_204-0

Sampled: 08/10/09 15:55 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 16:00

Solids: 67.98 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	49	49	6.2	U
11104-28-2	PCB-1221	1	49	49	11	U
11141-16-5	PCB-1232	1	49	49	6.6	U
53469-21-9	PCB-1242	1	99	99	6.8	U
12672-29-6	PCB-1248	1	49	49	9.6	U
11097-69-1	PCB-1254	1	59	49	8.7	
11096-82-5	PCB-1260	1	27	99	7.4	J
37324-23-5	PCB-1262	1	49	49	7.6	U
11100-14-4	PCB-1268	1	49	49	9.6	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	49.0	52.3	107	60 - 125	
Tetrachloro-m-xylene	49.0	47.4	97	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: A41_203-0

Sampled: 08/10/09 15:40 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 15:36

Solids: 59.69 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	55	55	7.0	U
11104-28-2	PCB-1221	1	55	55	13	U
11141-16-5	PCB-1232	1	55	55	7.5	U
53469-21-9	PCB-1242	1	110	110	7.7	U
12672-29-6	PCB-1248	1	55	55	11	U
11097-69-1	PCB-1254	1	42	55	9.9	J
11096-82-5	PCB-1260	1	31	110	8.4	J
37324-23-5	PCB-1262	1	55	55	8.7	U
11100-14-4	PCB-1268	1	55	55	11	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	55.8	59.3	106	60 - 125	
Tetrachloro-m-xylene	55.8	53.7	96	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: A41_202-0

Sampled: 08/10/09 00:00 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 15:11

Solids: 78.01 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	42	42	5.4	U
11104-28-2	PCB-1221	1	42	42	10	U
11141-16-5	PCB-1232	1	42	42	5.8	U
53469-21-9	PCB-1242	1	86	86	5.9	U
12672-29-6	PCB-1248	1	42	42	8.3	U
11097-69-1	PCB-1254	1	46	42	7.6	
11096-82-5	PCB-1260	1	24	86	6.4	J J,y
37324-23-5	PCB-1262	1	42	42	6.7	U
11100-14-4	PCB-1268	1	42	42	8.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	42.7	46.7	109	60 - 125	
Tetrachloro-m-xylene	42.7	42.3	99	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: A41_213-0

Sampled: 08/11/09 11:00 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 19:38

Solids: 81.36 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	41	41	5.2	U
11104-28-2	PCB-1221	1	41	41	9.6	U
11141-16-5	PCB-1232	1	41	41	5.5	U
53469-21-9	PCB-1242	1	82	82	5.7	U
12672-29-6	PCB-1248	1	41	41	8.0	U
11097-69-1	PCB-1254	1	41	41	7.3	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	41	41	6.4	U
11100-14-4	PCB-1268	1	41	41	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	41.0	46.7	114	60 - 125	
Tetrachloro-m-xylene	41.0	41.1	100	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03 File ID: A41_214-0

Sampled: 08/11/09 13:00 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 20:02

Solids: 79.99 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	41	41	5.3	U UL,M
11104-28-2	PCB-1221	1	41	41	9.8	U
11141-16-5	PCB-1232	1	41	41	5.6	U
53469-21-9	PCB-1242	1	84	84	5.8	U
12672-29-6	PCB-1248	1	41	41	8.1	U
11097-69-1	PCB-1254	1	150	41	7.4	L,M
11096-82-5	PCB-1260	1	310	84	6.3	L,M
37324-23-5	PCB-1262	1	41	41	6.5	U UL,M
11100-14-4	PCB-1268	1	41	41	8.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	41.7	49.8	119	60 - 125	
Tetrachloro-m-xylene	41.7	45.3	109	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-04 File ID: A41_215-0

Sampled: 08/11/09 13:10 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 20:26

Solids: 71.95 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	46	46	5.8	U
11104-28-2	PCB-1221	1	46	46	11	U
11141-16-5	PCB-1232	1	46	46	6.3	U
53469-21-9	PCB-1242	1	93	93	6.4	U
12672-29-6	PCB-1248	1	46	46	9.0	U
11097-69-1	PCB-1254	1	46	46	8.2	U
11096-82-5	PCB-1260	1	93	93	6.9	U
37324-23-5	PCB-1262	1	46	46	7.2	U
11100-14-4	PCB-1268	1	46	46	9.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	46.3	51.3	111	60 - 125	
Tetrachloro-m-xylene	46.3	46.0	99	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: A41_216-0

Sampled: 08/11/09 13:40 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 20:51

Solids: 70.86 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	47	47	5.9	U
11104-28-2	PCB-1221	1	47	47	11	U
11141-16-5	PCB-1232	1	47	47	6.4	U
53469-21-9	PCB-1242	1	95	95	6.5	U
12672-29-6	PCB-1248	1	47	47	9.2	U
11097-69-1	PCB-1254	1	140	47	8.3	
11096-82-5	PCB-1260	1	69	95	7.1	J
37324-23-5	PCB-1262	1	47	47	7.3	U
11100-14-4	PCB-1268	1	47	47	9.2	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	47.0	54.2	115	60 - 125	
Tetrachloro-m-xylene	47.0	49.6	105	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: A41_217-0

Sampled: 08/11/09 14:00 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 21:15

Solids: 68.83 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	48	48	6.1	U
11104-28-2	PCB-1221	1	48	48	11	U
11141-16-5	PCB-1232	1	48	48	6.5	U
53469-21-9	PCB-1242	1	97	97	6.7	U
12672-29-6	PCB-1248	1	48	48	9.4	U
11097-69-1	PCB-1254	1	48	48	8.6	U
11096-82-5	PCB-1260	1	97	97	7.3	U
37324-23-5	PCB-1262	1	48	48	7.6	U
11100-14-4	PCB-1268	1	48	48	9.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	48.4	53.6	111	60 - 125	
Tetrachloro-m-xylene	48.4	48.6	100	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-07 File ID: A41_218-0

Sampled: 08/11/09 14:15 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 21:39

Solids: 69.36 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	48	48	6.1	U
11104-28-2	PCB-1221	1	48	48	11	U
11141-16-5	PCB-1232	1	48	48	6.5	U
53469-21-9	PCB-1242	1	97	97	6.6	U
12672-29-6	PCB-1248	1	48	48	9.4	U
11097-69-1	PCB-1254	1	48	48	8.5	U
11096-82-5	PCB-1260	1	97	97	7.2	U
37324-23-5	PCB-1262	1	48	48	7.5	U
11100-14-4	PCB-1268	1	48	48	9.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	48.1	58.0	121	60 - 125	
Tetrachloro-m-xylene	48.1	52.4	109	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: A41_219-0

Sampled: 08/11/09 14:30 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 22:03

Solids: 72.01 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	46	46	5.8	U
11104-28-2	PCB-1221	1	46	46	11	U
11141-16-5	PCB-1232	1	46	46	6.2	U
53469-21-9	PCB-1242	1	93	93	6.4	U
12672-29-6	PCB-1248	1	46	46	9.0	U
11097-69-1	PCB-1254	1	46	46	8.2	U
11096-82-5	PCB-1260	1	93	93	6.9	U
37324-23-5	PCB-1262	1	46	46	7.2	U
11100-14-4	PCB-1268	1	46	46	9.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	46.3	54.3	117	60 - 125	
Tetrachloro-m-xylene	46.3	48.4	105	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

77SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-09 File ID: A41_220-0

Sampled: 08/11/09 15:30 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 22:28

Solids: 75.68 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	44	44	5.5	U
11104-28-2	PCB-1221	1	44	44	10	U
11141-16-5	PCB-1232	1	44	44	5.9	U
53469-21-9	PCB-1242	1	89	89	6.1	U
12672-29-6	PCB-1248	1	44	44	8.6	U
11097-69-1	PCB-1254	1	44	44	7.8	U
11096-82-5	PCB-1260	1	89	89	6.6	U
37324-23-5	PCB-1262	1	44	44	6.9	U
11100-14-4	PCB-1268	1	44	44	8.6	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	44.0	52.2	119	60 - 125	
Tetrachloro-m-xylene	44.0	46.5	106	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

EQBK-1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Laboratory ID: 0908185-10
File ID: A41_152-0
Sampled: 08/11/09 11:10
Prepared: 08/13/09 08:19
Analyzed: 08/17/09 23:51
Solids:
Preparation: 3510C Liquid-Liquid Ex
Initial/Final: 990 mL / 2 mL
QC Batch: 0909445
Sequence: 9H18074
Calibration: 9I04021
Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
12674-11-2	PCB-1016	1	0.20	0.20	0.025	U
11104-28-2	PCB-1221	1	0.20	0.20	0.029	U
11141-16-5	PCB-1232	1	0.20	0.20	0.032	U
53469-21-9	PCB-1242	1	0.20	0.20	0.040	U
12672-29-6	PCB-1248	1	0.20	0.20	0.030	U
11097-69-1	PCB-1254	1	0.20	0.20	0.033	U
11096-82-5	PCB-1260	1	0.20	0.20	0.026	U
37324-23-5	PCB-1262	1	0.20	0.20	0.033	U
11100-14-4	PCB-1268	1	0.20	0.20	0.026	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% Rec.	QC Limits	Q
Decachlorobiphenyl	0.202	0.207	102	40 - 135	
Tetrachloro-m-xylene	0.202	0.162	80	36 - 114	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: expa024-0

Sampled: 08/10/09 13:15 Prepared: 08/19/09 08:32 Analyzed: 08/22/09 23:37

Solids: 86.40 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25042 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.80	112	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: expa025-0

Sampled: 08/10/09 13:50 Prepared: 08/19/09 08:32 Analyzed: 08/23/09 00:19

Solids: 76.49 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25042 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U U,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.41	97	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: expa026-0

Sampled: 08/10/09 14:10 Prepared: 08/19/09 08:32 Analyzed: 08/23/09 01:01

Solids: 92.04 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25042 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.42	97	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SS4

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-04 File ID: expa027-0

Sampled: 08/10/09 16:15 Prepared: 08/19/09 08:32 Analyzed: 08/23/09 01:43

Solids: 78.77 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25042 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.27	91	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: expa028-0

Sampled: 08/10/09 16:00 Prepared: 08/19/09 08:32 Analyzed: 08/23/09 02:25

Solids: 70.71 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25042 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.42	97	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: expa003-20090824-114513-0

Sampled: 08/10/09 15:55 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 11:45

Solids: 67.98 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.25	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: expa004-0

Sampled: 08/10/09 15:40 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 12:27

Solids: 59.69 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.26	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: expa005-0

Sampled: 08/10/09 00:00 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 13:09

Solids: 78.01 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U VJ,C
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJ,C
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U VJ,C

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.25	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: expa006-0

Sampled: 08/11/09 11:00 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 13:51

Solids: 81.36 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U U,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U U,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U U,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.34	94	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

77SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-03 File ID: expa007-0

Sampled: 08/11/09 13:00 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 14:33

Solids: 79.99 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.25	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

77SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-04 File ID: expa008-0

Sampled: 08/11/09 13:10 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 15:16

Solids: 71.95 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.35	94	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: expa009-0

Sampled: 08/11/09 13:40 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 15:58

Solids: 70.86 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.24	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: expa011-0

Sampled: 08/11/09 14:00 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 17:24

Solids: 68.83 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.55	102	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

77SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-07 File ID: expa012-0

Sampled: 08/11/09 14:15 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 18:06

Solids: 69.36 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJc
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.52	101	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: expa013-0

Sampled: 08/11/09 14:30 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 18:48

Solids: 72.01 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.33	93	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

77SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-09 File ID: expa014-0

Sampled: 08/11/09 15:30 Prepared: 08/19/09 08:32 Analyzed: 08/24/09 19:30

Solids: 75.68 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJc
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.25	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

EQBK-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-10 File ID: expa006-0

Sampled: 08/11/09 11:10 Prepared: 08/18/09 07:37 Analyzed: 08/25/09 13:07

Solids: Preparation: 8330 Extraction Initial/Final: 770 mL / 10 mL

QC Batch: 0909645 Sequence: 9H25052 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	5.0	5.0	0.086	U
99-65-0	1,3-Dinitrobenzene	1	5.0	5.0	0.080	U
118-96-7	2,4,6-Trinitrotoluene	1	5.0	5.0	0.082	U
121-14-2	2,4-Dinitrotoluene	1	5.0	5.0	0.12	U
606-20-2	2,6-Dinitrotoluene	1	5.0	5.0	0.29	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	5.0	5.0	0.22	U
88-72-2	2-Nitrotoluene	1	5.0	5.0	0.22	U
99-08-1	3-Nitrotoluene	1	5.0	5.0	0.28	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	5.0	5.0	0.31	U VJ,C
99-99-0	4-Nitrotoluene	1	5.0	5.0	0.38	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	5.0	5.0	0.16	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	5.0	5.0	0.084	U
98-95-3	Nitrobenzene	1	5.0	5.0	0.12	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	5.0	5.0	0.17	U VJ,C

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
4-Nitroaniline	3.25	3.85	119	29 - 138	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-01 File ID: expa015-0

Sampled: 08/10/09 13:15 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 01:23

Solids: 86.40 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.47	99	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-02 File ID: NGa014-0

Sampled: 08/10/09 13:50 Prepared: 08/19/09 08:36 Analyzed: 08/28/09 12:38

Solids: 76.49 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.41	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-03 File ID: NGa015-0

Sampled: 08/10/09 14:10 Prepared: 08/19/09 08:36 Analyzed: 08/28/09 12:52

Solids: 92.04 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.45	98	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SS4

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-04 File ID: expa018-0

Sampled: 08/10/09 16:15 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 02:06

Solids: 78.77 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.41	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-05 File ID: expa019-0

Sampled: 08/10/09 16:00 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 02:20

Solids: 70.71 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.40	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SE1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-06 File ID: expa020-0

Sampled: 08/10/09 15:55 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 02:35

Solids: 67.98 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.56	102	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SE2

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-07 File ID: expa021-0

Sampled: 08/10/09 15:40 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 02:49

Solids: 59.69 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.37	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

DUP-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908176-08 File ID: expa023-0

Sampled: 08/10/09 00:00 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 03:17

Solids: 78.01 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.43	97	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60TP1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-02 File ID: expa024-0

Sampled: 08/11/09 11:00 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 03:32

Solids: 81.36 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.62	105	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908185-03
File ID: expa025-0
Sampled: 08/11/09 13:00
Prepared: 08/19/09 08:36
Analyzed: 08/20/09 03:46
Solids: 79.99
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909627
Sequence: 9H21034
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.53	101	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

77SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-04 File ID: expa026-0

Sampled: 08/11/09 13:10 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 04:00

Solids: 71.95 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.38	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

77SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-05 File ID: expa027-0

Sampled: 08/11/09 13:40 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 04:14

Solids: 70.86 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.32	93	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

77SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-06 File ID: expa028-0

Sampled: 08/11/09 14:00 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 04:29

Solids: 68.83 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.30	92	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908185-07
File ID: expa029-0
Sampled: 08/11/09 14:15
Prepared: 08/19/09 08:36
Analyzed: 08/20/09 04:43
Solids: 69.36
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909627
Sequence: 9H21034
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.32	93	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

77SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908185-08 File ID: expa030-0

Sampled: 08/11/09 14:30 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 04:57

Solids: 72.01 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.30	92	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

77SB4B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908185-09
File ID: expa031-0
Sampled: 08/11/09 15:30
Prepared: 08/19/09 08:36
Analyzed: 08/20/09 05:12
Solids: 75.68
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909627
Sequence: 9H21034
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.40	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

EQBK-1

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908185-10 File ID: NGa006-0

Sampled: 08/11/09 11:10 Prepared: 08/18/09 07:36 Analyzed: 08/19/09 12:12

Solids: Preparation: 8330 Extraction Initial/Final: 770 mL / 10 mL

QC Batch: 0909644 Sequence: 9H25048 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.46	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.18	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
1-Nitronaphthalene	3.25	3.30	102	50 - 150	

* Values outside of QC limits

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:15
Solids: 86.40
Laboratory ID: 0908176-01

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5043 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	7.6	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:35
7440-50-8	Copper, Total	15	mg/kg dry wt.	1	0.20	0.043		08/17/09 10:35
7439-92-1	Lead, Total	35	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:35
7440-02-0	Nickel, Total L,M	9.8	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:35
7782-49-2	Selenium, Total L,M	0.66	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:35
7440-22-4	Silver, Total	0.12	mg/kg dry wt.	1	0.10	0.011		08/17/09 10:35
7440-28-0	Thallium, Total	0.17	mg/kg dry wt.	1	0.10	0.0061		08/17/09 10:35
7440-62-2	Vanadium, Total L,M	43	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:35

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:15
Solids: 86.40
Laboratory ID: 0908176-01

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5033 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.50	mg/kg dry wt.	1	0.20	0.037		08/18/09 14:57

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:50
Solids: 76.49
Laboratory ID: 0908176-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5105 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	12	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:38
7440-50-8	Copper, Total	8.7	mg/kg dry wt.	1	0.20	0.043		08/17/09 10:38
7439-92-1	Lead, Total	36	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:38
7440-02-0	Nickel, Total L/M	14	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:38
7782-49-2	Selenium, Total L/M	0.39	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:38
7440-22-4	Silver, Total	0.087	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 10:38
7440-28-0	Thallium, Total	0.064	mg/kg dry wt.	1	0.10	0.0061	J	08/17/09 10:38
7440-62-2	Vanadium, Total L/M	28	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:38

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:50
Solids: 76.49
Laboratory ID: 0908176-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5153 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.34	mg/kg dry wt.	1	0.20	0.037		08/18/09 14:59

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 14:10
Solids: 92.04
Laboratory ID: 0908176-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5025 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	4.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:40
7440-50-8	Copper, Total	10	mg/kg dry wt.	1	0.20	0.043		08/17/09 10:40
7439-92-1	Lead, Total	12	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:40
7440-02-0	Nickel, Total L,M	17	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:40
7782-49-2	Selenium, Total L,M	0.33	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:40
7440-22-4	Silver, Total	0.086	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 10:40
7440-28-0	Thallium, Total	0.093	mg/kg dry wt.	1	0.10	0.0061	J	08/17/09 10:40
7440-62-2	Vanadium, Total L,M	25	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:40

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 14:10
Solids: 92.04
Laboratory ID: 0908176-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5277 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total b,b	0.20	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:01

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:15
Solids: 78.77
Laboratory ID: 0908176-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5018 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	8.8	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:43
7440-50-8	Copper, Total J, P	37	mg/kg dry wt.	1	0.20	0.043		08/17/09 10:43
7439-92-1	Lead, Total	28	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:43
7440-02-0	Nickel, Total L, M	21	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:43
7782-49-2	Selenium, Total L, M	0.53	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:43
7440-22-4	Silver, Total	0.11	mg/kg dry wt.	1	0.10	0.011		08/17/09 10:43
7440-28-0	Thallium, Total	0.22	mg/kg dry wt.	1	0.10	0.0061		08/17/09 10:43
7440-62-2	Vanadium, Total L, M	41	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:43

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:15
Solids: 78.77
Laboratory ID: 0908176-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5052 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.34	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:03

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:00
Solids: 70.71
Laboratory ID: 0908176-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5162 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	6.8	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:46
7440-50-8	Copper, Total	27	mg/kg dry wt.	1	0.20	0.043		08/17/09 10:46
7439-92-1	Lead, Total	28	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:46
7440-02-0	Nickel, Total L1M	19	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:46
7782-49-2	Selenium, Total L1M	0.44	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:46
7440-22-4	Silver, Total	0.097	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 10:46
7440-28-0	Thallium, Total	0.20	mg/kg dry wt.	1	0.10	0.0061		08/17/09 10:46
7440-62-2	Vanadium, Total L1M	33	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:46

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:00
Solids: 70.71
Laboratory ID: 0908176-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5226 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.32	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:05

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SE1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:55
Solids: 67.98
Laboratory ID: 0908176-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5043 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	7.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:49
7440-50-8	Copper, Total	28	mg/kg dry wt.	1	0.20	0.043		08/17/09 10:49
7439-92-1	Lead, Total	130	mg/kg dry wt.	5	1.0	0.25		08/17/09 13:09
7440-02-0	Nickel, Total L,M	22	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:49
7782-49-2	Selenium, Total L,M	0.45	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:49
7440-22-4	Silver, Total	0.11	mg/kg dry wt.	1	0.10	0.011		08/17/09 10:49
7440-28-0	Thallium, Total	0.21	mg/kg dry wt.	1	0.10	0.0061		08/17/09 10:49
7440-62-2	Vanadium, Total L,M	42	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:49

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SE1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:55
Solids: 67.98
Laboratory ID: 0908176-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5029 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.37	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:07

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SE2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:40
Solids: 59.69
Laboratory ID: 0908176-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5014 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	7.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:52
7440-50-8	Copper, Total	43	mg/kg dry wt.	1	0.20	0.043		08/17/09 10:52
7439-92-1	Lead, Total	100	mg/kg dry wt.	5	1.0	0.25		08/17/09 13:12
7440-02-0	Nickel, Total	24	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:52
7782-49-2	Selenium, Total	0.30	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:52
7440-22-4	Silver, Total	0.11	mg/kg dry wt.	1	0.10	0.011		08/17/09 10:52
7440-28-0	Thallium, Total	0.15	mg/kg dry wt.	1	0.10	0.0061		08/17/09 10:52
7440-62-2	Vanadium, Total	35	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:52

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SE2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:40
Solids: 59.69
Laboratory ID: 0908176-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5036 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.32	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:09

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 00:00
Solids: 78.01
Laboratory ID: 0908176-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5007 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	9.4	mg/kg dry wt.	1	0.10	0.030		08/17/09 10:55
7440-50-8	Copper, Total J,f	65	mg/kg dry wt.	2	0.40	0.086		08/17/09 13:15
7439-92-1	Lead, Total	25	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:55
7440-02-0	Nickel, Total L,m	24	mg/kg dry wt.	1	0.10	0.025		08/17/09 10:55
7782-49-2	Selenium, Total L,m	0.39	mg/kg dry wt.	1	0.20	0.049		08/17/09 10:55
7440-22-4	Silver, Total	0.11	mg/kg dry wt.	1	0.10	0.011		08/17/09 10:55
7440-28-0	Thallium, Total	0.18	mg/kg dry wt.	1	0.10	0.0061		08/17/09 10:55
7440-62-2	Vanadium, Total L,m	41	mg/kg dry wt.	1	0.10	0.032		08/17/09 10:55

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 00:00
Solids: 78.01
Laboratory ID: 0908176-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5077 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.38	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:11

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60TP1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 11:00
Solids: 81.36
Laboratory ID: 0908185-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5101 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	16	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:07
7440-50-8	Copper, Total	33	mg/kg dry wt.	1	0.20	0.043		08/17/09 11:07
7439-92-1	Lead, Total	21	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:07
7440-02-0	Nickel, Total L,M	28	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:07
7782-49-2	Selenium, Total L,M	0.45	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:07
7440-22-4	Silver, Total	0.15	mg/kg dry wt.	1	0.10	0.011		08/17/09 11:07
7440-28-0	Thallium, Total	0.28	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:07
7440-62-2	Vanadium, Total L,M	55	mg/kg dry wt.	2	0.20	0.065		08/17/09 13:18

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60TP1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 11:00
Solids: 81.36
Laboratory ID: 0908185-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5027 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.43	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:19

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:00
Solids: 79.99
Laboratory ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5203 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	4.6	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:10
7440-50-8	Copper, Total	85	mg/kg dry wt.	5	1.0	0.22		08/17/09 13:21
7439-92-1	Lead, Total	100	mg/kg dry wt.	5	1.0	0.25		08/17/09 13:21
7440-02-0	Nickel, Total L,M	24	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:10
7782-49-2	Selenium, Total L,M	0.48	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:10
7440-22-4	Silver, Total	0.61	mg/kg dry wt.	1	0.10	0.011		08/17/09 11:10
7440-28-0	Thallium, Total	0.25	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:10
7440-62-2	Vanadium, Total L,M	57	mg/kg dry wt.	2	0.20	0.065		08/17/09 13:41

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:00
Solids: 79.99
Laboratory ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.522 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	1.2	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:21

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:10
Solids: 71.95
Laboratory ID: 0908185-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5028 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	2.4	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:24
7440-50-8	Copper, Total	14	mg/kg dry wt.	1	0.20	0.043		08/17/09 11:24
7439-92-1	Lead, Total	12	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:24
7440-02-0	Nickel, Total L,M	17	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:24
7782-49-2	Selenium, Total L,O	0.12	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 11:24
7440-22-4	Silver, Total	0.087	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 11:24
7440-28-0	Thallium, Total	0.22	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:24
7440-62-2	Vanadium, Total L,M	57	mg/kg dry wt.	2	0.20	0.065		08/17/09 13:56

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:10
Solids: 71.95
Laboratory ID: 0908185-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5067 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.28	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:33

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:40
Solids: 70.86
Laboratory ID: 0908185-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5086 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	3.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:27
7440-50-8	Copper, Total	85	mg/kg dry wt.	2	0.40	0.086		08/17/09 13:59
7439-92-1	Lead, Total	89	mg/kg dry wt.	2	0.40	0.099		08/17/09 13:59
7440-02-0	Nickel, Total L,m	36	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:27
7782-49-2	Selenium, Total L,m	0.49	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:27
7440-22-4	Silver, Total	0.67	mg/kg dry wt.	1	0.10	0.011		08/17/09 11:27
7440-28-0	Thallium, Total	0.28	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:27
7440-62-2	Vanadium, Total L,m	54	mg/kg dry wt.	2	0.20	0.065		08/17/09 13:59

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:40
Solids: 70.86
Laboratory ID: 0908185-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5067 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.69	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:35

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:00
Solids: 68.83
Laboratory ID: 0908185-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5057 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.9	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:30
7440-50-8	Copper, Total	23	mg/kg dry wt.	1	0.20	0.043		08/17/09 11:30
7439-92-1	Lead, Total	3.1	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:30
7440-02-0	Nickel, Total	32	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:30
7782-49-2	Selenium, Total	0.20	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:30
7440-22-4	Silver, Total	0.10	mg/kg dry wt.	1	0.10	0.011		08/17/09 11:30
7440-28-0	Thallium, Total	0.20	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:30
7440-62-2	Vanadium, Total	58	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:07

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:00
Solids: 68.83
Laboratory ID: 0908185-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5037 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.15	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 15:38

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:15
Solids: 69.36
Laboratory ID: 0908185-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5007 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.1	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:33
7440-50-8	Copper, Total	24	mg/kg dry wt.	1	0.20	0.043		08/17/09 11:33
7439-92-1	Lead, Total	17	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:33
7440-02-0	Nickel, Total L1M	37	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:33
7782-49-2	Selenium, Total L1M	0.34	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:33
7440-22-4	Silver, Total	0.12	mg/kg dry wt.	1	0.10	0.011		08/17/09 11:33
7440-28-0	Thallium, Total	0.32	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:33
7440-62-2	Vanadium, Total L1M	66	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:10

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:15
Solids: 69.36
Laboratory ID: 0908185-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5155 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.22	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:40

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:30
Solids: 72.01
Laboratory ID: 0908185-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5173 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	0.44	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:45
7440-50-8	Copper, Total	18	mg/kg dry wt.	1	0.20	0.043		08/17/09 11:45
7439-92-1	Lead, Total	1.3	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:45
7440-02-0	Nickel, Total L,M	32	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:45
7782-49-2	Selenium, Total L,M	0.40	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:45
7440-22-4	Silver, Total	0.11	mg/kg dry wt.	1	0.10	0.011		08/17/09 11:45
7440-28-0	Thallium, Total	0.28	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:45
7440-62-2	Vanadium, Total L,M	70	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:13

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:30
Solids: 72.01
Laboratory ID: 0908185-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5063 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.11	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 15:47

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 15:30
Solids: 75.68
Laboratory ID: 0908185-09

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:35
Initial/Final: 0.5017 g / 250 mL
QC Batch: 0909449

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.7	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:48
7440-50-8	Copper, Total	25	mg/kg dry wt.	1	0.20	0.043		08/17/09 11:48
7439-92-1	Lead, Total	6.4	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:48
7440-02-0	Nickel, Total L,M	28	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:48
7782-49-2	Selenium, Total L,O	0.11	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 11:48
7440-22-4	Silver, Total	0.11	mg/kg dry wt.	1	0.10	0.011		08/17/09 11:48
7440-28-0	Thallium, Total	0.28	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:48
7440-62-2	Vanadium, Total L,M	68	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:16

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

77SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 15:30
Solids: 75.68
Laboratory ID: 0908185-09

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 08:30
Initial/Final: 0.5042 g / 250 mL
QC Batch: 0909513

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.35	mg/kg dry wt.	1	0.20	0.037		08/18/09 15:49

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

EQBK-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/11/09 11:10
Solids: 0.00
Laboratory ID: 0908185-10

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3020A Digestion
Prepared: 08/18/09 07:00
Initial/Final: 25 mL / 125 mL
QC Batch: 0909625

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	3.0	ug/L	1	3.0	0.40	U	08/19/09 09:57
7440-38-2	Arsenic, Total	2.0	ug/L	1	2.0	0.39	U	08/19/09 09:57
7440-39-3	Barium, Total	0.34	ug/L	1	2.0	0.32	J	08/19/09 09:57
7440-41-7	Beryllium, Total	2.0	ug/L	1	2.0	0.31	U	08/19/09 11:37
7440-43-9	Cadmium, Total	0.20	ug/L	1	0.20	0.060	U	08/19/09 09:57
7440-47-3	Chromium, Total	0.76	ug/L	1	2.0	0.34	J	08/19/09 09:57
7440-48-4	Cobalt, Total L,0	0.063	ug/L	1	1.0	0.036	J	08/19/09 09:57
7440-50-8	Copper, Total	1.0	ug/L	1	1.0	0.26	U	08/19/09 09:57
7439-92-1	Lead, Total	1.0	ug/L	1	1.0	0.26	U	08/19/09 09:57
7439-96-5	Manganese, Total	0.65	ug/L	1	3.0	0.58	J	08/19/09 09:57
7440-02-0	Nickel, Total	2.0	ug/L	1	2.0	0.46	U	08/19/09 09:57
7782-49-2	Selenium, Total UL,0	3.0	ug/L	1	3.0	0.40	U	08/19/09 11:37
7440-22-4	Silver, Total	0.50	ug/L	1	0.50	0.053	U	08/19/09 09:57
7440-28-0	Thallium, Total	0.20	ug/L	1	0.20	0.050	U	08/19/09 09:57
7440-62-2	Vanadium, Total	1.0	ug/L	1	1.0	0.30	U	08/19/09 09:57
7440-66-6	Zinc, Total	11	ug/L	1	6.0	2.0		08/19/09 09:57

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:15
Solids: 86.40
Laboratory ID: 0908176-01

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5122 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	15000	mg/kg dry wt.	1	10	1.8		08/18/09 09:56
7440-39-3	Barium, Total K,M	72	mg/kg dry wt.	1	1.0	0.28		08/18/09 09:56
7440-41-7	Beryllium, Total	0.60	mg/kg dry wt.	1	1.0	0.035	J	08/18/09 09:56
7440-43-9	Cadmium, Total K,M	1.0	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 09:56
7440-70-2	Calcium, Total	33000	mg/kg dry wt.	1	50	8.7		08/18/09 09:56
7440-47-3	Chromium, Total	28	mg/kg dry wt.	1	5.0	0.74		08/18/09 09:56
7440-48-4	Cobalt, Total	9.0	mg/kg dry wt.	1	2.0	0.44		08/18/09 09:56
7439-89-6	Iron, Total	24000	mg/kg dry wt.	1	10	0.47		08/18/09 09:56
7439-95-4	Magnesium, Total	17000	mg/kg dry wt.	1	50	4.4		08/18/09 09:56
7439-96-5	Manganese, Total	530	mg/kg dry wt.	1	1.0	0.21		08/18/09 09:56
7440-09-7	Potassium, Total	760	mg/kg dry wt.	1	50	6.8		08/18/09 09:56
7440-23-5	Sodium, Total	70	mg/kg dry wt.	1	100	5.4	J	08/18/09 09:56
7440-66-6	Zinc, Total	120	mg/kg dry wt.	1	5.0	0.79		08/18/09 09:56

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:50
Solids: 76.49
Laboratory ID: 0908176-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5047 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	11000	mg/kg dry wt.	1	10	1.8		08/18/09 10:00
7440-39-3	Barium, Total K,M	82	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:00
7440-41-7	Beryllium, Total	0.16	mg/kg dry wt.	1	1.0	0.035	J	08/18/09 10:00
7440-43-9	Cadmium, Total	0.88	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:00
7440-70-2	Calcium, Total K,M	150000	mg/kg dry wt.	10	500	87		08/18/09 15:09
7440-47-3	Chromium, Total	16	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:00
7440-48-4	Cobalt, Total	3.9	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:00
7439-89-6	Iron, Total	21000	mg/kg dry wt.	1	10	0.47		08/18/09 10:00
7439-95-4	Magnesium, Total	71000	mg/kg dry wt.	10	500	44		08/18/09 15:09
7439-96-5	Manganese, Total	670	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:00
7440-09-7	Potassium, Total	520	mg/kg dry wt.	1	50	6.8		08/18/09 10:00
7440-23-5	Sodium, Total	160	mg/kg dry wt.	1	100	5.4		08/18/09 10:00
7440-66-6	Zinc, Total	59	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:00

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 14:10
Solids: 92.04
Laboratory ID: 0908176-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5014 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	14000	mg/kg dry wt.	1	10	1.8		08/18/09 10:04
7440-39-3	Barium, Total K, M	130	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:04
7440-41-7	Beryllium, Total	0.57	mg/kg dry wt.	1	1.0	0.035	J	08/18/09 10:04
7440-43-9	Cadmium, Total	0.83	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:04
7440-70-2	Calcium, Total K, M	100000	mg/kg dry wt.	10	500	87		08/18/09 15:12
7440-47-3	Chromium, Total	24	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:04
7440-48-4	Cobalt, Total	7.0	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:04
7439-89-6	Iron, Total	18000	mg/kg dry wt.	1	10	0.47		08/18/09 10:04
7439-95-4	Magnesium, Total	63000	mg/kg dry wt.	10	500	44		08/18/09 15:12
7439-96-5	Manganese, Total	300	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:04
7440-09-7	Potassium, Total	2300	mg/kg dry wt.	1	50	6.8		08/18/09 10:04
7440-23-5	Sodium, Total	360	mg/kg dry wt.	1	100	5.4		08/18/09 10:04
7440-66-6	Zinc, Total	35	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:04

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SS4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:15
Solids: 78.77
Laboratory ID: 0908176-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5017 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	21000	mg/kg dry wt.	1	10	1.8		08/18/09 10:08
7440-39-3	Barium, Total K,M	94	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:08
7440-41-7	Beryllium, Total	1.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 10:08
7440-43-9	Cadmium, Total	0.95	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:08
7440-70-2	Calcium, Total K,M	26000	mg/kg dry wt.	1	50	8.7		08/18/09 10:08
7440-47-3	Chromium, Total	29	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:08
7440-48-4	Cobalt, Total	11	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:08
7439-89-6	Iron, Total	29000	mg/kg dry wt.	1	10	0.47		08/18/09 10:08
7439-95-4	Magnesium, Total	20000	mg/kg dry wt.	1	50	4.4		08/18/09 10:08
7439-96-5	Manganese, Total	650	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:08
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 10:08
7440-23-5	Sodium, Total	60	mg/kg dry wt.	1	100	5.4	J	08/18/09 10:08
7440-66-6	Zinc, Total	93	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:08

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:00
Solids: 70.71
Laboratory ID: 0908176-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5054 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	21000	mg/kg dry wt.	1	10	1.8		08/18/09 10:11
7440-39-3	Barium, Total K,M	80	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:11
7440-41-7	Beryllium, Total	1.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 10:11
7440-43-9	Cadmium, Total	0.94	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:11
7440-70-2	Calcium, Total K,M	64000	mg/kg dry wt.	10	500	87		08/18/09 15:15
7440-47-3	Chromium, Total	32	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:11
7440-48-4	Cobalt, Total	8.9	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:11
7439-89-6	Iron, Total	25000	mg/kg dry wt.	1	10	0.47		08/18/09 10:11
7439-95-4	Magnesium, Total	42000	mg/kg dry wt.	1	50	4.4		08/18/09 10:11
7439-96-5	Manganese, Total	470	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:11
7440-09-7	Potassium, Total	2800	mg/kg dry wt.	1	50	6.8		08/18/09 10:11
7440-23-5	Sodium, Total	100	mg/kg dry wt.	1	100	5.4		08/18/09 10:11
7440-66-6	Zinc, Total	62	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:11

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SE1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:55
Solids: 67.98
Laboratory ID: 0908176-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5052 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	25000	mg/kg dry wt.	1	10	1.8		08/18/09 10:15
7440-39-3	Barium, Total KM	84	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:15
7440-41-7	Beryllium, Total	1.3	mg/kg dry wt.	1	1.0	0.035		08/18/09 10:15
7440-43-9	Cadmium, Total	1.0	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:15
7440-70-2	Calcium, Total KM	31000	mg/kg dry wt.	1	50	8.7		08/18/09 10:15
7440-47-3	Chromium, Total	39	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:15
7440-48-4	Cobalt, Total	10	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:15
7439-89-6	Iron, Total	28000	mg/kg dry wt.	1	10	0.47		08/18/09 10:15
7439-95-4	Magnesium, Total	24000	mg/kg dry wt.	1	50	4.4		08/18/09 10:15
7439-96-5	Manganese, Total	550	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:15
7440-09-7	Potassium, Total	3000	mg/kg dry wt.	1	50	6.8		08/18/09 10:15
7440-23-5	Sodium, Total	54	mg/kg dry wt.	1	100	5.4	J	08/18/09 10:15
7440-66-6	Zinc, Total	120	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:15

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SE2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:40
Solids: 59.69
Laboratory ID: 0908176-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5083 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	22000	mg/kg dry wt.	1	10	1.8		08/18/09 10:19
7440-39-3	Barium, Total K,M	58	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:19
7440-41-7	Beryllium, Total	1.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 10:19
7440-43-9	Cadmium, Total	1.1	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:19
7440-70-2	Calcium, Total K,M	51000	mg/kg dry wt.	10	500	87		08/18/09 15:22
7440-47-3	Chromium, Total	35	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:19
7440-48-4	Cobalt, Total	9.8	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:19
7439-89-6	Iron, Total	30000	mg/kg dry wt.	1	10	0.47		08/18/09 10:19
7439-95-4	Magnesium, Total	29000	mg/kg dry wt.	1	50	4.4		08/18/09 10:19
7439-96-5	Manganese, Total	500	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:19
7440-09-7	Potassium, Total	2700	mg/kg dry wt.	1	50	6.8		08/18/09 10:19
7440-23-5	Sodium, Total	66	mg/kg dry wt.	1	100	5.4	J	08/18/09 10:19
7440-66-6	Zinc, Total	130	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:19

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

DUP-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 00:00
Solids: 78.01
Laboratory ID: 0908176-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5002 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	22000	mg/kg dry wt.	1	10	1.8		08/18/09 10:22
7440-39-3	Barium, Total K,M	94	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:22
7440-41-7	Beryllium, Total	1.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 10:22
7440-43-9	Cadmium, Total	1.0	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:22
7440-70-2	Calcium, Total K,M	28000	mg/kg dry wt.	1	50	8.7		08/18/09 10:22
7440-47-3	Chromium, Total	30	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:22
7440-48-4	Cobalt, Total	12	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:22
7439-89-6	Iron, Total	29000	mg/kg dry wt.	1	10	0.47		08/18/09 10:22
7439-95-4	Magnesium, Total	21000	mg/kg dry wt.	1	50	4.4		08/18/09 10:22
7439-96-5	Manganese, Total	640	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:22
7440-09-7	Potassium, Total	2000	mg/kg dry wt.	1	50	6.8		08/18/09 10:22
7440-23-5	Sodium, Total	62	mg/kg dry wt.	1	100	5.4	J	08/18/09 10:22
7440-66-6	Zinc, Total	95	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:22

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60TP1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 11:00
Solids: 81.36
Laboratory ID: 0908185-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5019 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	33000	mg/kg dry wt.	1	10	1.8		08/18/09 10:40
7440-39-3	Barium, Total K,M	92	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:40
7440-41-7	Beryllium, Total	1.5	mg/kg dry wt.	1	1.0	0.035		08/18/09 10:40
7440-43-9	Cadmium, Total	1.0	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:40
7440-70-2	Calcium, Total K,M	65000	mg/kg dry wt.	10	500	87		08/18/09 15:25
7440-47-3	Chromium, Total	40	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:40
7440-48-4	Cobalt, Total	9.3	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:40
7439-89-6	Iron, Total	39000	mg/kg dry wt.	1	10	0.47		08/18/09 10:40
7439-95-4	Magnesium, Total	39000	mg/kg dry wt.	1	50	4.4		08/18/09 10:40
7439-96-5	Manganese, Total	1100	mg/kg dry wt.	1	1.0	0.21		08/18/09 10:40
7440-09-7	Potassium, Total	3300	mg/kg dry wt.	1	50	6.8		08/18/09 10:40
7440-23-5	Sodium, Total	72	mg/kg dry wt.	1	100	5.4	J	08/18/09 10:40
7440-66-6	Zinc, Total	89	mg/kg dry wt.	1	5.0	0.79		08/18/09 10:40

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:00
Solids: 79.99
Laboratory ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5151 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	27000	mg/kg dry wt.	100	1000	180		08/18/09 15:46
7440-39-3	Barium, Total K,M	100	mg/kg dry wt.	1	1.0	0.28		08/18/09 10:43
7440-41-7	Beryllium, Total	1.3	mg/kg dry wt.	1	1.0	0.035		08/18/09 10:43
7440-43-9	Cadmium, Total	1.7	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 10:43
7440-70-2	Calcium, Total K,M	4000	mg/kg dry wt.	1	50	8.7		08/18/09 10:43
7440-47-3	Chromium, Total	36	mg/kg dry wt.	1	5.0	0.74		08/18/09 10:43
7440-48-4	Cobalt, Total	10	mg/kg dry wt.	1	2.0	0.44		08/18/09 10:43
7439-89-6	Iron, Total	33000	mg/kg dry wt.	500	5000	230		08/18/09 15:29
7439-95-4	Magnesium, Total	11000	mg/kg dry wt.	10	500	44		08/18/09 15:56
7439-96-5	Manganese, Total	660	mg/kg dry wt.	10	10	2.1		08/18/09 15:56
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 10:43
7440-23-5	Sodium, Total	30	mg/kg dry wt.	1	100	5.4	J	08/18/09 10:43
7440-66-6	Zinc, Total	170	mg/kg dry wt.	10	50	7.9		08/18/09 15:56

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

77SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:10
Solids: 71.95
Laboratory ID: 0908185-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5114 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	31000	mg/kg dry wt.	1	10	1.8		08/18/09 11:02
7440-39-3	Barium, Total K,M	55	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:02
7440-41-7	Beryllium, Total	1.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:02
7440-43-9	Cadmium, Total	1.3	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:02
7440-70-2	Calcium, Total K,M	1500	mg/kg dry wt.	1	50	8.7		08/18/09 11:02
7440-47-3	Chromium, Total	36	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:02
7440-48-4	Cobalt, Total	9.4	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:02
7439-89-6	Iron, Total	33000	mg/kg dry wt.	1	10	0.47		08/18/09 11:02
7439-95-4	Magnesium, Total	12000	mg/kg dry wt.	1	50	4.4		08/18/09 11:02
7439-96-5	Manganese, Total	390	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:02
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 11:02
7440-23-5	Sodium, Total	44	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:02
7440-66-6	Zinc, Total	41	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:02

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

77SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:40
Solids: 70.86
Laboratory ID: 0908185-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5102 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	26000	mg/kg dry wt.	1	10	1.8		08/18/09 11:05
7440-39-3	Barium, Total K,M	89	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:05
7440-41-7	Beryllium, Total	2.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:05
7440-43-9	Cadmium, Total	0.83	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:05
7440-70-2	Calcium, Total K,M	36000	mg/kg dry wt.	1	50	8.7		08/18/09 11:05
7440-47-3	Chromium, Total	41	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:05
7440-48-4	Cobalt, Total	12	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:05
7439-89-6	Iron, Total	30000	mg/kg dry wt.	1	10	0.47		08/18/09 11:05
7439-95-4	Magnesium, Total	40000	mg/kg dry wt.	1	50	4.4		08/18/09 11:05
7439-96-5	Manganese, Total	540	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:05
7440-09-7	Potassium, Total	3400	mg/kg dry wt.	1	50	6.8		08/18/09 11:05
7440-23-5	Sodium, Total	70	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:05
7440-66-6	Zinc, Total	99	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:05

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

77SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:00
Solids: 68.83
Laboratory ID: 0908185-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5035 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	27000	mg/kg dry wt.	1	10	1.8		08/18/09 11:09
7440-39-3	Barium, Total KM	73	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:09
7440-41-7	Beryllium, Total	1.4	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:09
7440-43-9	Cadmium, Total	0.64	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:09
7440-70-2	Calcium, Total KM	59000	mg/kg dry wt.	10	500	87		08/18/09 16:06
7440-47-3	Chromium, Total	47	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:09
7440-48-4	Cobalt, Total	8.3	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:09
7439-89-6	Iron, Total	32000	mg/kg dry wt.	1	10	0.47		08/18/09 11:09
7439-95-4	Magnesium, Total	61000	mg/kg dry wt.	10	500	44		08/18/09 16:06
7439-96-5	Manganese, Total	350	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:09
7440-09-7	Potassium, Total	5700	mg/kg dry wt.	1	50	6.8		08/18/09 11:09
7440-23-5	Sodium, Total	100	mg/kg dry wt.	1	100	5.4		08/18/09 11:09
7440-66-6	Zinc, Total	46	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:09

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:15
Solids: 69.36
Laboratory ID: 0908185-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5173 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	37000	mg/kg dry wt.	1	10	1.8		08/18/09 11:13
7440-39-3	Barium, Total K,M	83	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:13
7440-41-7	Beryllium, Total	3.3	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:13
7440-43-9	Cadmium, Total	0.76	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:13
7440-70-2	Calcium, Total K,M	5200	mg/kg dry wt.	1	50	8.7		08/18/09 11:13
7440-47-3	Chromium, Total	53	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:13
7440-48-4	Cobalt, Total	10	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:13
7439-89-6	Iron, Total	39000	mg/kg dry wt.	1	10	0.47		08/18/09 11:13
7439-95-4	Magnesium, Total	38000	mg/kg dry wt.	1	50	4.4		08/18/09 11:13
7439-96-5	Manganese, Total	360	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:13
7440-09-7	Potassium, Total	6400	mg/kg dry wt.	1	50	6.8		08/18/09 11:13
7440-23-5	Sodium, Total	38	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:13
7440-66-6	Zinc, Total	61	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:13

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

77SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:30
Solids: 72.01
Laboratory ID: 0908185-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5018 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	34000	mg/kg dry wt.	1	10	1.8		08/18/09 11:29
7440-39-3	Barium, Total K,M	98	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:29
7440-41-7	Beryllium, Total	2.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:29
7440-43-9	Cadmium, Total	0.63	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:29
7440-70-2	Calcium, Total K,M	4100	mg/kg dry wt.	1	50	8.7		08/18/09 11:29
7440-47-3	Chromium, Total	49	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:29
7440-48-4	Cobalt, Total	9.2	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:29
7439-89-6	Iron, Total	41000	mg/kg dry wt.	1	10	0.47		08/18/09 11:29
7439-95-4	Magnesium, Total	56000	mg/kg dry wt.	10	500	44		08/18/09 16:09
7439-96-5	Manganese, Total	370	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:29
7440-09-7	Potassium, Total	8600	mg/kg dry wt.	1	50	6.8		08/18/09 11:29
7440-23-5	Sodium, Total	49	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:29
7440-66-6	Zinc, Total	60	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:29

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

77SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 15:30
Solids: 75.68
Laboratory ID: 0908185-09

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/13/09 07:30
Initial/Final: 0.5032 g / 50 mL
QC Batch: 0909448

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	40000	mg/kg dry wt.	1	10	1.8		08/18/09 11:33
7440-39-3	Barium, Total K,M	61	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:33
7440-41-7	Beryllium, Total	2.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:33
7440-43-9	Cadmium, Total	0.82	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:33
7440-70-2	Calcium, Total K,M	2400	mg/kg dry wt.	1	50	8.7		08/18/09 11:33
7440-47-3	Chromium, Total	47	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:33
7440-48-4	Cobalt, Total	9.1	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:33
7439-89-6	Iron, Total	38000	mg/kg dry wt.	1	10	0.47		08/18/09 11:33
7439-95-4	Magnesium, Total	34000	mg/kg dry wt.	1	50	4.4		08/18/09 11:33
7439-96-5	Manganese, Total	310	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:33
7440-09-7	Potassium, Total	4800	mg/kg dry wt.	1	50	6.8		08/18/09 11:33
7440-23-5	Sodium, Total	45	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:33
7440-66-6	Zinc, Total	50	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:33

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

EQBK-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/11/09 11:10
Solids: 0.00
Laboratory ID: 0908185-10

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3010A Digestion
Prepared: 08/18/09 07:00
Initial/Final: 25 mL / 25 mL
QC Batch: 0909623

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total UL,O	50	ug/L	1	50	24	U	08/20/09 09:10
7440-70-2	Calcium, Total	500	ug/L	1	500	58	U	08/20/09 09:10
7439-89-6	Iron, Total	13	ug/L	1	25	8.0	J	08/20/09 09:10
7439-95-4	Magnesium, Total	500	ug/L	1	500	44	U	08/20/09 09:10
7440-09-7	Potassium, Total	500	ug/L	1	500	98	U	08/20/09 09:10
7440-23-5	Sodium, Total	500	ug/L	1	500	82	U	08/20/09 09:10

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:15
Solids: 86.40
Laboratory ID: 0908176-01

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3176 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.076	mg/kg dry wt.	1	0.050	0.0093		08/18/09 08:19

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:50
Solids: 76.49
Laboratory ID: 0908176-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3149 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.026	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 08:24

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 14:10
Solids: 92.04
Laboratory ID: 0908176-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3125 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.011	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 08:28

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SS4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:15
Solids: 78.77
Laboratory ID: 0908176-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3057 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.057	mg/kg dry wt.	1	0.050	0.0093		08/18/09 08:33

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:00
Solids: 70.71
Laboratory ID: 0908176-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3162 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.050	mg/kg dry wt.	1	0.050	0.0093		08/18/09 08:38

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SE1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:55
Solids: 67.98
Laboratory ID: 0908176-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3037 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.092	mg/kg dry wt.	1	0.050	0.0093		08/18/09 08:43

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SE2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:40
Solids: 59.69
Laboratory ID: 0908176-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3077 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.065	mg/kg dry wt.	1	0.050	0.0093		08/18/09 08:48

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

DUP-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 00:00
Solids: 78.01
Laboratory ID: 0908176-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3079 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.055	mg/kg dry wt.	1	0.050	0.0093		08/18/09 08:53

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60TP1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 11:00
Solids: 81.36
Laboratory ID: 0908185-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3029 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.061	mg/kg dry wt.	1	0.050	0.0093		08/18/09 09:08

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:00
Solids: 79.99
Laboratory ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3111 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	1.0	mg/kg dry wt.	2	0.10	0.019		08/18/09 14:20

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

77SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:10
Solids: 71.95
Laboratory ID: 0908185-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3096 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.063	mg/kg dry wt.	1	0.050	0.0093		08/18/09 09:27

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

77SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:40
Solids: 70.86
Laboratory ID: 0908185-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3058 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.13	mg/kg dry wt.	1	0.050	0.0093		08/18/09 09:32

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

77SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:00
Solids: 68.83
Laboratory ID: 0908185-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.309 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.050	mg/kg dry wt.	1	0.050	0.0093	U	08/18/09 09:37

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:15
Solids: 69.36
Laboratory ID: 0908185-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3117 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.040	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 09:42

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

77SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:30
Solids: 72.01
Laboratory ID: 0908185-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3154 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.050	mg/kg dry wt.	1	0.050	0.0093	U	08/18/09 09:47

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

77SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 15:30
Solids: 75.68
Laboratory ID: 0908185-09

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3033 g / 50 mL
QC Batch: 0909544

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.033	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 09:52

INORGANIC ANALYSIS DATA SHEET
USEPA-7470A

EQBK-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/11/09 11:10
Solids: 0.00
Laboratory ID: 0908185-10

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 7470A Digestion - Total
Prepared: 08/19/09 14:00
Initial/Final: 30 mL / 30 mL
QC Batch: 0909446

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.20	ug/L	1	0.20	0.043	U	08/20/09 10:10

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:15
Solids: 86.40
Laboratory ID: 0908176-01

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 24.86 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.080	mg/kg dry	1	0.35	0.077	J	08/14/09 09:41

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:50
Solids: 76.49
Laboratory ID: 0908176-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 24.98 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.39	mg/kg dry	1	0.39	0.087	U	08/14/09 09:41

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 14:10
Solids: 92.04
Laboratory ID: 0908176-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 25.05 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.33	mg/kg dry	1	0.33	0.072	U	08/14/09 09:41

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SS4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:15
Solids: 78.77
Laboratory ID: 0908176-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 25.17 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.12	mg/kg dry	1	0.38	0.085	J	08/14/09 09:48

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:00
Solids: 70.71
Laboratory ID: 0908176-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 24.82 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.42	mg/kg dry	1	0.42	0.094	U	08/14/09 09:48

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SE1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:55
Solids: 67.98
Laboratory ID: 0908176-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 25 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.32	mg/kg dry	1	0.44	0.098	J	08/14/09 09:49

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SE2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:40
Solids: 59.69
Laboratory ID: 0908176-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 24.66 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	2.6	mg/kg dry	1	0.50	0.11		08/14/09 09:49

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

DUP-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 00:00
Solids: 78.01
Laboratory ID: 0908176-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 24.83 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.38	mg/kg dry	1	0.38	0.085	U	08/14/09 09:49

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60TP1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 11:00
Solids: 81.36
Laboratory ID: 0908185-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 24.92 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.37	mg/kg dry	1	0.37	0.082	U	08/14/09 09:49

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:00
Solids: 79.99
Laboratory ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 07:00
Initial/Final: 24.84 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.15	mg/kg dry	1	0.38	0.083	J	08/14/09 09:49

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

77SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:10
Solids: 71.95
Laboratory ID: 0908185-04

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 24.5 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.42	mg/kg dry	1	0.42	0.093	U	08/14/09 12:38

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

77SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:40
Solids: 70.86
Laboratory ID: 0908185-05

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 24.97 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.42	mg/kg dry	1	0.42	0.094	U	08/14/09 12:38

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

77SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:00
Solids: 68.83
Laboratory ID: 0908185-06

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 24 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.44	mg/kg dry	1	0.44	0.097	U	08/14/09 12:38

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:15
Solids: 69.36
Laboratory ID: 0908185-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 25.2 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.43	mg/kg dry	1	0.43	0.096	U	08/14/09 12:38

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

77SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:30
Solids: 72.01
Laboratory ID: 0908185-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 24.47 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.42	mg/kg dry	1	0.42	0.093	U	08/14/09 14:12

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

77SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 15:30
Solids: 75.68
Laboratory ID: 0908185-09

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 24.78 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.40	mg/kg dry	1	0.40	0.088	U	08/14/09 14:12

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

EQBK-1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/11/09 11:10
Solids: 0.00
Laboratory ID: 0908185-10

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/13/09 06:30
Initial/Final: 50 mL / 50 mL
QC Batch: 0909427

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	10.0	ug/L	1	10.0	2.30	U	08/14/09 09:41

INORGANIC ANALYSIS DATA SHEET
MSA 29-3.5.2

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 08:25
Solids: 0.00
Laboratory ID: 0908185-01

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/26/09 07:00
Initial/Final: 10.01 g / 10.01 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.096	%	1	0.20	0.0062	J	08/26/09 07:25

INORGANIC ANALYSIS DATA SHEET
MSA 29-3.5.2

60TP1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 11:00
Solids: 81.36
Laboratory ID: 0908185-02

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/26/09 07:00
Initial/Final: 8.78 g / 8.78 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.15	%	1	0.20	0.0062	J	08/26/09 07:25

INORGANIC ANALYSIS DATA SHEET
MSA 29-3.5.2

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:15
Solids: 69.36
Laboratory ID: 0908185-07

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/25/09 12:30
Initial/Final: 1.69 g / 1.69 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.29	%	1	0.20	0.0062		08/25/09 13:15

INORGANIC ANALYSIS DATA SHEET

MSA 29-3.5.2

77SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 14:30
Solids: 72.01
Laboratory ID: 0908185-08

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/26/09 07:00
Initial/Final: 10.05 g / 10.05 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.065	%	1	0.20	0.0062	J	08/26/09 07:25

DATA VALIDATION WORKSHEET

Volatile Organic Analysis by GC/MS

Reviewer: Andrea Sansom
Date: October 12, 2009
DV Level: II III IV
Review Document:
X NFG - Region III Modifications
X Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP0809
Test Name: 8260B
Method No.: VOC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If the temperature of the cooler was elevated (> 10 ^{O}C) or bubble size in aqueous sample was too big (tiny bubble is OK.), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous unpreserved - 7 days for aromatic compounds All others - 14 days.		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per GCMS, 20 samples, batch, matrix, and level)?	X		
3.2	Do any method blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common volatile lab contaminants - methylene chloride, acetone, and 2-butanone) the amount in the associated blank.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If Yes, use same rules above.	X		
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 15% and %D < ± 20%		X	
	For initial Calibration: for %RSD > ± 15%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < control limit? Control limits: >0.10 for chloromethane, 1,1-dichloroethane, & bromoform or >0.30 for chlorobenzene & 1,1,2,2-tetrachloroethane. If yes, L(+)/R(-).		X	

Notes:

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	X		
5.2	Are BFB enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
5.3	Have all samples been analyzed within twelve hours of the BFB tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for BFB been met for each instrument used?	X		
	If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
6.2	Are surrogate recoveries within acceptance criteria (not to exceed 50-150%) for all samples and method blanks?		X	
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?	X		
	If any system monitoring compound(s) in the volatile fraction is out of specification, there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? DV report should indicate that extraction efficiency/ method accuracy cannot be verified.			X
	Note: The B qualifier remains over surrogate flagging.			

	1 or more <10%	1 high/low	2 or 3 high/low	2 or 3 all low	2 or 3 all high
Positives	L	J	J	L	K
Non-detects	R	UJ	UJ	UL	NONE

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 50-150%?	X		
7.4	Are there any RPD outside the QC limits not to exceed 50%?	X		
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 50-150%?		X	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?			X
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).		X	
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Was a field duplicate prepared and analyzed at the correct frequency (one per 20 samples, matrix, and level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted to reflect all sample dilutions and dry weight factors?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".			X

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 18			
	Number of target compounds in each analysis: 50			
	Number of results rejected and not reported: 0			
	% Completeness = 100%			

Notes:

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
Acetone	6.424628E-02	15.19881	1.67	1.342167E-02	0.99487		0.99	
Acrolein	3.332432E-02	15.41244	1.578571	0.2394121	0.99929		0.99	
Acrylonitrile	8.579943E-02	7.940297	2.14	1.710302E-02			15	
Benzene	1.048783	8.738591	3.97	1.414435E-02			15	
Bromobenzene	1.255768	4.556176	8.55	1.934973E-02			15	
Bromochloromethane	0.167315	6.210289	3.331428	0.1140421			15	
Bromodichloromethane	0.2757909	14.49003	5.18	1.818596E-02			15	
Bromoform	0.1279605	28.52738	8.11	7.339563E-03	0.99491		SPCC (0.1)	
Bromomethane	0.2627686	12.10728	1.151667	0.3548961			15	
n-Butylbenzene	2.699252	13.17827	9.953333	5.013233E-02			15	
sec-Butylbenzene	3.231684	10.3913	9.401428	0.0400841			15	
tert-Butylbenzene	2.139395	10.56846	9.182857	5.509415E-02			15	
Carbon Disulfide	0.7367744	18.14396	1.76	8.063699E-03	0.99973		0.99	
Carbon Tetrachloride	0.3188406	16.54904	3.74	1.458965E-02	0.99852		0.99	
Chlorobenzene	1.037954	6.456103	7.298572	0.0485216			SPCC (0.3)	
Chloroethane	0.2006062	7.913097	1.201429	0.3140202			15	
2-Chloroethyl Vinyl Ether	0.1393426	11.19955	5.52	5.142069E-03	0.99656		0.99	
Chloroform	0.4924529	6.093642	3.432857	0.141167			CCC (30)	
1-Chlorohexane	0.372404	6.390304	7.31	1.356388E-02			15	
Chloromethane	0.3899552	19.21217	0.9385714	0.4026685	0.99546		SPCC (0.1)	
2-Chlorotoluene	0.7419214	5.463293	8.752857	5.505134E-02			15	
4-Chlorotoluene	2.566468	5.747223	8.87	2.047888E-02			15	
Cyclohexane	0.397842	12.4901	3.611428	0.1026366			15	
1,2-Dibromo-3-chloropropane	9.030228E-02	24.26994	10.72	1.480693E-02	0.99366		0.99	
Dibromochloromethane	0.2417435	26.11093	6.73	6.642194E-03	0.99761		0.99	
1,2-Dibromoethane	0.269869	9.085845	6.82	0.0138128			15	
Dibromomethane	0.1409882	5.33706	4.995714	0.1062259			15	
trans-1,4-Dichloro-2-butene	0.1927455	10.52385	8.68	1.728173E-02			15	
1,2-Dichlorobenzene	1.306222	10.33924	9.94	1.815323E-02			15	
1,3-Dichlorobenzene	1.469138	5.426032	9.485714	5.731533E-02			15	
1,4-Dichlorobenzene	1.550268	3.709424	9.58	1.029116E-02			15	
Dichlorodifluoromethane	0.2502128	7.293222	0.85	1.519848E-02			15	

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
1,1-Dichloroethane	0.4620446	5.584198	2.491429	0.1511609			SPCC (0.1)	
1,2-Dichloroethane	0.325603	7.729069	4.02	1.981697E-02			15	
1,1-Dichloroethene	0.2510643	9.450979	1.628571	0.2314767			CCC (30)	
cis-1,2-Dichloroethene	0.3129545	4.863966	3.074286	0.1749913			15	
trans-1,2-Dichloroethene	0.2948184	6.741025	2.14	1.710302E-02			15	
1,2-Dichloroethene (Total)	0.3038864	5.665859	3.074286	0.1749913			15	
1,2-Dichloropropane	0.2633842	5.103919	4.88	1.580108E-02			CCC (30)	
1,3-Dichloropropane	0.5547215	3.595162	6.52	1.559818E-02			15	
2,2-Dichloropropane	0.321017	12.33576	3.057143	0.1600342			15	
1,1-Dichloropropene	0.3685071	8.192642	3.752857	0.1300361			15	
cis-1,3-Dichloropropene	0.3335549	18.43603	5.624286	9.457427E-02	0.99926		0.99	
trans-1,3-Dichloropropene	0.2508747	24.43825	6.191429	6.216939E-02	0.99917		0.99	
Ethylbenzene	1.751759	9.543311	7.417143	6.415254E-02			CCC (30)	
Hexachlorobutadiene	0.5934141	8.525207	11.7	1.812084E-02			15	
2-Hexanone	0.2210287	14.00399	6.651667	5.888445E-02			15	
Iodomethane	0.2210404	62.57181	1.72	1.882391E-02	0.99489		0.99	
Isopropylbenzene	2.668621	7.06959	8.288571	4.365454E-02			15	
4-Isopropyltoluene	2.70552	8.817725	9.551667	0.0468877			15	
Methyl Acetate	0.2220401	10.33117	1.88	3.721705E-03			15	
Methyl tert-Butyl Ether	0.6558451	7.065166	2.14	1.710302E-02			15	
Methylcyclohexane	0.5047911	9.653485	4.794286	0.110324			15	
Methylene Chloride	0.4997852	60.87143	1.94	1.855018E-02	0.99747		0.99	
2-Butanone (MEK)	8.655697E-02	10.73504	3.141667	0.1313573			15	
4-Methyl-2-pentanone (MIBK)	0.222873	10.39145	5.826667	8.891251E-02			15	
Naphthalene	1.781598	37.50275	11.75286	4.210678E-02	0.99817		0.99	
n-Propylbenzene	0.8474714	7.283168	8.697143	5.329137E-02			15	
Styrene	1.10921	13.92827	7.94	1.414435E-02			15	
1,1,1,2-Tetrachloroethane	0.2907576	14.93152	7.393333	7.091848E-02			15	
1,1,2,2-Tetrachloroethane	0.7625957	5.057506	8.627143	5.249606E-02			SPCC (0.3)	
Tetrachloroethene	0.4230979	6.841499	6.445714	8.362781E-02			15	
Toluene	1.293069	23.97872	5.928571	6.404898E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8154561	23.63279	11.99143	3.830023E-02	0.99941		0.99	

INITIAL CALIBRATION DATA (Continued)

USEPA-8260B

REVISED
JA 10/14/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Calibration: 9H12016

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
1,1-Dichloroethane	0.4620446	5.584198	2.491429	0.1511609			SPCC (0.1)	
1,2-Dichloroethane	0.325603	7.729069	4.02	1.981697E-02			15	
1,1-Dichloroethene	0.2510643	9.450979	1.628571	0.2314767			CCC (30)	
cis-1,2-Dichloroethene	0.3129545	4.863966	3.074286	0.1749913			15	
trans-1,2-Dichloroethene	0.2948184	6.741025	2.14	1.710302E-02			15	
1,2-Dichloroethene (Total)	0.3038864	5.665859	3.074286	0.1749913			15	
1,2-Dichloropropane	0.2633842	5.103919	4.88	1.580108E-02			CCC (30)	
1,3-Dichloropropane	0.5547215	3.595162	6.52	1.559818E-02			15	
2,2-Dichloropropane	0.321017	12.33576	3.057143	0.1600342			15	
1,1-Dichloropropene	0.3685071	8.192642	3.752857	0.1300361			15	
cis-1,3-Dichloropropene	0.3335549	18.43603	5.624286	9.457427E-02	0.99926		0.99	
trans-1,3-Dichloropropene	0.2508747	24.43825	6.191429	6.216939E-02	0.99917		0.99	
Ethylbenzene	1.751759	9.543311	7.417143	6.415254E-02			CCC (30)	
Hexachlorobutadiene	0.5934141	8.525207	11.7	1.812084E-02			15	
2-Hexanone	0.2210287	14.00399	6.651667	5.888445E-02			15	
Iodomethane	0.2210404	62.57181	1.72	1.882391E-02	0.99489		0.99	
Isopropylbenzene	2.668621	7.06959	8.288571	4.365454E-02			15	
4-Isopropyltoluene	2.70552	8.817725	9.551667	0.0468877			15	
Methyl Acetate	0.2220401	10.33117	1.88	3.721705E-03			15	
Methyl tert-Butyl Ether	0.6558451	7.065166	2.14	1.710302E-02			15	
Methylcyclohexane	0.5047911	9.653485	4.794286	0.110324			15	
Methylene Chloride	0.4997852	60.87143	1.94	1.855018E-02	0.99747		0.99	
2-Butanone (MEK)	8.655697E-02	10.73504	3.141667	0.1313573			15	
4-Methyl-2-pentanone (MIBK)	0.222873	10.39145	5.826667	8.891251E-02			15	
Naphthalene	1.781598	37.50275	11.75286	4.210678E-02	0.99817		0.99	
n-Propylbenzene	0.8474714	7.283168	8.697143	5.329137E-02			15	
Styrene	1.10921	13.92827	7.94	1.414435E-02			15	
1,1,1,2-Tetrachloroethane	0.2907576	14.93152	7.393333	7.091848E-02			15	
1,1,2,2-Tetrachloroethane	0.7625957	5.057506	8.627143	5.249606E-02			SPCC (0.3)	
Tetrachloroethene	0.4230979	6.841499	6.445714	8.362781E-02			15	
Toluene	1.178202	5.714461	5.928333	6.921141E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8154561	23.63279	11.99143	3.830023E-02	0.99941		0.99	

Method Path : C:\MSDCHEM\1\METHODS\
Method File : 8260B-LL01.M
Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
Last Update : Thu Aug 13 08:41:36 2009
Response Via : Initial Calibration

40)		dibromomethane	0.140	0.137	0.133	0.132	0.150	0.148	0.147	0.141	5.34
41)		bromodichlorome	0.256	0.236	0.242	0.248	0.292	0.331	0.325	0.276	14.49
42)		methylcyclohexa	0.489	0.462	0.461	0.461	0.528	0.580	0.552	0.505	9.65
43)		2-chloroehtyl v	0.127		0.134	0.153	0.164	0.127	0.130	-----	
								L M= 0.128 R=0.997			
								B= 0.010			
44)		cis-1,3-dichlor	0.301	0.266	0.280	0.302	0.361	0.412	0.412	-----	
								L M= 0.418 R=0.999			
								B= -0.030			
45)		4-methyl-2-pent	0.203	0.178	0.220	0.238	0.260	0.198	0.217	0.216	12.56
46)	s	#Toluene-d8	0.925	0.914	0.916	0.923	0.957	0.959	0.911	0.929	2.19
47)	C	toluene	1.166		1.213	1.060	1.177	1.262	1.192	1.178	5.71#
48)		trans-1,3-dichl	0.220	0.182	0.188	0.229	0.283	0.323	0.330	-----	
								L M= 0.335 R=0.999			
								B= -0.030			
49)		1,1,2-trichloro	0.181	0.169	0.166	0.171	0.197	0.194	0.188	0.181	6.94
50)		Chlorobenzene-d5		----------ISTD----------							
51)		tetrachloroethe	0.408	0.454	0.393	0.388	0.415	0.443	0.459	0.423	6.84
52)		1,3-dichloropro	0.548	0.551	0.539	0.525	0.572	0.566	0.582	0.555	3.60
53)		2-hexanone (MBK	0.194		0.190	0.237	0.269	0.202	0.234	0.221	14.00
54)		dibromochlorome	0.216	0.168	0.185	0.215	0.265	0.308	0.336	-----	
								L M= 0.339 R=0.998			
								B= -0.040			
55)		1,2-dibromoetha	0.266	0.243	0.244	0.253	0.296	0.285	0.302	0.270	9.09
56)	P	chlorobenzene	1.010	1.057	0.981	0.943	1.036	1.105	1.133	1.038	6.46
57)		1,1,1,2-tetrach	0.278	0.238	0.264	0.284	0.321	0.360		0.291	14.93
58)		1-chlorohexane	0.372	0.366	0.341	0.346	0.388	0.408	0.387	0.372	6.39
59)	C	ethylbenzene	1.680	1.632	1.575	1.622	1.809	1.976	1.967	1.752	9.54#
60)		m+p-xylene	0.662	0.625	0.611	0.639	0.714	0.793	0.757	0.686	10.21
61)		o-xylene	0.613	0.544	0.581	0.589	0.674	0.743	0.752	0.642	12.75
62)		styrene	1.058	0.897	0.991	1.040	1.187	1.283	1.310	1.109	13.93
63)	P	bromoform	0.117	0.089	0.100	0.120	0.158	0.185		-----	
								L M= 0.189 R=0.995			
								B= -0.018			
64)	S	#4-Bromofluorob	0.481	0.474	0.477	0.469	0.484	0.477	0.494	0.479	1.69
65)	I	1,4-Dichlorobenzene-d		----------ISTD----------							
66)		isopropylbenzen	2.556	2.570	2.411	2.571	2.852	2.924	2.798	2.669	7.07
67)		bromobenzene	1.216	1.348	1.247	1.179	1.307	1.266	1.227	1.256	4.56
68)	P	1,1,2,2-tetrach	0.774	0.770	0.750	0.744	0.840	0.720	0.740	0.763	5.06
69)		1,4-dichloro-2-	0.183	0.170	0.170	0.192	0.224	0.201	0.210	0.193	10.52
70)		1,2,3-trichloro	0.227	0.220	0.212	0.219	0.249	0.210	0.220	0.222	5.95
71)		n-propylbenzene	0.814	0.807	0.766	0.811	0.907	0.919	0.907	0.847	7.28
72)		2-chlorotoluene	0.709	0.771	0.701	0.689	0.790	0.769	0.764	0.742	5.46
73)		1,3,5-trimethyl	2.565	2.334	2.414	2.489	2.872	2.880	2.754	2.616	8.45
74)		4-chlorotoluene	2.511	2.404	2.477	2.439	2.771	2.747	2.616	2.566	5.75
75)		tert-butylbenze	2.070	1.903	1.923	1.957	2.366	2.366	2.390	2.139	10.57
76)		1,2,4-trimethyl	2.473	2.304	2.249	2.342	2.792	2.778	2.751	2.527	9.52
77)		sec-butylbenzen	3.190	2.873	2.915	2.934	3.487	3.652	3.570	3.232	10.39
78)		4-isopropyltolu	2.674	2.440	2.567	2.578	2.887	3.086	3.072	2.758	9.36
79)		1,3-dichloroben	1.460	1.481	1.404	1.342	1.475	1.541	1.581	1.469	5.43
80)		1,4-dichloroben	1.535	1.522	1.530	1.461	1.572	1.590	1.642	1.550	3.71
81)		1,2-dichloroben	1.230	1.253	1.115	1.236	1.396	1.406	1.509	1.306	10.34
82)		n-butylbenzene	2.559		2.082	2.639	2.941	3.025	2.951	2.699	13.18
83)		1,2-dibromo-3-c	0.082	0.069	0.066	0.096	0.122	0.106		-----	
								L M= 0.109 R=0.994			
								B= -0.002			
84)		hexachloroethan	0.206	0.191	0.199	0.241	0.294	0.339	0.399	-----	
								L M= 0.400 R=0.994			
								B= -0.061			
85)		1,2,4-trichloro	0.674	0.569	0.590	0.830	0.984	1.015	1.090	-----	
								L M= 1.097 R=0.999			

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Laboratory ID: 9H12068-SCV1
Sequence: 9H12068
Standard ID: 9080037

Analyte	Expected (ug/L)	Found (ug/L)	% Rec.	QC Limit
Acetone	40.0	42.4	106	75-125
Benzene	40.0	42.1	105	75-125
Bromobenzene N/A	40.0	40.4	101	75-125
Bromochloromethane	40.0	40.6	102	75-125
Bromodichloromethane	40.0	45.3	113	75-125
Bromoform	40.0	39.4	99	75-125
Bromomethane	40.0	38.2	96	75-125
n-Butylbenzene	40.0	44.0	110	75-125
sec-Butylbenzene	40.0	45.6	114	75-125
tert-Butylbenzene	40.0	44.0	110	75-125
Carbon Disulfide	40.0	38.0	95	75-125
Carbon Tetrachloride	40.0	39.6	99	75-125
Chlorobenzene	40.0	42.2	106	75-125
Chloroethane	40.0	41.4	104	75-125
Chloroform	40.0	39.4	99	75-125
Chloromethane	40.0	39.6	99	75-125
2-Chlorotoluene	40.0	42.7	107	75-125
4-Chlorotoluene	40.0	43.3	108	75-125
1,2-Dibromo-3-chloropropane	40.0	39.7	99	75-125
Dibromochloromethane	40.0	39.3	98	75-125
1,2-Dibromoethane	40.0	43.5	109	75-125
Dibromomethane	40.0	41.4	104	75-125
1,2-Dichlorobenzene	40.0	45.6	114	75-125
1,3-Dichlorobenzene	40.0	43.5	109	75-125
1,4-Dichlorobenzene	40.0	43.2	108	75-125
Dichlorodifluoromethane	40.0	44.0	110	75-125
1,1-Dichloroethane	40.0	40.8	102	75-125

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Laboratory ID: 9H12068-SCV1
Sequence: 9H12068
Standard ID: 9080037

1,2-Dichloroethane	40.0	42.2	106	75-125
1,1-Dichloroethene	40.0	41.4	104	75-125
cis-1,2-Dichloroethene	40.0	40.4	101	75-125
trans-1,2-Dichloroethene	40.0	42.0	105	75-125
1,2-Dichloropropane	40.0	42.0	105	75-125
1,3-Dichloropropane	40.0	42.6	107	75-125
2,2-Dichloropropane	40.0	42.8	107	75-125
1,1-Dichloropropene	40.0	42.1	105	75-125
cis-1,3-Dichloropropene	40.0	39.6	99	75-125
trans-1,3-Dichloropropene	40.0	40.7	102	75-125
Ethylbenzene	40.0	44.0	110	75-125
Hexachlorobutadiene	40.0	44.0	110	75-125
2-Hexanone	40.0	41.1	103	75-125
Isopropylbenzene	40.0	46.3	116	75-125
4-Isopropyltoluene	40.0	45.4	114	75-125
Methyl tert-Butyl Ether	40.0	44.0	110	75-125
Methylene Chloride	40.0	42.3	106	75-125
2-Butanone (MEK)	40.0	37.9	95	75-125
4-Methyl-2-pentanone (MIBK)	40.0	39.7	99	75-125
Naphthalene	40.0	43.6	109	75-125
n-Propylbenzene	40.0	42.0	105	75-125
Styrene	40.0	45.8	115	75-125
1,1,1,2-Tetrachloroethane	40.0	48.2	121	75-125
1,1,2,2-Tetrachloroethane	40.0	41.3	103	75-125
Tetrachloroethene	40.0	40.0	100	75-125
Toluene	40.0	41.8	105	75-125
1,2,3-Trichlorobenzene	40.0	41.4	104	75-125
1,2,4-Trichlorobenzene	40.0	39.2	98	75-125

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Laboratory ID: 9H12068-SCV1
Sequence: 9H12068
Standard ID: 9080037

1,1,1-Trichloroethane	40.0	41.2	103	75-125
1,1,2-Trichloroethane	40.0	42.1	105	75-125
Trichloroethene	40.0	40.9	102	75-125
Trichlorofluoromethane	40.0	40.9	102	75-125
1,2,3-Trichloropropane	40.0	42.2	106	75-125
1,2,4-Trimethylbenzene	40.0	44.4	111	75-125
1,3,5-Trimethylbenzene	40.0	43.8	110	75-125
Vinyl Chloride	40.0	40.0	100	75-125
Xylene, Meta + Para	80.0	88.4	111	75-125
Xylene, Ortho	40.0	44.7	112	75-125
Xylene (Total)	120	133	111	75-125
Dibromofluoromethane	40.0	40.2	101	75-125
1,2-Dichloroethane-d4	40.0	40.4	101	75-125
Toluene-d8	40.0	39.7	99	75-125
4-Bromofluorobenzene	40.0	40.3	101	75-125

* Values outside of QC limits

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

REVISED
LB 10/14/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Calibration: 9H12016
Sequence: 9H12068

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Laboratory ID: 9H12068-SCV1
Standard ID: 9080037

Analyte	Expected (ug/L)	Found (ug/L)	% Rec.	QC Limit
Acetone	40.0	42.4	106	75-125
Benzene	40.0	42.1	105	75-125
Bromobenzene	40.0	40.4	101	75-125
Bromochloromethane	40.0	40.6	102	75-125
Bromodichloromethane	40.0	45.3	113	75-125
Bromoform	40.0	39.4	99	75-125
Bromomethane	40.0	38.2	96	75-125
n-Butylbenzene	40.0	44.0	110	75-125
sec-Butylbenzene	40.0	45.6	114	75-125
tert-Butylbenzene	40.0	44.0	110	75-125
Carbon Disulfide	40.0	38.0	95	75-125
Carbon Tetrachloride	40.0	39.6	99	75-125
Chlorobenzene	40.0	42.2	106	75-125
Chloroethane	40.0	41.4	104	75-125
Chloroform	40.0	39.4	99	75-125
1-Chlorohexane	40.0	41.7	104	75-125
Chloromethane	40.0	39.6	99	75-125
2-Chlorotoluene	40.0	42.7	107	75-125
4-Chlorotoluene	40.0	43.3	108	75-125
Cyclohexane	40.0	40.9	102	75-125
1,2-Dibromo-3-chloropropane	40.0	39.7	99	75-125
Dibromochloromethane	40.0	39.3	98	75-125
1,2-Dibromoethane	40.0	43.5	109	75-125
Dibromomethane	40.0	41.4	104	75-125
1,2-Dichlorobenzene	40.0	45.6	114	75-125
1,3-Dichlorobenzene	40.0	43.5	109	75-125
1,4-Dichlorobenzene	40.0	43.2	108	75-125

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

REVISED
JS 12/19/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Calibration: 9H12016
Sequence: 9H12068

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Laboratory ID: 9H12068-SCV1
Standard ID: 9080037

Dichlorodifluoromethane	40.0	44.0	110	75-125
1,1-Dichloroethane	40.0	40.8	102	75-125
1,2-Dichloroethane	40.0	42.2	106	75-125
1,1-Dichloroethene	40.0	41.4	104	75-125
cis-1,2-Dichloroethene	40.0	40.4	101	75-125
trans-1,2-Dichloroethene	40.0	42.0	105	75-125
1,2-Dichloropropane	40.0	42.0	105	75-125
1,3-Dichloropropane	40.0	42.6	107	75-125
2,2-Dichloropropane	40.0	42.8	107	75-125
1,1-Dichloropropene	40.0	42.1	105	75-125
cis-1,3-Dichloropropene	40.0	39.6	99	75-125
trans-1,3-Dichloropropene	40.0	40.7	102	75-125
Ethylbenzene	40.0	44.0	110	75-125
Hexachlorobutadiene	40.0	44.0	110	75-125
2-Hexanone	40.0	41.1	103	75-125
Isopropylbenzene	40.0	46.3	116	75-125
4-Isopropyltoluene	40.0	45.4	114	75-125
Methyl Acetate	40.0	42.5	106	75-125
Methyl tert-Butyl Ether	40.0	44.0	110	75-125
Methylcyclohexane	40.0	40.4	101	75-125
Methylene Chloride	40.0	42.3	106	75-125
2-Butanone (MEK)	40.0	37.9	95	75-125
4-Methyl-2-pentanone (MIBK)	40.0	39.7	99	75-125
Naphthalene	40.0	43.6	109	75-125
n-Propylbenzene	40.0	42.0	105	75-125
Styrene	40.0	45.8	115	75-125
1,1,1,2-Tetrachloroethane	40.0	48.2	121	75-125
1,1,2,2-Tetrachloroethane	40.0	41.3	103	75-125

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

REVISED
10/16/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Calibration: 9H12016
Sequence: 9H12068

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Laboratory ID: 9H12068-SCV1
Standard ID: 9080037

Tetrachloroethene	40.0	40.0	100	75-125
Toluene	40.0	41.8	105	75-125
1,2,3-Trichlorobenzene	40.0	41.4	104	75-125
1,2,4-Trichlorobenzene	40.0	39.2	98	75-125
1,1,1-Trichloroethane	40.0	41.2	103	75-125
1,1,2-Trichloroethane	40.0	42.1	105	75-125
Trichloroethene	40.0	40.9	102	75-125
Trichlorofluoromethane	40.0	40.9	102	75-125
1,2,3-Trichloropropane	40.0	42.2	106	75-125
1,1,2-Trichloro-1,2,2-trifluoroethane	40.0	38.6	97	75-125
1,2,4-Trimethylbenzene	40.0	44.4	111	75-125
1,3,5-Trimethylbenzene	40.0	43.8	110	75-125
Vinyl Chloride	40.0	40.0	100	75-125
Xylene, Meta + Para	80.0	88.4	111	75-125
Xylene, Ortho	40.0	44.7	112	75-125
Xylene (Total)	120	133	111	75-125
Dibromofluoromethane	40.0	40.2	101	75-125
1,2-Dichloroethane-d4	40.0	40.4	101	75-125
Toluene-d8	40.0	39.7	99	75-125
4-Bromofluorobenzene	40.0	40.3	101	75-125

* Values outside of QC limits

Quantitation Report (Not Edited)

Data Path : C:\MSDChem\1\DATA\08-12-09\
Data File : LCSA.D
InstName : 323
Acq On : 12 Aug 2009 7:14 pm
Operator : JDM
Sample : LCSA
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 13 08:43:38 2009
Quant Method : C:\MSDCHEM\1\METHODS\8260B-LL01.M
Quant Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
QLast Update : Thu Aug 13 08:43:22 2009
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min) Rcv(Ar)
1) Fluorobenzene	4.28	96	974894	40.00	ug/L		0.00 102.87%
50) Chlorobenzene-d5	7.27	117	673069	40.00	ug/L		0.00 100.78%
65) 1,4-Dichlorobenzene-d4	9.55	152	377565	40.00	ug/L		0.00 107.87%
System Monitoring Compounds							
30) #Dibromofluoromethane	3.60	111	250039	40.20	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.50%				
37) #1,2-Dichloroethane-d4	3.94	67	135672	40.35	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.88%				
46) #Toluene-d8	5.86	98	899482	39.72	ug/L		0.00
Spiked Amount 40.000			Recovery = 99.30%				
64) #4-Bromofluorobenzene	8.43	95	325140	40.32	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.80%				
Target Compounds							Qvalue
2) dichlorodifluoromethane	0.85	85	268282	43.99	ug/L		98
3) chloromethane	0.94	50	346113	39.58	ug/L		99
4) vinyl chloride	0.99	62	328418	40.03	ug/L		99
5) dichlorofluoromethane	1.31	67	465960	39.80	ug/L		99
6) bromomethane	1.15	94	244693	38.21	ug/L		99
7) chloroethane	1.20	64	202262	41.37	ug/L		89
8) trichlorofluoromethane	1.33	101	448992	40.91	ug/L		100
9) acrolein	1.58	56	37818	42.34	ug/L	#	98
10) ethyl ether	1.49	74	176252	41.87	ug/L		83
11) acrylonitrile	2.14	53	85651	40.96	ug/L		97
12) 1,1,2-trichloro-1,2,2-trif	1.62	101	264055	38.57	ug/L	#	84
13) 1,1-dichloroethene	1.63	96	253622	41.45	ug/L	#	61
14) iodomethane	1.72	142	269396	36.67	ug/L		92
15) acetone	1.67	43	59924	42.38	ug/L		94
16) methyl acetate	1.88	43	229955	42.49	ug/L		94
17) carbon disulfide	1.76	76	747777	37.95	ug/L		100
18) methylene chloride	1.94	49	365961	42.29	ug/L	#	77
19) trans-1,2-dichloroethene	2.14	96	301650	41.98	ug/L	#	84
20) methyl (tert) butyl ether	2.14	73	704027	44.04	ug/L		100
21) 1,1-dichloroethane	2.49	63	459499	40.80	ug/L		99
22) vinyl acetate	2.56	43	217131	38.90	ug/L		99
23) 2,2-dichloropropane	3.06	77	334675	42.78	ug/L		95
24) cis-1,2-dichloroethene	3.07	96	308406	40.43	ug/L		93
25) 2-butanone (MEK)	3.14	43	79874	37.86	ug/L		90
26) bromochloromethane	3.33	49	165495	40.58	ug/L		98
27) chloroform	3.43	83	472577	39.37	ug/L		99
28) tetrahydrofuran	3.40	71	31436	44.00	ug/L	#	76
29) 1,1,1-trichloroethane	3.58	97	398746	41.18	ug/L		97
31) carbon tetrachloride	3.74	117	349136	39.57	ug/L		99
32) 1,1-dichloropropene	3.75	75	377882	42.07	ug/L		94
33) cyclohexane	3.61	56	396662	40.91	ug/L		96
34) benzene	3.97	78	1077047	42.14	ug/L		92
35) 1,2-dichloroethane	4.02	62	334524	42.15	ug/L		97
36) heptane	4.27	57	271608	44.87	ug/L		87

Quantitation Report (Not Edited)

Data Path : C:\MSDChem\1\DATA\08-12-09\
Data File : LCSA.D
InstName : 323
Acq On : 12 Aug 2009 7:14 pm
Operator : JDM
Sample : LCSA
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 13 08:43:38 2009
Quant Method : C:\MSDCHEM\1\METHODS\8260B-LL01.M
Quant Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
QLast Update : Thu Aug 13 08:43:22 2009
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min) Rcv(Ar)
38) trichloroethene	4.64	130	277508	40.89	ug/L		90
39) 1,2-dichloropropane	4.88	63	269562	41.99	ug/L		98
40) dibromomethane	5.00	93	142384	41.44	ug/L	#	83
41) bromodichloromethane	5.18	83	304599	45.32	ug/L		99
42) methylcyclohexane	4.80	83	496817	40.38	ug/L		91
43) 2-chloroehtyl vinyl ether	5.52	63	135820	40.48	ug/L		95
44) cis-1,3-dichloropropene	5.62	75	374242	39.58	ug/L		100
45) 4-methyl-2-pentanone (MIBK	5.83	43	209176	39.66	ug/L	#	87
47) toluene	5.93	91	1200327	41.80	ug/L		98
48) trans-1,3-dichloropropene	6.19	75	302922	40.68	ug/L		99
49) 1,1,2-trichloroethane	6.36	83	185604	42.14	ug/L		95
51) tetrachloroethene	6.45	166	284651	39.98	ug/L		93
52) 1,3-dichloropropane	6.52	76	397353	42.57	ug/L		100
53) 2-hexanone (MBK)	6.65	43	152735	41.07	ug/L		96
54) dibromochloromethane	6.73	129	197105	39.32	ug/L		99
55) 1,2-dibromoethane	6.82	109	197472	43.49	ug/L		100
56) chlorobenzene	7.30	112	737805	42.24	ug/L		89
57) 1,1,1,2-tetrachloroethane	7.39	131	235561	48.15	ug/L		98
58) 1-chlorohexane	7.31	55	261179	41.68	ug/L	#	71
59) ethylbenzene	7.41	91	1296265	43.98	ug/L		90
60) m+p-xylene	7.54	106	1020449	88.44	ug/L	#	73
61) o-xylene	7.92	106	483273	44.72	ug/L	#	78
62) styrene	7.94	104	855337	45.83	ug/L		86
63) bromoform	8.11	173	113327	39.45	ug/L		99
66) isopropylbenzene	8.28	105	1167383	46.34	ug/L		93
67) bromobenzene	8.55	77	478597	40.38	ug/L	#	70
68) 1,1,2,2-tetrachloroethane	8.62	83	297535	41.33	ug/L	#	100
69) 1,4-dichloro-2-butene	8.68	53	79419	43.65	ug/L	#	51
70) 1,2,3-trichloropropane	8.64	110	88638	42.22	ug/L	#	85
71) n-propylbenzene	8.69	120	335777	41.98	ug/L	#	57
72) 2-chlorotoluene	8.75	126	299007	42.70	ug/L	#	71
73) 1,3,5-trimethylbenzene	8.87	105	1082199	43.83	ug/L		90
74) 4-chlorotoluene	8.87	91	1049694	43.33	ug/L		86
75) tert-butylbenzene	9.18	119	888329	43.99	ug/L		89
76) 1,2,4-trimethylbenzene	9.23	105	1058906	44.39	ug/L		90
77) sec-butylbenzene	9.40	105	1391585	45.62	ug/L		92
78) 4-isopropyltoluene	9.55	119	1180778	45.36	ug/L	#	69
79) 1,3-dichlorobenzene	9.48	146	603802	43.54	ug/L		96
80) 1,4-dichlorobenzene	9.58	146	631970	43.19	ug/L		95
81) 1,2-dichlorobenzene	9.94	146	562125	45.59	ug/L		96
82) n-butylbenzene	9.95	91	1121110	44.00	ug/L		93
83) 1,2-dibromo-3-chloropropan	10.72	157	39923	39.69	ug/L	#	82
84) hexachloroethane	10.16	201	111365	35.52	ug/L	#	70
85) 1,2,4-trichlorobenzene	11.52	180	370268	39.23	ug/L		98
86) hexachlorobutadiene	11.70	225	246434	44.00	ug/L		98
87) naphthalene	11.75	128	934454	43.59	ug/L		95
88) 1,2,3-trichlorobenzene	11.99	180	373589	41.39	ug/L		97
89) 2-methylnaphthalene	12.87	142	608438	47.76	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

ANALYSIS BATCH (SEQUENCE) SUMMARY

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17012

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H12016

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	9H17012-TUN1	BFB0813.D	08/13/09 08:47
Calibration Check	9H17012-CCV1	CCV0813.D	08/13/09 09:51
LCS	0909550-BS1	BS0813.D	08/13/09 10:23
Blank	0909550-BLK1	BLK0813.D	08/13/09 10:55
60SS1	0908176-01	0908176-01.D	08/13/09 11:27
60SS2	0908176-02	0908176-02.D	08/13/09 12:00
60SS3	0908176-03	0908176-03.D	08/13/09 12:32
60SS4	0908176-04	0908176-04.D	08/13/09 13:05
60SE1	0908176-06	0908176-06.D	08/13/09 14:10
60SE2	0908176-07	0908176-07.D	08/13/09 14:42
60SS5	0908176-05	0908176-05A.D	08/13/09 15:46
DUP-1	0908176-08	0908176-08A.D	08/13/09 16:51

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 323
Calibration: 9H12016
Lab File ID: CCV0813.D
Calibration Date: 08/12/09 08:00
Sequence: 9H17012
Injection Date: 08/13/09
Lab Sample ID: 9H17012-CCV1
Injection Time: 09:51

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	L	40.0	34.5	6.424628E-02	5.132863E-02		-13.7	40
Benzene	A	40.0	40.6	1.048783	1.063389		1.4	25
Bromochloromethane	A	40.0	37.0	0.167315	0.1547975		-7.5	25
Bromodichloromethane	A	40.0	39.8	0.2757909	0.2743508		-0.5	25
Bromoform	L	40.0	36.3	0.1279605	0.1534234	0.1	-9.3	25
Bromomethane	A	40.0	34.2	0.2627686	0.2248798		-14.4	25
Carbon Disulfide	L	40.0	33.2	0.7367744	0.6677783		-16.9	25
Carbon Tetrachloride	L	40.0	36.4	0.3188406	0.3276552		-9.0	25
Chlorobenzene	A	40.0	38.0	1.037954	0.9853744	0.3	-5.1	25
Chloroethane	A	40.0	37.7	0.2006062	0.1891831		-5.7	25
Chloroform	A	40.0	36.8	0.4924529	0.4524242		-8.1	20
Chloromethane	L	40.0	36.9	0.3899552	0.3320084	0.1	-7.8	25
1,2-Dibromo-3-chloropropane	L	40.0	40.0	9.030228E-02	0.1065507		-0.02	25
Dibromochloromethane	L	40.0	35.4	0.2417435	0.2594737		-11.6	25
1,2-Dibromoethane	A	40.0	39.6	0.269869	0.2671234		-1.0	25
1,2-Dichlorobenzene	A	40.0	41.1	1.306222	1.342357		2.8	25
1,3-Dichlorobenzene	A	40.0	39.1	1.469138	1.437474		-2.2	25
1,4-Dichlorobenzene	A	40.0	39.0	1.550268	1.511399		-2.5	25
Dichlorodifluoromethane	A	40.0	37.7	0.2502128	0.2357935		-5.8	25
1,1-Dichloroethane	A	40.0	37.3	0.4620446	0.4312913	0.1	-6.7	25
1,2-Dichloroethane	A	40.0	37.0	0.325603	0.3015928		-7.4	25
1,1-Dichloroethene	A	40.0	38.2	0.2510643	0.2395646		-4.6	20
cis-1,2-Dichloroethene	A	40.0	37.4	0.3129545	0.2926568		-6.5	25
trans-1,2-Dichloroethene	A	40.0	37.6	0.2948184	0.2772122		-6.0	25
1,2-Dichloropropane	A	40.0	37.6	0.2633842	0.247518		-6.0	20
cis-1,3-Dichloropropene	L	40.0	35.0	0.3335549	0.3359736		-12.5	25
trans-1,3-Dichloropropene	L	40.0	34.9	0.2508747	0.2620385		-12.8	25
Ethylbenzene	A	40.0	39.5	1.751759	1.728722		-1.3	20
2-Hexanone	A	40.0	34.5	0.2210287	0.1905382		-13.8	40

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 323
Lab File ID: CCV0813.D
Sequence: 9H17012
Lab Sample ID: 9H17012-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Calibration Date: 08/12/09 08:00
Injection Date: 08/13/09
Injection Time: 09:51

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Isopropylbenzene	A	40.0	38.1	2.668621	2.542124		-4.7	25
Methyl Acetate	A	40.0	36.8	0.2220401	0.2044298		-7.9	25
Methyl tert-Butyl Ether	A	40.0	38.0	0.6558451	0.6226712		-5.1	25
Methylcyclohexane	A	40.0	38.3	0.5047911	0.4830147		-4.3	25
Methylene Chloride	L	40.0	35.0	0.4997852	0.3156955		-12.6	25
2-Butanone (MEK)	A	40.0	32.4	3.655697E-02	7.005733E-02		-19.1	40
4-Methyl-2-pentanone (MIBK)	A	40.0	34.1	0.222873	0.1843026		-17.3	40
Styrene	A	40.0	40.6	1.10921	1.126668		1.6	25
1,1,2,2-Tetrachloroethane	A	40.0	36.7	0.7625957	0.6993743	0.3	-8.3	25
Tetrachloroethene	A	40.0	37.7	0.4230979	0.3987343		-5.8	25
Toluene	A	40.0	36.8	1.293069	1.08494		-16.1	20
1,2,3-Trichlorobenzene	L	40.0	34.8	0.8154561	0.8247697		-13.0	25
1,2,4-Trichlorobenzene	L	40.0	36.5	0.8218828	0.9069996		-8.6	25
1,1,1-Trichloroethane	A	40.0	38.8	0.3973068	0.3853888		-3.0	25
1,1,2-Trichloroethane	A	40.0	38.6	0.1807208	0.1741583		-3.6	25
Trichloroethene	A	40.0	37.3	0.2784474	0.2594748		-6.8	25
Trichlorofluoromethane	A	40.0	37.3	0.4502826	0.4199155		-6.7	25
1,1,2-Trichloro-1,2,2-trifluoroeth	A	40.0	37.6	0.2809214	0.2643304		-5.9	25
Vinyl Chloride	A	40.0	37.5	0.3366321	0.3156283		-6.2	20
Xylene (Total)	A	120	121	0.6712206	0.6761729		0.7	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

missing cyclohexane

CONTINUING CALIBRATION CHECK
USEPA-8260B

REVISED
JB 10/14/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 323
Lab File ID: CCV0813.D
Sequence: 9H17012
Lab Sample ID: 9H17012-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Calibration Date: 08/12/09 08:00
Injection Date: 08/13/09
Injection Time: 09:51

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	L	40.0	34.5	5.424628E-02	5.132863E-02		-13.7	40
Benzene	A	40.0	40.6	1.048783	1.063389		1.4	25
Bromochloromethane	A	40.0	37.0	0.167315	0.1547975		-7.5	25
Bromodichloromethane	A	40.0	39.8	0.2757909	0.2743508		-0.5	25
Bromoform	L	40.0	36.3	0.1279605	0.1534234	0.1	-9.3	25
Bromomethane	A	40.0	34.2	0.2627686	0.2248798		-14.4	25
Carbon Disulfide	L	40.0	33.2	0.7367744	0.6677783		-16.9	25
Carbon Tetrachloride	L	40.0	36.4	0.3188406	0.3276552		-9.0	25
Chlorobenzene	A	40.0	38.0	1.037954	0.9853744	0.3	-5.1	25
Chloroethane	A	40.0	37.7	0.2006062	0.1891831		-5.7	25
Chloroform	A	40.0	36.8	0.4924529	0.4524242		-8.1	20
Chloromethane	L	40.0	36.9	0.3899552	0.3320084	0.1	-7.8	25
Cyclohexane	A	40.0	37.3	0.397842	0.371434		-6.6	25
1,2-Dibromo-3-chloropropane	L	40.0	40.0	0.030228E-02	0.1065507		-0.02	25
Dibromochloromethane	L	40.0	35.4	0.2417435	0.2594737		-11.6	25
1,2-Dibromoethane	A	40.0	39.6	0.269869	0.2671234		-1.0	25
1,2-Dichlorobenzene	A	40.0	41.1	1.306222	1.342357		2.8	25
1,3-Dichlorobenzene	A	40.0	39.1	1.469138	1.437474		-2.2	25
1,4-Dichlorobenzene	A	40.0	39.0	1.550268	1.511399		-2.5	25
Dichlorodifluoromethane	A	40.0	37.7	0.2502128	0.2357935		-5.8	25
1,1-Dichloroethane	A	40.0	37.3	0.4620446	0.4312913	0.1	-6.7	25
1,2-Dichloroethane	A	40.0	37.0	0.325603	0.3015928		-7.4	25
1,1-Dichloroethene	A	40.0	38.2	0.2510643	0.2395646		-4.6	20
cis-1,2-Dichloroethene	A	40.0	37.4	0.3129545	0.2926568		-6.5	25
trans-1,2-Dichloroethene	A	40.0	37.6	0.2948184	0.2772122		-6.0	25
1,2-Dichloropropane	A	40.0	37.6	0.2633842	0.247518		-6.0	20
cis-1,3-Dichloropropene	L	40.0	35.0	0.3335549	0.3359736		-12.5	25
trans-1,3-Dichloropropene	L	40.0	34.9	0.2508747	0.2620385		-12.8	25
Ethylbenzene	A	40.0	39.5	1.751759	1.728722		-1.3	20

CONTINUING CALIBRATION CHECK
USEPA-8260B

REVISED
10/14/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 323
Lab File ID: CCV0813.D
Sequence: 9H17012
Lab Sample ID: 9H17012-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Calibration Date: 08/12/09 08:00
Injection Date: 08/13/09
Injection Time: 09:51

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
2-Hexanone	A	40.0	34.5	0.2210287	0.1905382		-13.8	40
Isopropylbenzene	A	40.0	38.1	2.668621	2.542124		-4.7	25
Methyl Acetate	A	40.0	36.8	0.2220401	0.2044298		-7.9	25
Methyl tert-Butyl Ether	A	40.0	38.0	0.6558451	0.6226712		-5.1	25
Methylcyclohexane	A	40.0	38.3	0.5047911	0.4830147		-4.3	25
Methylene Chloride	L	40.0	35.0	0.4997852	0.3156955		-12.6	25
2-Butanone (MEK)	A	40.0	32.4	3.655697E-02	7.005733E-02		-19.1	40
4-Methyl-2-pentanone (MIBK)	A	40.0	34.1	0.222873	0.1843026		-17.3	40
Styrene	A	40.0	40.6	1.10921	1.126668		1.6	25
1,1,2,2-Tetrachloroethane	A	40.0	36.7	0.7625957	0.6993743	0.3	-8.3	25
Tetrachloroethene	A	40.0	37.7	0.4230979	0.3987343		-5.8	25
Toluene	A	40.0	36.8	1.178202	1.08494		-7.9	20
1,2,3-Trichlorobenzene	L	40.0	34.8	0.8154561	0.8247697		-13.0	25
1,2,4-Trichlorobenzene	L	40.0	36.5	0.8218828	0.9069996		-8.6	25
1,1,1-Trichloroethane	A	40.0	38.8	0.3973068	0.3853888		-3.0	25
1,1,2-Trichloroethane	A	40.0	38.6	0.1807208	0.1741583		-3.6	25
Trichloroethene	A	40.0	37.3	0.2784474	0.2594748		-6.8	25
Trichlorofluoromethane	A	40.0	37.3	0.4502826	0.4199155		-6.7	25
1,1,2-Trichloro-1,2,2-trifluoroeth	A	40.0	37.6	0.2809214	0.2643304		-5.9	25
Vinyl Chloride	A	40.0	37.5	0.3366321	0.3156283		-6.2	20
Xylene (Total)	A	120	121	0.6712206	0.6761729		0.7	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

Evaluate Continuing Calibration Report

Data Path : C:\MSDChem\1\DATA\08-13-09\
Data File : CCV0813.D
InstName : 323
Acq On : 13 Aug 2009 9:51 am
Operator : JDM
Sample : CCV0813
Misc :
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Aug 13 10:24:06 2009
Quant Method : C:\MSDCHEM\1\METHODS\8260B-LL01.M
Quant Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
QLast Update : Thu Aug 13 08:43:22 2009
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Fluorobenzene	1.000	1.000	0.0	110	0.00
2		dichlorodifluoromethane	0.250	0.236	5.6	103	0.00
3	P	chloromethane	0.390	0.332	14.9	100	0.00
4	C	vinyl chloride	0.337	0.316	6.2	101	0.00
5		dichlorofluoromethane	0.480	0.448	6.7	99	0.00
6		bromomethane	0.263	0.225	14.4	95	0.00
7		chloroethane	0.201	0.189	6.0	100	0.00
8		trichlorofluoromethane	0.450	0.420	6.7	100	0.00
9		acrolein	0.033	0.033	0.0	97	0.00
10		ethyl ether	0.173	0.163	5.8	99	0.00
11		acrylonitrile	0.086	0.076	11.6	90	0.00
12		1,1,2-trichloro-1,2,2-trifl	0.281	0.264	6.0	100	0.00
13	C	1,1-dichloroethene	0.251	0.240	4.4	101	0.00
14		iodomethane	0.221	0.226	-2.3	112	0.00
15		acetone	0.064	0.051	20.3	80	0.00
16		methyl acetate	0.222	0.204	8.1	87	0.00
17		carbon disulfide	0.737	0.668	9.4	87	0.00
18		methylene chloride	0.387	0.316	18.3	97	0.00
19		trans-1,2-dichloroethene	0.295	0.277	6.1	101	0.00
20		methyl (tert) butyl ether	0.656	0.623	5.0	98	0.00
21	P	1,1-dichloroethane	0.462	0.431	6.7	98	0.00
22		vinyl acetate	0.229	0.192	16.2	76	0.00
23		2,2-dichloropropane	0.321	0.321	0.0	104	0.00
24		cis-1,2-dichloroethene	0.313	0.293	6.4	99	0.00
25		2-butanone (MEK)	0.087	0.070	19.5	80	0.00
26		bromochloromethane	0.167	0.155	7.2	104	0.00
27	C	chloroform	0.492	0.452	8.1	102	0.00
28		tetrahydrofuran	0.029	0.028	3.4	94	0.00
29		1,1,1-trichloroethane	0.397	0.385	3.0	103	0.00
30	S	#Dibromofluoromethane	0.255	0.250	2.0	104	0.00
31		carbon tetrachloride	0.319	0.328	-2.8	105	0.00
32		1,1-dichloropropene	0.369	0.350	5.1	103	0.00
33		cyclohexane	0.398	0.371	6.8	105	0.00
34		benzene	1.049	1.063	-1.3	113	0.00
35		1,2-dichloroethane	0.326	0.302	7.4	99	0.00
36		heptane	0.473	0.265	44.0#	141	0.00
37	s	#1,2-Dichloroethane-d4	0.138	0.138	0.0	105	0.00
38		trichloroethene	0.278	0.259	6.8	99	0.00
39	C	1,2-dichloropropane	0.263	0.248	5.7	100	0.00
40		dibromomethane	0.141	0.135	4.3	99	0.00
41		bromodichloromethane	0.276	0.274	0.7	103	0.00
42		methylcyclohexane	0.505	0.483	4.4	100	0.00
43		2-chloroehtyl vinyl ether	0.139	0.120	13.7	80	0.00
44		cis-1,3-dichloropropene	0.334	0.336	-0.6	102	0.00
45		4-methyl-2-pentanone (MIBK)	0.216	0.184	14.8	78	0.00
46	s	#Toluene-d8	0.929	0.911	1.9	104	0.00
47	C	toluene	1.178	1.085	7.9	101	0.00
48		trans-1,3-dichloropropene	0.251	0.262	-4.4	102	0.00
49		1,1,2-trichloroethane	0.181	0.174	3.9	97	0.00

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18014

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H12016

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	9H18014-TUN1	BFB0814.D	08/14/09 09:02
Calibration Check	9H18014-CCV1	CCV0814.D	08/14/09 09:34
LCS	0909550-BS2	BS0814.D	08/14/09 10:06
Blank	0909550-BLK2	BLK0814.D	08/14/09 10:38
60TP1	0908185-02	0908185-02.D	08/14/09 11:10
77SB1A	0908185-03	0908185-03.D	08/14/09 11:42
77SB1B	0908185-04	0908185-04.D	08/14/09 12:15
77SB3A	0908185-05	0908185-05.D	08/14/09 12:47
77SB3B	0908185-06	0908185-06.D	08/14/09 13:19
77SB2A	0908185-07	0908185-07.D	08/14/09 13:52
77SB2B	0908185-08	0908185-08.D	08/14/09 14:24
77SB1A	0909550-MS1	18503MS.D	08/14/09 15:30
77SB1A	0909550-MSD1	18503MD.D	08/14/09 16:02
77SB4B	0908185-09	0908185-09A.D	08/14/09 16:34

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 323
Lab File ID: CCV0814.D
Sequence: 9H18014
Lab Sample ID: 9H18014-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Calibration Date: 08/12/09 08:00
Injection Date: 08/14/09
Injection Time: 09:34

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Acetone	L	40.0	37.3	6.424628E-02	5.486578E-02		-6.8	40
Benzene	A	40.0	41.7	1.048783	1.093875		4.3	25
Bromochloromethane	A	40.0	41.1	0.167315	0.1720516		2.8	25
Bromodichloromethane	A	40.0	42.0	0.2757909	0.2895546		5.0	25
Bromoform	L	40.0	35.7	0.1279605	0.1505587	0.1	-10.8	25
Bromomethane	A	40.0	38.5	0.2627686	0.2527132		-3.8	25
Carbon Disulfide	L	40.0	38.4	0.7367744	0.7758478		-4.1	25
Carbon Tetrachloride	L	40.0	39.3	0.3188406	0.3556454		-1.7	25
Chlorobenzene	A	40.0	40.9	1.037954	1.061181	0.3	2.2	25
Chloroethane	A	40.0	40.6	0.2006062	0.203764		1.6	25
Chloroform	A	40.0	40.6	0.4924529	0.5001526		1.6	20
Chloromethane	L	40.0	39.5	0.3899552	0.3542395	0.1	-1.3	25
Cyclohexane	A	40.0	42.2	0.397842	0.4194311		5.4	25
1,2-Dibromo-3-chloropropane	L	40.0	38.2	9.030228E-02	0.1016589		-4.5	25
Dibromochloromethane	L	40.0	36.1	0.2417435	0.2658353		-9.7	25
1,2-Dibromoethane	A	40.0	41.0	0.269869	0.2764964		2.5	25
1,2-Dichlorobenzene	A	40.0	42.1	1.306222	1.373993		5.2	25
1,3-Dichlorobenzene	A	40.0	40.3	1.469138	1.481384		0.8	25
1,4-Dichlorobenzene	A	40.0	41.0	1.550268	1.588123		2.4	25
Dichlorodifluoromethane	A	40.0	40.7	0.2502128	0.2548469		1.9	25
1,1-Dichloroethane	A	40.0	41.0	0.4620446	0.4741073	0.1	2.6	25
1,2-Dichloroethane	A	40.0	40.8	0.325603	0.3317136		1.9	25
1,1-Dichloroethene	A	40.0	40.8	0.2510643	0.2564241		2.1	20
cis-1,2-Dichloroethene	A	40.0	41.2	0.3129545	0.3221155		2.9	25
trans-1,2-Dichloroethene	A	40.0	40.6	0.2948184	0.2992723		1.5	25
1,2-Dichloropropane	A	40.0	40.4	0.2633842	0.2658773		0.9	20
cis-1,3-Dichloropropene	L	40.0	35.8	0.3335549	0.3446819		-10.4	25
trans-1,3-Dichloropropene	L	40.0	34.8	0.2508747	0.2614903		-13.0	25
Ethylbenzene	A	40.0	42.0	1.751759	1.84086		5.1	20

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 323
Calibration: 9H12016
Lab File ID: CCV0814.D
Calibration Date: 08/12/09 08:00
Sequence: 9H18014
Injection Date: 08/14/09
Lab Sample ID: 9H18014-CCV1
Injection Time: 09:34

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
2-Hexanone	A	40.0	38.1	0.2210287	0.2104705		-4.8	40
Isopropylbenzene	A	40.0	43.2	2.668621	2.879616		7.9	25
Methyl Acetate	A	40.0	38.9	0.2220401	0.2159164		-2.8	25
Methyl tert-Butyl Ether	A	40.0	37.6	0.6558451	0.6162801		-6.0	25
Methylcyclohexane	A	40.0	42.0	0.5047911	0.5299523		5.0	25
Methylene Chloride	L	40.0	37.9	0.4997852	0.3397679		-5.2	25
2-Butanone (MEK)	A	40.0	36.0	3.655697E-02	3.800899E-02		-9.9	40
4-Methyl-2-pentanone (MIBK)	A	40.0	38.2	0.222873	0.2068931		-7.2	40
Styrene	A	40.0	43.4	1.10921	1.203581		8.5	25
1,1,2,2-Tetrachloroethane	A	40.0	40.1	0.7625957	0.7642457	0.3	0.2	25
Tetrachloroethene	A	40.0	40.1	0.4230979	0.423777		0.2	25
Toluene	A	40.0	40.2	1.293069	1.184053		-8.4	20
1,2,3-Trichlorobenzene	L	40.0	39.2	0.8154561	0.9353612		-1.9	25
1,2,4-Trichlorobenzene	L	40.0	37.4	0.8218828	0.9301308		-6.5	25
1,1,1-Trichloroethane	A	40.0	42.2	0.3973068	0.4186648		5.4	25
1,1,2-Trichloroethane	A	40.0	40.8	0.1807208	0.1844959		2.1	25
Trichloroethene	A	40.0	41.4	0.2784474	0.2881477		3.5	25
Trichlorofluoromethane	A	40.0	40.7	0.4502826	0.4585968		1.8	25
1,1,2-Trichloro-1,2,2-trifluoroeth	A	40.0	40.8	0.2809214	0.2869233		2.1	25
Vinyl Chloride	A	40.0	40.1	0.3366321	0.3373868		0.2	20
Xylene (Total)	A	120	129	0.6712206	0.7242286		7.9	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8260B

REVISED
10/14/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 323
Lab File ID: CCV0814.D
Sequence: 9H18014
Lab Sample ID: 9H18014-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Calibration Date: 08/12/09 08:00
Injection Date: 08/14/09
Injection Time: 09:34

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
2-Hexanone	A	40.0	38.1	0.2210287	0.2104705		-4.8	40
Isopropylbenzene	A	40.0	43.2	2.668621	2.879616		7.9	25
Methyl Acetate	A	40.0	38.9	0.2220401	0.2159164		-2.8	25
Methyl tert-Butyl Ether	A	40.0	37.6	0.6558451	0.6162801		-6.0	25
Methylcyclohexane	A	40.0	42.0	0.5047911	0.5299523		5.0	25
Methylene Chloride	L	40.0	37.9	0.4997852	0.3397679		-5.2	25
2-Butanone (MEK)	A	40.0	36.0	3.655697E-02	7.800899E-02		-9.9	40
4-Methyl-2-pentanone (MIBK)	A	40.0	38.2	0.222873	0.2068931		-7.2	40
Styrene	A	40.0	43.4	1.10921	1.203581		8.5	25
1,1,2,2-Tetrachloroethane	A	40.0	40.1	0.7625957	0.7642457	0.3	0.2	25
Tetrachloroethene	A	40.0	40.1	0.4230979	0.423777		0.2	25
Toluene	A	40.0	40.2	1.178202	1.184053		0.5	20
1,2,3-Trichlorobenzene	L	40.0	39.2	0.8154561	0.9353612		-1.9	25
1,2,4-Trichlorobenzene	L	40.0	37.4	0.8218828	0.9301308		-6.5	25
1,1,1-Trichloroethane	A	40.0	42.2	0.3973068	0.4186648		5.4	25
1,1,2-Trichloroethane	A	40.0	40.8	0.1807208	0.1844959		2.1	25
Trichloroethene	A	40.0	41.4	0.2784474	0.2881477		3.5	25
Trichlorofluoromethane	A	40.0	40.7	0.4502826	0.4585968		1.8	25
1,1,2-Trichloro-1,2,2-trifluoroeth	A	40.0	40.8	0.2809214	0.2869233		2.1	25
Vinyl Chloride	A	40.0	40.1	0.3366321	0.3373868		0.2	20
Xylene (Total)	A	120	129	0.6712206	0.7242286		7.9	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

QC BATCH SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0909550
QC Batch Matrix: Soil
Preparation: 5035 Soil Purge & Trap - MS

Sample Name	Lab Sample ID	Date Prepared	Observations
60SS1	0908176-01	08/13/09 08:00	
60SS2	0908176-02	08/13/09 08:00	
60SS3	0908176-03	08/13/09 08:00	
60SS4	0908176-04	08/13/09 08:00	
60SS5	0908176-05	08/13/09 08:00	
60SE1	0908176-06	08/13/09 08:00	
60SE2	0908176-07	08/13/09 08:00	
DUP-1	0908176-08	08/13/09 08:00	
60TP1	0908185-02	08/14/09 08:00	
77SB1A	0908185-03	08/14/09 08:00	
77SB1B	0908185-04	08/14/09 08:00	
77SB3A	0908185-05	08/14/09 08:00	
77SB3B	0908185-06	08/14/09 08:00	
77SB2A	0908185-07	08/14/09 08:00	
77SB2B	0908185-08	08/14/09 08:00	
77SB4B	0908185-09	08/14/09 08:00	
Blank	0909550-BLK1	08/13/09 08:00	
Blank	0909550-BLK2	08/14/09 08:00	
LCS	0909550-BS1	08/13/09 08:00	
LCS	0909550-BS2	08/14/09 08:00	
77SB1A	0909550-MS1	08/14/09 08:00	
77SB1A	0909550-MSD1	08/14/09 08:00	

Volatiles MS, Soil, 5035 Soil Purge & Trap - MS

Surrogate #1 = 9070413 (Static)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908176	8260B DoD VOAs plus custom	0908185	8260B DoD VOAs plus custom		

Lab Number	*Contain*	*Prepared*	*By*	*Initial (g)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909550-BLK1		Aug-13-09 08:00	JDM	5	5	1				BLANK	
0909550-BS1		Aug-13-09 08:00	JDM	5	5	1		9080157	2	LCS	
0908176-01	C	Aug-13-09 08:00	JDM	4.7	5	1				URS Corporation	
0908176-02	C	Aug-13-09 08:00	JDM	4.6	5	1				URS Corporation	
0908176-03	C	Aug-13-09 08:00	JDM	4.5	5	1				URS Corporation	
0908176-04	C	Aug-13-09 08:00	JDM	4.9	5	1				URS Corporation	
0908176-05	D	Aug-13-09 08:00	JDM	3.8	5	1				URS Corporation	
0908176-06	C	Aug-13-09 08:00	JDM	4	5	1				URS Corporation	
0908176-07	C	Aug-13-09 08:00	JDM	4.6	5	1				URS Corporation	
0908176-08	D	Aug-13-09 08:00	JDM	3.7	5	1				URS Corporation	
0909550-BLK2		Aug-14-09 08:00	JDM	5	5	1				BLANK	
0909550-BS2		Aug-14-09 08:00	JDM	5	5	1		9080157	2	LCS	
0909550-MS1		Aug-14-09 08:00	JDM	4	5	1	0908185-03	9080157	2	MATRIX SPIKE	
0909550-MSD1		Aug-14-09 08:00	JDM	4	5	1	0908185-03	9080157	2	MATRIX SPIKE DUP	
0908185-02	D	Aug-14-09 08:00	JDM	4.5	5	1				URS Corporation	
0908185-03	D	Aug-14-09 08:00	JDM	5	5	1				URS Corporation	
0908185-04	C	Aug-14-09 08:00	JDM	5.1	5	1				URS Corporation	
0908185-05	C	Aug-14-09 08:00	JDM	4.1	5	1				URS Corporation	
0908185-06	C	Aug-14-09 08:00	JDM	4	5	1				URS Corporation	
0908185-07	D	Aug-14-09 08:00	JDM	5	5	1				URS Corporation	
0908185-08	D	Aug-14-09 08:00	JDM	4.5	5	1				URS Corporation	
0908185-09	D	Aug-14-09 08:00	JDM	4.3	5	1				URS Corporation	

Comments:	Analyst Initials:

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client: URS Corp. **Date Received:** 8-11-09 **Sheet Completed By:** LEW

Work Order: C108176 **Date Form Completed:** 8-11-09 **Sheet Reviewed By:**

Low Level Soils

	Yes	No	N/A
Were Samples Received in 40 mL VOA Vials Containing a Stir Bar and Pre-Preserved with Sodium Bisulfate?		✓	
Were Samples Received Non-Preserved in Encore Samplers?	✓		
If Received in Encore Samplers, was Sample Received and Preserved Within 48 Hours of Sample Collection?	✓		

High Level Soils

Samples Collected in Which of the Following Ways?

	Yes	No	N/A
Tared 40, 60, or 120 mL Containers:			
Were Samples Received Pre-Preserved Within 4 Days After Collection?		✓	
En Core Samplers:			
Were Samples Received Within 40 Hours After Collection then Preserved Within 48 Hours of Collection?	✓		
Were Samples Shaken/Sonicated Within 8 Hours of Solvent Addition?	✓		
Was Solvent Removed Within 24 Hours of Shake/Sonication?	✓		

Equipment and Reagents

Methanol Lot Number: XJ0113

Sodium Bisulfate Lot Number: NA

Balance Number: 204

NOTE: MeOH or Bisulfate must be added within 48 hours of sample collection.

NOTE: All high level soil samples must be shaken for two minutes. Samples originating in Michigan or Wisconsin must also be sonicated (ASAP next business day when received late Friday or on the weekend).

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS Corp

Chain-of-Custody Number 12921C

Date and Time Sample(s) Received: 8-11-09 910

Sample(s) from Wisconsin or Michigan? Yes (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative (*frozen)					Extraction Information Circle One or Both: (Shaken) / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
SB1 H	(Yes) / No	4.5	4.5	LEW	8-11-09	11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	900
0908176-01 LA	(Yes) / No	4.7	4.7 8-11-09 LEW			*10:55	(Yes) / No						
LB	(Yes) / No	3.7	3.7 8-11-09 LEW			*10:55	(Yes) / No						
0908176-02 SS2 H	(Yes) / No	4.5	4.5			11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	900
LA	(Yes) / No	4.6	—			*10:55	(Yes) / No						
LB	(Yes) / No	4.5	—			*10:55	(Yes) / No						
0908176-03 SS3 H	(Yes) / No	4.8	4.8			11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	900
LA	(Yes) / No	4.5	—			*10:55	(Yes) / No						
LB	(Yes) / No	4.7	—			*10:55	(Yes) / No						
0908176-04 SS4 H	(Yes) / No	4.7	4.7			11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	900
LA	(Yes) / No	4.9	—			*10:55	(Yes) / No						
LB	(Yes) / No	4.4	—			*10:55	(Yes) / No						
0908176-05 SS5 H	(Yes) / No	3.8	3.8			11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	900
LA	(Yes) / No	4.3	—			*10:55	(Yes) / No						
LB	(Yes) / No	3.8	—	LEW	8-11-09	*10:55	(Yes) / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS, con't **Chain-of-Custody Number** 129210

Date and Time Sample(s) Received: 8-11-09 910 **Sample(s) from Wisconsin or Michigan?** Yes / (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0908176-06 SE1 H	(Yes) / No	4.2	4.2	LEW	8-11-09	11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	9:00
LA	(Yes) / No	4.3	—			10:55	(Yes) / No						
LB	(Yes) / No	4.0	—			10:55	(Yes) / No						
0908176-07 SE2 H	(Yes) / No	4.7	4.7			11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	900
LA	(Yes) / No	4.6	—			10:55	(Yes) / No						
LB	(Yes) / No	4.9	—			10:55	(Yes) / No						
0908176-08 Dup-1 H	(Yes) / No	4.3	4.3			11:05	(Yes) / No	LEW	8-11-09	11:20	LEW	8-12-09	900
LA	(Yes) / No	3.7	—			10:55	(Yes) / No						
LB	(Yes) / No	4.2	—	LEW	8-11-09	10:55	(Yes) / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client: ARS **Date Received:** 8-12-09 **Sheet Completed By:** LEW

Work Order: 0908185 **Date Form Completed:** 8-12-09 **Sheet Reviewed By:**

Low Level Soils

	Yes	No	N/A
Were Samples Received in 40 mL VOA Vials Containing a Stir Bar and Pre-Preserved with Sodium Bisulfate?		✓	
Were Samples Received Non-Preserved in Encore Samplers?	✓		
If Received in Encore Samplers, was Sample Received and Preserved Within 48 Hours of Sample Collection?	✓		

High Level Soils

Samples Collected in Which of the Following Ways?

	Yes	No	N/A
Tared 40, 60, or 120 mL Containers:			
Were Samples Received Pre-Preserved Within 4 Days After Collection?		✓	
En Core Samplers:			
Were Samples Received Within 40 Hours After Collection then Preserved Within 48 Hours of Collection?	✓		
Were Samples Shaken/Sonicated Within 8 Hours of Solvent Addition?	✓		
Was Solvent Removed Within 24 Hours of Shake/Sonication?	✓		

Equipment and Reagents

Methanol Lot Number: X50113

Sodium Bisulfate Lot Number: NA

Balance Number: 204

NOTE: MeOH or Bisulfate must be added within 48 hours of sample collection.

NOTE: All high level soil samples must be shaken for two minutes. Samples originating in Michigan or Wisconsin must also be sonicated (ASAP next business day when received late Friday or on the weekend).

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS **Chain-of-Custody Number** 129208

Date and Time Sample(s) Received: 8-12-09 **Sample(s) from Wisconsin or Michigan?** Yes / No

Sample ID		Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative * Frozen					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
				mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
8-12-09 LEW														
SS03 (935)	H	Yes / No						Yes / No						
	LA	Yes / No						Yes / No						
	LB	Yes / No						Yes / No						
0908135-02 TP1 (1100)	H	Yes / No	4.1	4.1	LEW	8-12-09	1120	Yes / No	LEW	8-12-09	1135	LEW	8-13-09	900
	LA	Yes / No	4.5	—			*1100	Yes / No						
	LB	Yes / No	4.4	—			*1100	Yes / No						
0908135-03 SB1A (1300)	H1	Yes / No	5.0	5.0			1120 8-12-09	Yes / No	LEW	8-12-09	1135	LEW	8-13-09	900
	H2	Yes / No	4.0	4.0			~~*1100~~ LEW 1120	Yes / No	LEW	8-12-09	1135	LEW	8-13-09	900
	LA1	Yes / No	5.0	—			*1100	Yes / No						
	LA2	Yes / No	4.0	—				Yes / No						
	LA3	Yes / No	4.7	—				Yes / No						
	LB1	Yes / No	3.9	—				Yes / No						
	LB2	Yes / No	4.0	—				Yes / No						
	LB3	Yes / No	4.0	—	LEW	8-12-09	*1100	Yes / No						
		Yes / No						Yes / No						
		Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS, con't **Chain-of-Custody Number** 129208

Date and Time Sample(s) Received: 8-12-09 **Sample(s) from Wisconsin or Michigan?** Yes (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative (*Frozen)					Extraction Information Circle One or Both: (Shaken) / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0908185-04 SB1B (1310) H	(Yes)/ No	5.1	5.1	LEW	8-12-09	1120	(Yes) / No	LEW	8-12-09	1135	LEW	8-13-09	900
LA	(Yes)/ No	5.1	—			*1100	(Yes) / No						
LB	(Yes)/ No	5.3	—			*1100	(Yes) / No						
0908185-05 SB3A (1340) H	(Yes)/ No	4.6	4.6			1120	(Yes) / No	LEW	8-12-09	1135	LEW	8-13-09	900
LA	(Yes)/ No	4.1	—			*1100	(Yes) / No						
LB	(Yes)/ No	4.1	—			*1100	(Yes) / No						
0908185-06 SB3B (1400) H	(Yes)/ No	3.4	3.4			1120	(Yes) / No	LEW	8-12-09	1135	LEW	8-13-09	900
LA	(Yes)/ No	4.0	—			*1100	(Yes) / No						
LB	(Yes)/ No	4.3	—			*1100	(Yes) / No						
0908185-07 SB2A (1415) H	(Yes)/ No	4.6	4.6			1120	(Yes) / No	LEW	8-12-09	1135	LEW	8-13-09	900
LA	(Yes)/ No	5.0	—			*1100	(Yes) / No						
LB	(Yes)/ No	4.7	—			*1100	(Yes) / No						
0908185-08 SB2B (1430) H	(Yes)/ No	4.6	4.6			1120	(Yes) / No	LEW	8-12-09	1135	LEW	8-13-09	900
LA	(Yes)/ No	4.5	—			*1100	(Yes) / No						
LB	(Yes)/ No	4.4	—	LEW	8-12-09	*1100	(Yes) / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS (Cont) **Chain-of-Custody Number** 129208

Date and Time Sample(s) Received: 8-12-09 **Sample(s) from Wisconsin or Michigan?** Yes / (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative (* Frozen)					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
080885-01 SB4B H (1530)	(Yes) / No	4.4	4.4	LEW	8-12-09	1120	(Yes) / No	LEW	8-12-09	11:35	LEW	8-13-09	9.00
LA	(Yes) / No	4.5	—	↓	↓	*1100	(Yes) / No						
LB	(Yes) / No	4.3	—	LEW	8-12-09	*1100	(Yes) / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909550-BLK1 File ID: BLK0813.D

Prepared: 08/13/09 08:00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

Analyzed: 08/13/09 10:55 Instrument: 323

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
67-64-1	Acetone	3.1	20	11	ug/kg wet	J
71-43-2	Benzene	0.21	5.0	5.0	ug/kg wet	U
74-97-5	Bromochloromethane	0.44	20	20	ug/kg wet	U
75-27-4	Bromodichloromethane	0.87	5.0	5.0	ug/kg wet	U
75-25-2	Bromoform	0.46	5.0	5.0	ug/kg wet	U
74-83-9	Bromomethane	0.96	5.0	5.0	ug/kg wet	U
75-15-0	Carbon Disulfide	0.34	5.0	5.0	ug/kg wet	U
56-23-5	Carbon Tetrachloride	0.68	5.0	5.0	ug/kg wet	U
108-90-7	Chlorobenzene	0.79	5.0	5.0	ug/kg wet	U
75-00-3	Chloroethane	0.79	20	20	ug/kg wet	U
67-66-3	Chloroform	0.23	5.0	5.0	ug/kg wet	U
74-87-3	Chloromethane	0.42	5.0	5.0	ug/kg wet	U
110-82-7	Cyclohexane	0.83	10	10	ug/kg wet	U
96-12-8	1,2-Dibromo-3-chloropropane	2.1	10	10	ug/kg wet	U
124-48-1	Dibromochloromethane	0.47	5.0	5.0	ug/kg wet	U
106-93-4	1,2-Dibromoethane	0.82	5.0	5.0	ug/kg wet	U
95-50-1	1,2-Dichlorobenzene	0.26	5.0	5.0	ug/kg wet	U
541-73-1	1,3-Dichlorobenzene	0.38	5.0	5.0	ug/kg wet	U
106-46-7	1,4-Dichlorobenzene	0.47	5.0	5.0	ug/kg wet	U
75-71-8	Dichlorodifluoromethane	0.35	5.0	5.0	ug/kg wet	U
75-34-3	1,1-Dichloroethane	0.31	5.0	5.0	ug/kg wet	U
107-06-2	1,2-Dichloroethane	0.36	5.0	5.0	ug/kg wet	U
75-35-4	1,1-Dichloroethene	0.71	5.0	5.0	ug/kg wet	U
156-59-2	cis-1,2-Dichloroethene	0.28	5.0	5.0	ug/kg wet	U
156-60-5	trans-1,2-Dichloroethene	0.81	5.0	5.0	ug/kg wet	U
78-87-5	1,2-Dichloropropane	0.37	5.0	5.0	ug/kg wet	U
10061-01-5	cis-1,3-Dichloropropene	0.42	5.0	5.0	ug/kg wet	U
10061-02-6	trans-1,3-Dichloropropene	0.30	5.0	5.0	ug/kg wet	U
100-41-4	Ethylbenzene	0.15	5.0	5.0	ug/kg wet	U
591-78-6	2-Hexanone	1.0	10	1.6	ug/kg wet	J

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909550-BLK1 File ID: BLK0813.D

Prepared: 08/13/09 08:00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

Analyzed: 08/13/09 10:55 Instrument: 323

QC Batch: 0909550 Sequence: 9H17012 Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	0.20	5.0	5.0	ug/kg wet	U
79-20-9	Methyl Acetate	2.4	20	20	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	0.49	5.0	5.0	ug/kg wet	U
108-87-2	Methylcyclohexane	0.88	10	10	ug/kg wet	U
75-09-2	Methylene Chloride	1.2	20	1.4	ug/kg wet	J
78-93-3	2-Butanone (MEK)	2.3	20	20	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.18	10	10	ug/kg wet	U
100-42-5	Styrene	0.78	5.0	5.0	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	0.78	5.0	5.0	ug/kg wet	U
127-18-4	Tetrachloroethene	0.75	5.0	5.0	ug/kg wet	U
108-88-3	Toluene	0.60	5.0	5.0	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	0.39	20	2.4	ug/kg wet	J
120-82-1	1,2,4-Trichlorobenzene	0.71	5.0	3.8	ug/kg wet	J
71-55-6	1,1,1-Trichloroethane	0.84	5.0	5.0	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	0.92	5.0	5.0	ug/kg wet	U
79-01-6	Trichloroethene	0.43	5.0	5.0	ug/kg wet	U
75-69-4	Trichlorofluoromethane	0.31	5.0	5.0	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.52	5.0	5.0	ug/kg wet	U
75-01-4	Vinyl Chloride	0.26	5.0	5.0	ug/kg wet	U
1330-20-7	Xylene (Total)	1.0	5.0	5.0	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	40.4	101	78 - 121	
1,2-Dichloroethane-d4	40.0	40.2	101	66 - 124	
Toluene-d8	40.0	40.3	101	85 - 115	
4-Bromofluorobenzene	40.0	35.7	89	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	853958	4.27	947725	4.28	
Chlorobenzene-d5	573762	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	219806	9.55	350029	9.55	

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909550-BLK2 File ID: BLK0814.D

Prepared: 08/14/09 08:00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

Analyzed: 08/14/09 10:38 Instrument: 323

QC Batch: 0909550 Sequence: 9H18014 Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
67-64-1	Acetone	3.1	20	20	ug/kg wet	U
71-43-2	Benzene	0.21	5.0	5.0	ug/kg wet	U
74-97-5	Bromochloromethane	0.44	20	20	ug/kg wet	U
75-27-4	Bromodichloromethane	0.87	5.0	5.0	ug/kg wet	U
75-25-2	Bromoform	0.46	5.0	5.0	ug/kg wet	U
74-83-9	Bromomethane	0.96	5.0	5.0	ug/kg wet	U
75-15-0	Carbon Disulfide	0.34	5.0	5.0	ug/kg wet	U
56-23-5	Carbon Tetrachloride	0.68	5.0	5.0	ug/kg wet	U
108-90-7	Chlorobenzene	0.79	5.0	5.0	ug/kg wet	U
75-00-3	Chloroethane	0.79	20	20	ug/kg wet	U
67-66-3	Chloroform	0.23	5.0	5.0	ug/kg wet	U
74-87-3	Chloromethane	0.42	5.0	5.0	ug/kg wet	U
110-82-7	Cyclohexane	0.83	10	10	ug/kg wet	U
96-12-8	1,2-Dibromo-3-chloropropane	2.1	10	10	ug/kg wet	U
124-48-1	Dibromochloromethane	0.47	5.0	5.0	ug/kg wet	U
106-93-4	1,2-Dibromoethane	0.82	5.0	5.0	ug/kg wet	U
95-50-1	1,2-Dichlorobenzene	0.26	5.0	5.0	ug/kg wet	U
541-73-1	1,3-Dichlorobenzene	0.38	5.0	5.0	ug/kg wet	U
106-46-7	1,4-Dichlorobenzene	0.47	5.0	5.0	ug/kg wet	U
75-71-8	Dichlorodifluoromethane	0.35	5.0	5.0	ug/kg wet	U
75-34-3	1,1-Dichloroethane	0.31	5.0	5.0	ug/kg wet	U
107-06-2	1,2-Dichloroethane	0.36	5.0	5.0	ug/kg wet	U
75-35-4	1,1-Dichloroethene	0.71	5.0	5.0	ug/kg wet	U
156-59-2	cis-1,2-Dichloroethene	0.28	5.0	5.0	ug/kg wet	U
156-60-5	trans-1,2-Dichloroethene	0.81	5.0	5.0	ug/kg wet	U
78-87-5	1,2-Dichloropropane	0.37	5.0	5.0	ug/kg wet	U
10061-01-5	cis-1,3-Dichloropropene	0.42	5.0	5.0	ug/kg wet	U
10061-02-6	trans-1,3-Dichloropropene	0.30	5.0	5.0	ug/kg wet	U
100-41-4	Ethylbenzene	0.15	5.0	5.0	ug/kg wet	U
591-78-6	2-Hexanone	1.0	10	2.4	ug/kg wet	J

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909550-BLK2
File ID: BLK0814.D
Prepared: 08/14/09 08:00
Preparation: 5035 Soil Purge & Trap -
Initial/Final: 5 g / 5 mL
Analyzed: 08/14/09 10:38
Instrument: 323
QC Batch: 0909550
Sequence: 9H18014
Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	0.20	5.0	5.0	ug/kg wet	U
79-20-9	Methyl Acetate	2.4	20	20	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	0.49	5.0	5.0	ug/kg wet	U
108-87-2	Methylcyclohexane	0.88	10	10	ug/kg wet	U
75-09-2	Methylene Chloride	1.2	20	20	ug/kg wet	U
78-93-3	2-Butanone (MEK)	2.3	20	20	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.18	10	10	ug/kg wet	U
100-42-5	Styrene	0.78	5.0	5.0	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	0.78	5.0	5.0	ug/kg wet	U
127-18-4	Tetrachloroethene	0.75	5.0	5.0	ug/kg wet	U
108-88-3	Toluene	0.60	5.0	5.0	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	0.39	20	2.2	ug/kg wet	J
120-82-1	1,2,4-Trichlorobenzene	0.71	5.0	3.6	ug/kg wet	J
71-55-6	1,1,1-Trichloroethane	0.84	5.0	5.0	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	0.92	5.0	5.0	ug/kg wet	U
79-01-6	Trichloroethene	0.43	5.0	5.0	ug/kg wet	U
75-69-4	Trichlorofluoromethane	0.31	5.0	5.0	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.52	5.0	5.0	ug/kg wet	U
75-01-4	Vinyl Chloride	0.26	5.0	5.0	ug/kg wet	U
1330-20-7	Xylene (Total)	1.0	5.0	5.0	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	40.0	100	78 - 121	
1,2-Dichloroethane-d4	40.0	41.2	103	66 - 124	
Toluene-d8	40.0	38.3	96	85 - 115	
4-Bromofluorobenzene	40.0	39.1	98	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	951929	4.28	947725	4.28	
Chlorobenzene-d5	637346	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	315827	9.55	350029	9.55	

QC BATCH SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0909811
QC Batch Matrix: Water
Preparation: 5030B Aqueous Purge & Trap

Sample Name	Lab Sample ID	Date Prepared	Observations
EQBK-1	0908185-10	08/20/09 08:00	
Trip Blank	0908185-11	08/20/09 08:00	
Blank	0909811-BLK1	08/20/09 08:00	
LCS	0909811-BS1	08/20/09 08:00	

Volatiles MS, Water, 5030B Aqueous Purge & Trap

Surrogate #1 = 9080645 (Static)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908185	8260B DoD VOAs plus custom	0908228	8260B DoD VOAs plus custom	0908257	8260B DoD VOAs plus custom
0908305	8260B DoD VOAs plus custom	0908305	8260B AFCEE VOAs (+extras)	0908308	8260B DoD VOAs plus custom
0908308	8260B AFCEE VOAs (+extras)				

Lab Number	*Contain*	*Prepared*	*By*	*Initial (mL)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909811-BLK1		Aug-20-09 08:00	DLV	5	5	1				BLANK	
0909811-BS1		Aug-20-09 08:00	DLV	5	5	1		9080665	2	LCS	
0909811-MS1		Aug-20-09 08:00	DLV	5	5	1	0908305-01	9080665	2	MATRIX SPIKE	
0909811-MS2		Aug-20-09 08:00	DLV	5	5	1	0908308-01	9080665	2	MATRIX SPIKE	
0909811-MSD1		Aug-20-09 08:00	DLV	5	5	1	0908305-01	9080665	2	MATRIX SPIKE DUP	
0909811-MSD2		Aug-20-09 08:00	DLV	5	5	1	0908308-01	9080665	2	MATRIX SPIKE DUP	
0908185-10	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	
0908185-11	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	
0908228-17	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	
0908228-18	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	
0908257-15	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	
0908257-16	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	
0908305-01	A	Aug-20-09 08:00		5	5	1				URS Corporation	Added for BatchQC in: 0909811
0908305-01	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	7-day HOLD time
0908305-02	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	7-day HOLD time
0908308-01	A	Aug-20-09 08:00		5	5	1				URS Corporation	Added for BatchQC in: 0909811
0908308-01	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	7-day HOLD time
0908308-02	A	Aug-20-09 08:00	DLV	5	5	1				URS Corporation	7-day HOLD time

Comments:	Analyst Initials:

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H21009
Instrument: 323
Calibration Date: 08/20/09 00:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
Acetone	6.848457E-02	17.17089	1.671667	0.2445678	0.99924		0.99	
Acrolein	4.796684E-02	5.807019	1.582857	0.3079762			15	
Acrylonitrile	0.125774	4.354666	2.14	1.710302E-02			15	
Benzene	1.379475	3.639042	3.98	1.737091E-02			15	
Bromobenzene	1.29291	5.26879	8.551429	3.988673E-02			15	
Bromochloromethane	0.2385806	7.177049	3.332857	0.1468855			15	
Bromodichloromethane	0.3319173	11.54585	5.18	1.818596E-02			15	
Bromoform	0.1694453	29.01542	8.11	7.236907E-03	0.99851		SPCC (0.1)	
Bromomethane	0.2714496	18.59759	1.16	1.686532E-02	0.99954		0.99	
n-Butylbenzene	1.710485	12.77417	9.958571	3.538224E-02			15	
sec-Butylbenzene	2.303896	10.82676	9.4	4.488543E-03			15	
tert-Butylbenzene	1.599732	9.856238	9.182857	5.509415E-02			15	
Carbon Disulfide	0.7807143	14.04866	1.76	7.950915E-03			15	
Carbon Tetrachloride	0.3740255	7.996066	3.751429	0.1007619			15	
Chlorobenzene	1.202778	5.676541	7.3	0.0202292			SPCC (0.3)	
Chloroethane	0.3021875	21.6871	1.21	1.549643E-02	0.99967		0.99	
Chloroform	0.566675	5.594426	3.44	1.856063E-02			CCC (30)	
1-Chlorohexane	0.3301878	5.48957	7.31	1.356388E-02			15	
Chloromethane	0.4562859	12.87081	0.95	6.79932E-03			SPCC (0.1)	
2-Chlorotoluene	0.7091848	3.448218	8.754286	6.010339E-02			15	
4-Chlorotoluene	2.427239	6.885568	8.87	2.047888E-02			15	
Cyclohexane	0.4952136	13.59728	3.627143	0.1341891			15	
1,2-Dibromo-3-chloropropane	8.976719E-02	16.24527	10.72	1.480693E-02	0.99970		0.99	
Dibromochloromethane	0.2892855	21.88535	6.73	6.642194E-03	0.99879		0.99	
1,2-Dibromoethane	0.2399982	16.13161	6.82	0.0138128	0.99256		0.99	
Dibromomethane	0.1661008	3.650001	4.998571	0.0752526			15	
trans-1,4-Dichloro-2-butene	0.1547269	7.2138	8.68	1.728173E-02			15	
1,2-Dichlorobenzene	1.301283	4.325152	9.94	1.815323E-02			15	
1,3-Dichlorobenzene	1.432226	2.080205	9.488571	4.143682E-02			15	
1,4-Dichlorobenzene	1.554347	8.571322	9.58	1.029116E-02			15	
Dichlorodifluoromethane	0.3553881	9.540223	0.8571429	0.5689998			15	
1,1-Dichloroethane	0.5802812	6.00599	2.5	0			SPCC (0.1)	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H21019

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H21009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	9H21019-TUN1	BFB0820A.D	08/20/09 09:33
Calibration Check	9H21019-CCV1	LCS.D	08/20/09 16:09
LCS	0909853-BS1	LCS.D	08/20/09 16:09
Blank	0909853-BLK1	BLK0820A.D	08/20/09 17:34
60SE1	0908176-06	0908176-06.D	08/20/09 18:02

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 323
Lab File ID: LCS.D
Sequence: 9H21019
Lab Sample ID: 9H21019-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H21009
Calibration Date: 08/20/09 00:00
Injection Date: 08/20/09
Injection Time: 16:09

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,1-Dichloropropene	A	40.0	42.8	0.4307847	0.4609524		7.0	25
cis-1,3-Dichloropropene	L	40.0	32.7	0.3129208	0.3014032		-18.3	25
trans-1,3-Dichloropropene	L	40.0	31.1	0.2362102	0.2309485		-22.3	25
Ethylbenzene	A	40.0	41.5	1.820594	1.889136		3.8	20
Hexachlorobutadiene	L	40.0	45.2	0.3058962	0.3089768		13.0	25
2-Hexanone	L	40.0	37.9	0.1360151	0.1624954		-5.2	40
Isopropylbenzene	A	40.0	49.1	2.345852	2.879439		22.7	25
4-Isopropyltoluene	A	40.0	48.8	2.077675	2.196856		5.7	25
Methyl Acetate	A	40.0	39.2	0.2719282	0.2663001		-2.1	25
Methyl tert-Butyl Ether	A	40.0	41.5	0.754976	0.7832166		3.7	25
Methylcyclohexane	A	40.0	42.6	0.4017684	0.4280466		6.5	25
Methylene Chloride	L	40.0	40.3	0.4771947	0.4066476		0.8	25
2-Butanone (MEK)	A	40.0	41.5	3.959752E-02	9.290736E-02		3.7	40
4-Methyl-2-pentanone (MIBK)	L	40.0	36.0	0.1301185	0.1639254		-9.9	40
Naphthalene	L	40.0	40.6	1.574428	2.051027		1.5	25
n-Propylbenzene	A	40.0	41.6	0.7849987	0.8170981		4.1	25
Styrene	L	40.0	40.1	1.014105	1.143813		0.3	25
1,1,1,2-Tetrachloroethane	A	40.0	42.6	0.3519588	0.3744871		6.4	25
1,1,2,2-Tetrachloroethane	A	40.0	41.3	0.8276287	0.8540893	0.3	3.2	25
Tetrachloroethene	A	40.0	39.5	0.5445473	0.537347		-1.3	25
Toluene	A	40.0	40.2	1.434744	1.443336		0.6	20
1,2,3-Trichlorobenzene	A	40.0	43.6	0.6580022	0.7164718		8.9	25
1,2,4-Trichlorobenzene	A	40.0	44.0	0.6755571	0.742353		9.9	25
1,1,1-Trichloroethane	A	40.0	40.1	0.4417232	0.4423619		0.1	25
1,1,2-Trichloroethane	A	40.0	39.5	0.2263921	0.2235285		-1.3	25
Trichloroethene	A	40.0	40.6	0.3454067	0.3508389		1.6	25
Trichlorofluoromethane	A	40.0	39.1	0.6557434	0.6415817		-2.2	25
1,2,3-Trichloropropane	A	40.0	39.4	0.2516022	0.2480833		-1.4	25
1,1,2-Trichloro-1,2,2-trifluoroeth	A	40.0	37.7	0.4072785	0.3841843		-5.7	25

QC BATCH SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

QC Batch: 0909853 QC Batch Matrix: Soil

Preparation: 5030B Aqueous Purge & Trap

Sample Name	Lab Sample ID	Date Prepared	Observations
60SE1	0908176-06	08/20/09 08:00	
Blank	0909853-BLK1	08/20/09 08:00	
LCS	0909853-BS1	08/20/09 08:00	

Volatiles MS, Soil, 5030B Aqueous Purge & Trap

Surrogate #1 = 9080645 (Static)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908176	8260B DoD VOAs plus custom [High]	0908257	8260B DoD VOAs plus custom [High]		

Lab Number	*Contain*	*Prepared*	*By*	*Initial (g)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909853-BLK1		Aug-20-09 08:00	JDM	5	250	1				BLANK	
0909853-BS1		Aug-20-09 08:00	JDM	5	250	1		9080678	100	LCS	
0908176-06	E	Aug-20-09 08:00	JDM	4.2	210	1				URS Corporation	
0908257-04	E	Aug-20-09 08:00	JDM	3.2	160	1				URS Corporation	
0908257-10	E	Aug-20-09 08:00	JDM	4.5	225	1				URS Corporation	
0908257-14	E	Aug-20-09 08:00	JDM	5.5	275	1				URS Corporation	

Comments:

Analyst Initials:

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909853-BLK1
File ID: BLK0820A.D
Prepared: 08/20/09 08:00
Preparation: 5030B Aqueous Purge &
Initial/Final: 5 g / 250 mL
Analyzed: 08/20/09 17:34
Instrument: 323
QC Batch: 0909853
Sequence: 9H21019
Calibration: 9H21009

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	14	50	50	ug/kg wet	U
79-20-9	Methyl Acetate	14	250	250	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	6.9	50	50	ug/kg wet	U
108-87-2	Methylcyclohexane	8.8	250	250	ug/kg wet	U
75-09-2	Methylene Chloride	10	250	24	ug/kg wet	J
78-93-3	2-Butanone (MEK)	25	2500	2500	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	24	2500	2500	ug/kg wet	U
100-42-5	Styrene	9.4	50	50	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	14	50	50	ug/kg wet	U
127-18-4	Tetrachloroethene	19	50	50	ug/kg wet	U
108-88-3	Toluene	15	50	50	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	10	100	100	ug/kg wet	U
120-82-1	1,2,4-Trichlorobenzene	18	100	100	ug/kg wet	U
71-55-6	1,1,1-Trichloroethane	16	50	50	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	25	50	50	ug/kg wet	U
79-01-6	Trichloroethene	18	50	50	ug/kg wet	U
75-69-4	Trichlorofluoromethane	16	50	50	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	8.3	250	250	ug/kg wet	U
75-01-4	Vinyl Chloride	12	50	50	ug/kg wet	U
1330-20-7	Xylene (Total)	43	150	150	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	39.2	98	78 - 121	
1,2-Dichloroethane-d4	40.0	40.8	102	66 - 124	
Toluene-d8	40.0	38.8	97	85 - 115	
4-Bromofluorobenzene	40.0	38.7	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	690677	4.28	740105	4.28	
Chlorobenzene-d5	527544	7.27	539083	7.27	
1,4-Dichlorobenzene-d4	257379	9.55	287402	9.55	

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17012
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H12016

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
60SE1 (0908176-06)	**Lab File ID: 0908176-06.D Analyzed: 08/13/09 14:10**						
Dibromofluoromethane	3.61	3.60	0.01	+/-1.0	106	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	98	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	104	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	76	85 - 120	*
60SE2 (0908176-07)	**Lab File ID: 0908176-07.D Analyzed: 08/13/09 14:42**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	100	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	103	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	97	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	91	85 - 120	
60SS5 (0908176-05)	**Lab File ID: 0908176-05A.D Analyzed: 08/13/09 15:46**						
Dibromofluoromethane	3.61	3.60	0.01	+/-1.0	99	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	101	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	95	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	87	85 - 120	
DUP-1 (0908176-08)	**Lab File ID: 0908176-08A.D Analyzed: 08/13/09 16:51**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	90	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	100	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	94	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	88	85 - 120	

INTERNAL STANDARD AREA AND RT SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H17012
Instrument: 323
Matrix: Soil
Calibration: 9H12016

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (9H17012-CCV1)			**Lab File ID: CCV0813.D**			**Analyzed: 08/13/09 09:51**			
Fluorobenzene	1041076	4.28	947725	4.28	110	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	715321	7.27	667870	7.27	107	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	407224	9.55	350029	9.55	116	50 - 200	0.0000	+/-0.50	
LCS (0909550-BS1)			**Lab File ID: BS0813.D**			**Analyzed: 08/13/09 10:23**			
Fluorobenzene	955361	4.28	947725	4.28	101	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	677464	7.27	667870	7.27	101	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	384827	9.56	350029	9.55	110	50 - 200	0.0100	+/-0.50	
Blank (0909550-BLK1)			**Lab File ID: BLK0813.D**			**Analyzed: 08/13/09 10:55**			
Fluorobenzene	853958	4.27	947725	4.28	90	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	573762	7.27	667870	7.27	86	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	219806	9.55	350029	9.55	63	50 - 200	0.0000	+/-0.50	
60SS1 (0908176-01)			**Lab File ID: 0908176-01.D**			**Analyzed: 08/13/09 11:27**			
Fluorobenzene	892063	4.27	947725	4.28	94	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	541237	7.27	667870	7.27	81	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	228956	9.55	350029	9.55	65	50 - 200	0.0000	+/-0.50	
60SS2 (0908176-02)			**Lab File ID: 0908176-02.D**			**Analyzed: 08/13/09 12:00**			
Fluorobenzene	897245	4.28	947725	4.28	95	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	583556	7.27	667870	7.27	87	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	268037	9.55	350029	9.55	77	50 - 200	0.0000	+/-0.50	
60SS3 (0908176-03)			**Lab File ID: 0908176-03.D**			**Analyzed: 08/13/09 12:32**			
Fluorobenzene	827234	4.28	947725	4.28	87	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	487521	7.27	667870	7.27	73	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	195613	9.55	350029	9.55	56	50 - 200	0.0000	+/-0.50	
60SS4 (0908176-04)			**Lab File ID: 0908176-04.D**			**Analyzed: 08/13/09 13:05**			
Fluorobenzene	842743	4.28	947725	4.28	89	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	521180	7.27	667870	7.27	78	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	223290	9.55	350029	9.55	64	50 - 200	0.0000	+/-0.50	
60SE1 (0908176-06)			**Lab File ID: 0908176-06.D**			**Analyzed: 08/13/09 14:10**			
Fluorobenzene	720546	4.27	947725	4.28	76	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	461950	7.27	667870	7.27	69	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	130116	9.56	350029	9.55	37	50 - 200	0.0100	+/-0.50	*
60SE2 (0908176-07)			**Lab File ID: 0908176-07.D**			**Analyzed: 08/13/09 14:42**			
Fluorobenzene	869742	4.28	947725	4.28	92	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	559341	7.27	667870	7.27	84	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	228341	9.55	350029	9.55	65	50 - 200	0.0000	+/-0.50	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 4 g / 5 mL

Laboratory ID: 0909550-MS1

QC Batch: 0909550

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acetone	62.5	ND	64.2	103	20 - 160	ug/kg dry
Benzene	62.5	ND	63.6	102	75 - 125	ug/kg dry
Bromochloromethane	62.5	ND	61.2	98	70 - 125	ug/kg dry
Bromodichloromethane	62.5	ND	60.9	97	70 - 130	ug/kg dry
Bromoform	62.5	ND	51.1	82	55 - 135	ug/kg dry
Bromomethane	62.5	ND	57.0	91	30 - 160	ug/kg dry
Carbon Disulfide	62.5	ND	54.1	87	45 - 160	ug/kg dry
Carbon Tetrachloride	62.5	ND	57.4	92	65 - 135	ug/kg dry
Chlorobenzene	62.5	ND	61.9	99	75 - 125	ug/kg dry
Chloroethane	62.5	ND	61.5	98	40 - 155	ug/kg dry
Chloroform	62.5	ND	61.3	98	70 - 125	ug/kg dry
Chloromethane	62.5	ND	58.9	94	50 - 130	ug/kg dry
Cyclohexane	62.5	ND	59.4	95	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	62.5	ND	53.3	85	40 - 135	ug/kg dry
Dibromochloromethane	62.5	ND	53.9	86	65 - 130	ug/kg dry
1,2-Dibromoethane	62.5	ND	65.9	105	70 - 125	ug/kg dry
1,2-Dichlorobenzene	62.5	ND	62.7	100	75 - 120	ug/kg dry
1,3-Dichlorobenzene	62.5	ND	61.4	98	70 - 125	ug/kg dry
1,4-Dichlorobenzene	62.5	ND	61.1	98	70 - 125	ug/kg dry
Dichlorodifluoromethane	62.5	ND	59.9	96	35 - 135	ug/kg dry
1,1-Dichloroethane	62.5	ND	61.3	98	75 - 125	ug/kg dry
1,2-Dichloroethane	62.5	ND	63.4	101	70 - 135	ug/kg dry
1,1-Dichloroethene	62.5	ND	64.4	103	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	62.5	ND	62.4	100	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	62.5	ND	62.7	100	65 - 135	ug/kg dry
1,2-Dichloropropane	62.5	ND	60.5	97	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	62.5	ND	52.0	83	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	62.5	ND	49.0	78	65 - 125	ug/kg dry
Ethylbenzene	62.5	ND	64.0	102	75 - 125	ug/kg dry
2-Hexanone	62.5	ND	58.9	94	45 - 145	ug/kg dry
Isopropylbenzene	62.5	ND	66.8	107	75 - 130	ug/kg dry
Methyl Acetate	62.5	ND	62.5	100	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	62.5	ND	58.6	94	63 - 127	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 4 g / 5 mL

Laboratory ID: 0909550-MS1

QC Batch: 0909550

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Methylcyclohexane	62.5	ND	54.1	87	70 - 130	ug/kg dry
Methylene Chloride	62.5	ND	60.8	97	55 - 140	ug/kg dry
2-Butanone (MEK)	62.5	ND	54.6	87	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	62.5	ND	57.3	92	45 - 145	ug/kg dry
Styrene	62.5	ND	63.6	102	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	62.5	ND	68.2	109	55 - 130	ug/kg dry
Tetrachloroethene	62.5	ND	60.6	97	65 - 140	ug/kg dry
Toluene	62.5	ND	59.1	95	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	62.5	ND	33.3	53 *	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	62.5	ND	32.3	52 *	65 - 130	ug/kg dry
1,1,1-Trichloroethane	62.5	ND	63.3	101	70 - 135	ug/kg dry
1,1,2-Trichloroethane	62.5	ND	61.6	98	60 - 125	ug/kg dry
Trichloroethene	62.5	ND	60.4	97	75 - 125	ug/kg dry
Trichlorofluoromethane	62.5	ND	63.6	102	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	62.5	ND	62.2	99	80 - 120	ug/kg dry
Vinyl Chloride	62.5	ND	62.5	100	60 - 125	ug/kg dry
Xylene (Total)	188	ND	195	104	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

77SB1A

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Preparation: 5035 Soil Purge & Trap - MS
Initial/Final: 4 g / 5 mL
Laboratory ID: 0909550-MSD1
QC Batch: 0909550

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acetone	62.5	63.9	102	0.5	30	20 - 160	ug/kg dry
Benzene	62.5	57.4	92	10	30	75 - 125	ug/kg dry
Bromochloromethane	62.5	55.9	89	9	30	70 - 125	ug/kg dry
Bromodichloromethane	62.5	57.4	92	6	30	70 - 130	ug/kg dry
Bromoform	62.5	50.6	81	0.9	30	55 - 135	ug/kg dry
Bromomethane	62.5	53.4	85	7	30	30 - 160	ug/kg dry
Carbon Disulfide	62.5	51.5	82	5	30	45 - 160	ug/kg dry
Carbon Tetrachloride	62.5	53.5	86	7	30	65 - 135	ug/kg dry
Chlorobenzene	62.5	56.1	90	10	30	75 - 125	ug/kg dry
Chloroethane	62.5	56.3	90	9	30	40 - 155	ug/kg dry
Chloroform	62.5	56.0	90	9	30	70 - 125	ug/kg dry
Chloromethane	62.5	53.2	85	10	30	50 - 130	ug/kg dry
Cyclohexane	62.5	54.0	86	9	30	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	62.5	59.1	95	10	30	40 - 135	ug/kg dry
Dibromochloromethane	62.5	51.1	82	5	30	65 - 130	ug/kg dry
1,2-Dibromoethane	62.5	60.8	97	8	30	70 - 125	ug/kg dry
1,2-Dichlorobenzene	62.5	58.4	94	7	30	75 - 120	ug/kg dry
1,3-Dichlorobenzene	62.5	54.9	88	11	30	70 - 125	ug/kg dry
1,4-Dichlorobenzene	62.5	56.8	91	7	30	70 - 125	ug/kg dry
Dichlorodifluoromethane	62.5	53.7	86	11	30	35 - 135	ug/kg dry
1,1-Dichloroethane	62.5	55.4	89	10	30	75 - 125	ug/kg dry
1,2-Dichloroethane	62.5	58.5	94	8	30	70 - 135	ug/kg dry
1,1-Dichloroethene	62.5	57.7	92	11	30	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	62.5	57.5	92	8	30	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	62.5	57.0	91	10	30	65 - 135	ug/kg dry
1,2-Dichloropropane	62.5	55.8	89	8	30	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	62.5	50.9	81	2	30	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	62.5	48.3	77	1	30	65 - 125	ug/kg dry
Ethylbenzene	62.5	57.5	92	11	30	75 - 125	ug/kg dry
2-Hexanone	62.5	58.2	93	1	30	45 - 145	ug/kg dry
Isopropylbenzene	62.5	61.0	98	9	30	75 - 130	ug/kg dry
Methyl Acetate	62.5	57.2	92	9	30	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	62.5	56.0	90	4	30	63 - 127	ug/kg dry
Methylcyclohexane	62.5	51.6	82	5	30	70 - 130	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 4 g / 5 mL

Laboratory ID: 0909550-MSD1

QC Batch: 0909550

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Methylene Chloride	62.5	53.0	85	14	30	55 - 140	ug/kg dry
2-Butanone (MEK)	62.5	57.2	92	5	30	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	62.5	58.0	93	1	30	45 - 145	ug/kg dry
Styrene	62.5	58.6	94	8	30	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	62.5	65.1	104	5	30	55 - 130	ug/kg dry
Tetrachloroethene	62.5	56.0	90	8	30	65 - 140	ug/kg dry
Toluene	62.5	56.6	91	4	30	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	62.5	47.3	76	35 *	30	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	62.5	44.3	71	31 *	30	65 - 130	ug/kg dry
1,1,1-Trichloroethane	62.5	57.4	92	10	30	70 - 135	ug/kg dry
1,1,2-Trichloroethane	62.5	60.2	96	2	30	60 - 125	ug/kg dry
Trichloroethene	62.5	56.1	90	7	30	75 - 125	ug/kg dry
Trichlorofluoromethane	62.5	56.7	91	12	30	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	62.5	55.9	89	11	30	80 - 120	ug/kg dry
Vinyl Chloride	62.5	55.5	89	12	30	60 - 125	ug/kg dry
Xylene (Total)	188	175	93	11	30	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Semivolatile Organic Analysis

Reviewer:	Andrea Sansom	**Project Name:**	Radford SSP
Date:	October 14, 2009	**Project Number:**	11657490.40000
DV Level:	II III IV	**Laboratory:**	TriMatrix
Review Document:		**SDG No.:**	SSP0809
_X_ NFG - Region III Modifications		**Test Name:**	SVOC
_X_ Project QAPP/SAP		**Method No.:**	8270C

1.0 Laboratory Deliverables		**Yes**	**No**	**NA**
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{o}C), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		**Yes**	**No**	**NA**
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common phthalate contaminants) the amount in the associated blank.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.	X		
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the Dv report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD ≤ 15%, ICV %D < 30%, and CCV %D ≤ 20%.		X	
	For initial Calibration: for %RSD > ± 15%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < 0.05? (n-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-dinitrophenol, & 4-nitrophenol) If yes, J(+)/R(-).		X	

Notes: ICAL 9H18007

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for decafluorotriphenylphosphine (DFTPP)?	X		
5.2	Are DFTPP enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
	If DFTPP was analyzed simultaneously with any calibration standard or blank, the instrument performance check (IPC) is rejected "R" as well as all associated data.			
5.3	Have all samples been analyzed within twelve hours of the DFTPP tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for DFTPP been met for each instrument used?	X		
	If the DFTPP criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
6.2	Are surrogate recoveries within acceptance criteria not to exceed 10-150% for all samples and method blanks?	X		
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?			X
	If any two base/neutral or acid fraction are out of specification, or if any one base/neutral or acid extractable surrogate has a recovery of less than 10%, then there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? (recoveries may be diluted out.)			X
	1 or more <10% / 2 or 3 high/low / 2 or 3 all low / 2 or 3 all high Positives: L / J / L / K Non-detects: R / UJ / UL / NONE			
	Note: The B qualifier remains over surrogate flagging.			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?			
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?			
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 10-150%?			
7.4	Are there any RPDs outside the QC limits not to exceed 60%?			
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 10-150%?	X		
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?	X		
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).		X	
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".			X

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 20			
	Number of target compounds in each analysis: 67			
	Number of results rejected and not reported: 17			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 98.7%			

Notes:

SAMPLE ID SUMMARY

USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS1	0908176-01RE1
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE1	0908176-06RE1
60SE2	0908176-07
60SE2	0908176-07RE1
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1A	0908185-03RE1
77SB1B	0908185-04
77SB3A	0908185-05
77SB3A	0908185-05RE1
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09
EQBK-1	0908185-10

QC BATCH SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

QC Batch: 0909484 QC Batch Matrix: Water

Preparation: 3510C Liquid-Liquid Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
EQBK-1	0908185-10	08/14/09 08:51	
Blank	0909484-BLK1	08/14/09 08:51	
Blank	0909484-BLK2	08/17/09 08:51	
Blank	0909484-BLK3	08/17/09 08:51	aecom
LCS	0909484-BS1	08/14/09 08:51	
LCS	0909484-BS2	08/17/09 08:51	
LCS	0909484-BS3	08/17/09 08:51	aecom
LCS Dup	0909484-BSD1	08/14/09 08:51	

Semivolatiles MS, Water, 3510C Liquid-Liquid Extraction

Surrogate #1 = 9041027 (Pre-Prep)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908140	8270C TCLL OLM4.3 SVOCs plus custom	0908185	8270C DoD Standard SVOCs plus custom	0908228	8270C DoD Standard SVOCs plus custom

Lab Number	*Contain*	*Prepared*	*By*	*Initial (mL)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909484-BLK1		Aug-14-09 08:51	DCG	1000	1	100				BLANK	
0909484-BS1		Aug-14-09 08:51	DCG	1000	1	100		9080451	100	LCS	
0909484-BSD1		Aug-14-09 08:51	DCG	1000	1	100		9080451	100	LCS DUP	
0908140-01	I	Aug-14-09 08:51	DCG	970	1	100				CH2M HILL/Milwaukee	Note Special RLs
0908185-10	I	Aug-14-09 08:51	DCG	990	1	100				URS Corporation	
0908228-17	F	Aug-14-09 08:51	DCG	990	1	100				URS Corporation	

Comments:	Analyst Initials:

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0909484-BLK1 File ID: 0909484-blk1.D

Prepared: 08/14/09 08:51 Preparation: 3510C Liquid-Liquid Ext Initial/Final: 1000 mL / 1 mL

Analyzed: 08/18/09 00:45 Instrument: 308

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
84-66-2	Diethyl Phthalate	0.043	5.0	0.050	ug/L	J
105-67-9	2,4-Dimethylphenol	0.24	5.0	5.0	ug/L	U
131-11-3	Dimethyl Phthalate	0.045	5.0	5.0	ug/L	U
534-52-1	4,6-Dinitro-2-methylphenol	0.17	5.0	5.0	ug/L	U
51-28-5	2,4-Dinitrophenol	2.2	10	10	ug/L	U
121-14-2	2,4-Dinitrotoluene	0.096	5.0	5.0	ug/L	U
606-20-2	2,6-Dinitrotoluene	0.13	5.0	5.0	ug/L	U
117-84-0	Di-n-octyl Phthalate	0.064	5.0	5.0	ug/L	U
117-81-7	Bis(2-ethylhexyl) Phthalate	0.24	5.0	5.0	ug/L	U
206-44-0	Fluoranthene	0.030	0.50	0.50	ug/L	U
86-73-7	Fluorene	0.031	0.50	0.50	ug/L	U
118-74-1	Hexachlorobenzene	0.062	5.0	5.0	ug/L	U
87-68-3	Hexachlorobutadiene	0.057	5.0	5.0	ug/L	U
77-47-4	Hexachlorocyclopentadiene	0.057	5.0	5.0	ug/L	U
67-72-1	Hexachloroethane	0.035	5.0	5.0	ug/L	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.038	0.50	0.50	ug/L	U
78-59-1	Isophorone	0.056	5.0	5.0	ug/L	U
91-57-6	2-Methylnaphthalene	0.024	5.0	5.0	ug/L	U
95-48-7	2-Methylphenol	0.044	5.0	5.0	ug/L	U
106-44-5	4-Methylphenol	0.18	5.0	5.0	ug/L	U
91-20-3	Naphthalene	0.024	0.50	0.50	ug/L	U
88-74-4	2-Nitroaniline	0.16	5.0	5.0	ug/L	U
99-09-2	3-Nitroaniline	0.050	5.0	5.0	ug/L	U
100-01-6	4-Nitroaniline	0.070	5.0	5.0	ug/L	U
98-95-3	Nitrobenzene	0.076	5.0	5.0	ug/L	U
100-02-7	4-Nitrophenol	0.19	5.0	5.0	ug/L	U
88-75-5	2-Nitrophenol	0.071	5.0	5.0	ug/L	U
86-30-6	N-Nitroso-diphenylamine	0.042	5.0	5.0	ug/L	U
621-64-7	N-Nitroso-di-n-propylamine	0.044	5.0	5.0	ug/L	U
87-86-5	Pentachlorophenol	0.11	5.0	5.0	ug/L	U

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0909484-BLK1 File ID: 0909484-blk1.D

Prepared: 08/14/09 08:51 Preparation: 3510C Liquid-Liquid Extr Initial/Final: 1000 mL / 1 mL

Analyzed: 08/18/09 00:45 Instrument: 308

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
83-32-9	Acenaphthene	0.030	0.50	0.50	ug/L	U
208-96-8	Acenaphthylene	0.020	0.50	0.50	ug/L	U
98-86-2	Acetophenone	0.068	5.0	5.0	ug/L	U
120-12-7	Anthracene	0.036	0.50	0.50	ug/L	U
1912-24-9	Atrazine	0.051	5.0	5.0	ug/L	U
100-52-7	Benzaldehyde	0.22	5.0	5.0	ug/L	U
56-55-3	Benzo(a)anthracene	0.022	0.50	0.50	ug/L	U
50-32-8	Benzo(a)pyrene	0.042	0.50	0.50	ug/L	U
205-99-2	Benzo(b)fluoranthene	0.11	0.50	0.50	ug/L	U
207-08-9	Benzo(k)fluoranthene	0.12	0.50	0.50	ug/L	U
191-24-2	Benzo(g,h,i)perylene	0.098	0.50	0.50	ug/L	U
92-52-4	1,1'-Biphenyl	0.10	5.0	5.0	ug/L	U
101-55-3	4-Bromophenyl Phenyl Ether	0.036	5.0	5.0	ug/L	U
85-68-7	Butyl Benzyl Phthalate	0.058	5.0	0.090	ug/L	J
105-60-2	Caprolactam	0.21	5.0	5.0	ug/L	U
86-74-8	Carbazole	0.047	5.0	5.0	ug/L	U
59-50-7	4-Chloro-3-methylphenol	0.031	5.0	5.0	ug/L	U
106-47-8	4-Chloroaniline	0.15	5.0	5.0	ug/L	U
111-91-1	Bis(2-chloroethoxy)methane	0.035	5.0	5.0	ug/L	U
111-44-4	Bis(2-chloroethyl) Ether	0.035	5.0	5.0	ug/L	U
108-60-1	Bis(2-chloroisopropyl) Ether	0.059	5.0	5.0	ug/L	U
91-58-7	2-Chloronaphthalene	0.029	5.0	5.0	ug/L	U
95-57-8	2-Chlorophenol	0.080	5.0	5.0	ug/L	U
7005-72-3	4-Chlorophenyl Phenyl Ether	0.031	5.0	5.0	ug/L	U
218-01-9	Chrysene	0.036	0.50	0.50	ug/L	U
53-70-3	Dibenz(a,h)anthracene	0.070	0.50	0.50	ug/L	U
132-64-9	Dibenzofuran	0.039	5.0	5.0	ug/L	U
84-74-2	Di-n-butyl Phthalate	0.27	5.0	0.35	ug/L	J
91-94-1	3,3'-Dichlorobenzidine	0.64	5.0	5.0	ug/L	U
120-83-2	2,4-Dichlorophenol	0.056	5.0	5.0	ug/L	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BS1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	10.0	10.3	103	45 - 110	ug/L
Acenaphthylene	10.0	10.3	103	50 - 105	ug/L
Acetophenone	10.0	8.71	87	54 - 113	ug/L
Anthracene	10.0	10.4	104	55 - 110	ug/L
Atrazine	10.0	9.14	91	61 - 139	ug/L
Benzaldehyde	10.0	6.32	63	25 - 141	ug/L
Benzo(a)anthracene	10.0	10.8	108	55 - 110	ug/L
Benzo(a)pyrene	10.0	11.0	110	55 - 110	ug/L
Benzo(b)fluoranthene	10.0	10.8	108	45 - 120	ug/L
Benzo(k)fluoranthene	10.0	11.6	116	45 - 125	ug/L
Benzo(g,h,i)perylene	10.0	11.1	111	40 - 125	ug/L
1,1'-Biphenyl	10.0	8.44	84	59 - 114	ug/L
4-Bromophenyl Phenyl Ether	9.80	10.0	103	50 - 115	ug/L
Butyl Benzyl Phthalate	9.80	11.1	113	45 - 115	ug/L
Caprolactam	10.0	2.22	22 *	25 - 135	ug/L
Carbazole	10.0	13.7	137 *	50 - 115	ug/L
4-Chloro-3-methylphenol	10.0	10.7	107	45 - 110	ug/L
4-Chloroaniline	9.80	8.57	87	15 - 110	ug/L
Bis(2-chloroethoxy)methane	9.80	9.47	97	45 - 105	ug/L
Bis(2-chloroethyl) Ether	9.80	9.31	95	35 - 110	ug/L
Bis(2-chloroisopropyl) Ether	9.80	9.70	99	25 - 130	ug/L
2-Chloronaphthalene	9.60	9.65	101	50 - 105	ug/L
2-Chlorophenol	10.0	9.78	98	35 - 105	ug/L
4-Chlorophenyl Phenyl Ether	9.80	10.1	103	50 - 110	ug/L
Chrysene	10.0	10.6	106	55 - 110	ug/L
Dibenz(a,h)anthracene	10.0	11.0	110	40 - 125	ug/L
Dibenzofuran	9.80	10.4	107 *	55 - 105	ug/L
Di-n-butyl Phthalate	9.80	10.9	111	55 - 115	ug/L
3,3'-Dichlorobenzidine	20.0	16.5	83	20 - 110	ug/L
2,4-Dichlorophenol	10.0	10.6	106 *	50 - 105	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BS1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Diethyl Phthalate	9.80	11.0	112	40 - 120	ug/L
2,4-Dimethylphenol	10.0	7.57	76	30 - 110	ug/L
Dimethyl Phthalate	9.80	10.3	105	25 - 125	ug/L
4,6-Dinitro-2-methylphenol	10.0	10.7	107	40 - 130	ug/L
2,4-Dinitrophenol	10.0	9.14	91	15 - 140	ug/L
2,4-Dinitrotoluene	9.60	10.9	114	50 - 120	ug/L
2,6-Dinitrotoluene	9.60	10.0	105	50 - 115	ug/L
Di-n-octyl Phthalate	9.80	11.4	117	35 - 135	ug/L
Bis(2-ethylhexyl) Phthalate	9.80	10.9	111	40 - 125	ug/L
Fluoranthene	10.0	10.6	106	55 - 115	ug/L
Fluorene	10.0	10.2	102	50 - 110	ug/L
Hexachlorobenzene	9.60	9.92	103	50 - 110	ug/L
Hexachlorobutadiene	9.60	9.83	102	25 - 105	ug/L
Hexachlorocyclopentadiene	9.60	9.46	99	30 - 141	ug/L
Hexachloroethane	9.60	9.78	102 *	30 - 95	ug/L
Indeno(1,2,3-cd)pyrene	10.0	11.0	110	45 - 125	ug/L
Isophorone	9.60	9.23	96	50 - 110	ug/L
2-Methylnaphthalene	9.80	11.2	114 *	45 - 105	ug/L
2-Methylphenol	10.0	9.21	92	40 - 110	ug/L
4-Methylphenol	10.0	9.74	97	30 - 110	ug/L
Naphthalene	10.0	10.2	102 *	40 - 100	ug/L
2-Nitroaniline	9.80	11.2	114	50 - 115	ug/L
3-Nitroaniline	9.80	8.90	91	20 - 125	ug/L
4-Nitroaniline	9.80	9.62	98	35 - 120	ug/L
Nitrobenzene	9.60	10.0	104	45 - 110	ug/L
4-Nitrophenol	10.0	4.14	41	0 - 125	ug/L
2-Nitrophenol	10.0	10.8	108	40 - 115	ug/L
N-Nitroso-diphenylamine	9.80	8.48	87	50 - 110	ug/L
N-Nitroso-di-n-propylamine	9.80	10.3	105	35 - 130	ug/L
Pentachlorophenol	10.0	11.7	117 *	40 - 115	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BSD1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added ug/L	LCSD Conc.	LCSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acenaphthene	10.0	10.0	100	3	30	45 - 110	ug/L
Acenaphthylene	10.0	10.1	101	1	30	50 - 105	ug/L
Acetophenone	10.0	8.63	86	0.9	30	54 - 113	ug/L
Anthracene	10.0	10.4	104	0.6	30	55 - 110	ug/L
Atrazine	10.0	9.14	91	0	30	61 - 139	ug/L
Benzaldehyde	10.0	7.23	72	13	30	25 - 141	ug/L
Benzo(a)anthracene	10.0	10.7	107	2	30	55 - 110	ug/L
Benzo(a)pyrene	10.0	11.1	111 *	0.7	30	55 - 110	ug/L
Benzo(b)fluoranthene	10.0	11.1	111	2	30	45 - 120	ug/L
Benzo(k)fluoranthene	10.0	11.1	111	5	30	45 - 125	ug/L
Benzo(g,h,i)perylene	10.0	10.8	108	3	30	40 - 125	ug/L
1,1'-Biphenyl	10.0	8.33	83	1	30	59 - 114	ug/L
4-Bromophenyl Phenyl Ether	9.80	10.0	102	0.1	30	50 - 115	ug/L
Butyl Benzyl Phthalate	9.80	11.2	114	0.4	30	45 - 115	ug/L
Caprolactam	10.0	1.49	15 *	39 *	30	25 - 135	ug/L
Carbazole	10.0	13.5	135 *	2	30	50 - 115	ug/L
4-Chloro-3-methylphenol	10.0	10.1	101	6	30	45 - 110	ug/L
4-Chloroaniline	9.80	7.99	82	7	30	15 - 110	ug/L
Bis(2-chloroethoxy)methane	9.80	8.92	91	6	30	45 - 105	ug/L
Bis(2-chloroethyl) Ether	9.80	8.90	91	5	30	35 - 110	ug/L
Bis(2-chloroisopropyl) Ether	9.80	9.10	93	6	30	25 - 130	ug/L
2-Chloronaphthalene	9.60	9.38	98	3	30	50 - 105	ug/L
2-Chlorophenol	10.0	9.43	94	4	30	35 - 105	ug/L
4-Chlorophenyl Phenyl Ether	9.80	9.87	101	3	30	50 - 110	ug/L
Chrysene	10.0	10.7	107	1	30	55 - 110	ug/L
Dibenz(a,h)anthracene	10.0	10.9	109	1	30	40 - 125	ug/L
Dibenzofuran	9.80	10.2	104	3	30	55 - 105	ug/L
Di-n-butyl Phthalate	9.80	10.7	109	2	30	55 - 115	ug/L
3,3'-Dichlorobenzidine	20.0	16.5	82	0.2	30	20 - 110	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BSD1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added ug/L	LCSD Conc.	LCSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
2,4-Dichlorophenol	10.0	9.95	100	6	30	50 - 105	ug/L
Diethyl Phthalate	9.80	10.6	109	3	30	40 - 120	ug/L
2,4-Dimethylphenol	10.0	7.66	77	1	30	30 - 110	ug/L
Dimethyl Phthalate	9.80	10.1	103	2	30	25 - 125	ug/L
4,6-Dinitro-2-methylphenol	10.0	10.0	100	6	30	40 - 130	ug/L
2,4-Dinitrophenol	10.0	8.35	84	9	30	15 - 140	ug/L
2,4-Dinitrotoluene	9.60	10.7	111	2	30	50 - 120	ug/L
2,6-Dinitrotoluene	9.60	10.1	105	0.1	30	50 - 115	ug/L
Di-n-octyl Phthalate	9.80	11.0	113	4	30	35 - 135	ug/L
Bis(2-ethylhexyl) Phthalate	9.80	11.0	112	1	30	40 - 125	ug/L
Fluoranthene	10.0	10.4	104	2	30	55 - 115	ug/L
Fluorene	10.0	10.1	101	0.9	30	50 - 110	ug/L
Hexachlorobenzene	9.60	9.96	104	0.4	30	50 - 110	ug/L
Hexachlorobutadiene	9.60	8.81	92	11	30	25 - 105	ug/L
Hexachlorocyclopentadiene	9.60	8.85	92	7	30	30 - 141	ug/L
Hexachloroethane	9.60	8.74	91	11	30	30 - 95	ug/L
Indeno(1,2,3-cd)pyrene	10.0	10.8	108	2	30	45 - 125	ug/L
Isophorone	9.60	8.77	91	5	30	50 - 110	ug/L
2-Methylnaphthalene	9.80	10.3	105	8	30	45 - 105	ug/L
2-Methylphenol	10.0	9.02	90	2	30	40 - 110	ug/L
4-Methylphenol	10.0	9.47	95	3	30	30 - 110	ug/L
Naphthalene	10.0	9.30	93	9	30	40 - 100	ug/L
2-Nitroaniline	9.80	11.2	114	0.4	30	50 - 115	ug/L
3-Nitroaniline	9.80	8.61	88	3	30	20 - 125	ug/L
4-Nitroaniline	9.80	9.45	96	2	30	35 - 120	ug/L
Nitrobenzene	9.60	9.35	97	7	30	45 - 110	ug/L
4-Nitrophenol	10.0	3.66	37	12	30	0 - 125	ug/L
2-Nitrophenol	10.0	10.2	102	6	30	40 - 115	ug/L
N-Nitroso-diphenylamine	9.80	8.49	87	0.1	30	50 - 110	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BSD1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added ug/L	LCSD Conc.	LCSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
N-Nitroso-di-n-propylamine	9.80	9.80	100	5	30	35 - 130	ug/L
Pentachlorophenol	10.0	11.5	115	2	30	40 - 115	ug/L
Phenanthrene	10.0	10.2	102	2	30	50 - 115	ug/L
Phenol	10.0	4.88	49	4	30	0 - 115	ug/L
Pyrene	10.0	11.0	110	5	30	50 - 130	ug/L
1,2,4,5-Tetrachlorobenzene	5.00	4.75	95	3	30	40 - 140	ug/L
2,3,4,6-Tetrachlorophenol	10.0	10.3	103	4	30	40 - 115	ug/L
2,4,6-Trichlorophenol	10.0	10.1	101	1	30	50 - 115	ug/L
2,4,5-Trichlorophenol	10.0	10.4	104	4	30	50 - 110	ug/L

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

QC BATCH SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0909647
QC Batch Matrix: Soil
Preparation: 3550B Sonication Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
60SS1	0908176-01	08/18/09 07:41	
60SS1	0908176-01RE1	08/18/09 07:41	Added 8/21/2009 by JLB
60SS2	0908176-02	08/18/09 07:41	
60SS3	0908176-03	08/18/09 07:41	
60SS4	0908176-04	08/18/09 07:41	
60SS5	0908176-05	08/18/09 07:41	
60SE1	0908176-06	08/18/09 07:41	
60SE1	0908176-06RE1	08/18/09 07:41	Added 8/21/2009 by JLB
60SE2	0908176-07	08/18/09 07:41	
60SE2	0908176-07RE1	08/18/09 07:41	Added 8/21/2009 by JLB
DUP-1	0908176-08	08/18/09 07:41	
60TP1	0908185-02	08/18/09 07:41	
77SB1A	0908185-03	08/18/09 07:41	
77SB1A	0908185-03RE1	08/18/09 07:41	Added 8/21/2009 by JLB
77SB1B	0908185-04	08/18/09 07:41	
77SB3A	0908185-05	08/18/09 07:41	
77SB3A	0908185-05RE1	08/18/09 07:41	Added 8/21/2009 by JLB
77SB3B	0908185-06	08/18/09 07:41	
77SB2A	0908185-07	08/18/09 07:41	
77SB2B	0908185-08	08/18/09 07:41	
77SB4B	0908185-09	08/18/09 07:41	
Blank	0909647-BLK1	08/18/09 07:41	
LCS	0909647-BS1	08/18/09 07:41	

Semivolatiles MS, Soil, 3550B Sonication Extraction

Surrogate #1 = 9041027 (Pre-Prep)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908176	8270C DoD Standard SVOCs plus custom	0908185	8270C DoD Standard SVOCs plus custom	0908228	8270C DoD Standard SVOCs plus custom

Lab Number	*Contain*	*Prepared*	*By*	*Initial (g)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909647-BLK1		Aug-18-09 07:41	BJH	30	1	100				BLANK	
0909647-BS1		Aug-18-09 07:41	BJH	30	1	100		9080451	100	LCS	
0909647-MS1		Aug-18-09 07:41	BJH	30	1	100	0908185-03	9080451	100	MATRIX SPIKE	
0909647-MSD1		Aug-18-09 07:41	BJH	30	1	100	0908185-03	9080451	100	MATRIX SPIKE DUP	
0908176-01	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908176-02	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908176-03	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908176-04	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908176-05	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908176-06	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908176-07	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908176-08	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-02	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-03	B	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-04	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-05	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-06	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-07	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-08	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908185-09	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908228-02	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908228-03	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908228-04	B	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	
0908228-06	A	Aug-18-09 07:41	BJH	30	1	100				URS Corporation	

Comments:

Analyst Initials:

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H24008

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 308
Calibration: 9H18007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	9H24008-TUN1	dft0821e.D	08/21/09 14:17
Calibration Check	9H24008-CCV1	10c0821a.D	08/21/09 14:38
Calibration Check	9H24008-CCV2	10ab0821a.D	08/21/09 15:48
77SB3B	0908185-06	0908185-06.D	08/21/09 18:04
77SB2A	0908185-07	0908185-07.D	08/21/09 18:39
77SB2B	0908185-08	0908185-08.D	08/21/09 19:13
77SB4B	0908185-09	0908185-09.D	08/21/09 19:48
60SE2	0908176-07RE1	0908176-07 5x.D	08/21/09 21:32

CONTINUING CALIBRATION CHECK
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 308
Lab File ID: 10c0821a.D
Sequence: 9H24008
Lab Sample ID: 9H24008-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H18007
Calibration Date: 08/14/09 08:42
Injection Date: 08/21/09
Injection Time: 14:38

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Dimethyl Phthalate	A	10.0	9.25	1.187342	1.098197		-7.5	25
4,6-Dinitro-2-methylphenol	Q	10.0	8.40	0.119859	0.1214038		-16.0	25
2,4-Dinitrophenol	Q	20.0	15.9	0.1398139	0.1286686	0.05	-20.4	40
2,4-Dinitrotoluene	A	10.0	10.3	0.3439874	0.355539		3.4	25
2,6-Dinitrotoluene	A	10.0	10.0	0.2655847	0.2655827		-0.0008	25
Di-n-octyl Phthalate	A	10.0	11.0	0.9058747	1.001138		10.5	20
Bis(2-ethylhexyl) Phthalate	A	10.0	10.2	0.6313312	0.6409301		1.5	25
Fluoranthene	A	10.0	9.63	1.230827	1.184879		-3.7	20
Fluorene	A	10.0	9.58	1.21665	1.165573		-4.2	25
Hexachlorobenzene	A	10.0	9.05	0.2556065	0.2313019		-9.5	25
Hexachlorobutadiene	A	10.0	9.72	0.1886401	0.1834088		-2.8	20
Hexachlorocyclopentadiene	A	10.0	9.37	0.384925	0.3606298	0.05	-6.3	40
Hexachloroethane	A	10.0	10.2	0.5147836	0.5264724		2.3	25
Indeno(1,2,3-cd)pyrene	A	10.0	10.1	0.8321411	0.8420675		1.2	25
Isophorone	A	10.0	10.2	0.6410301	0.6508722		1.5	25
2-Methylnaphthalene	A	10.0	9.53	0.6129402	0.5841094		-4.7	25
2-Methylphenol	A	10.0	9.53	1.142049	1.088383		-4.7	25
4-Methylphenol	A	10.0	10.1	1.327711	1.341542		1.0	25
Naphthalene	A	10.0	9.83	0.9833404	0.9661558		-1.7	25
2-Nitroaniline	A	10.0	10.1	0.3192067	0.3211022		0.6	40
Nitrobenzene	A	10.0	9.79	0.357393	0.3500381		-2.1	25
4-Nitrophenol	A	20.0	19.1	0.2088249	0.199456	0.05	-4.5	40
2-Nitrophenol	A	10.0	10.5	0.1702183	0.1790295		5.2	20
N-Nitroso-diphenylamine	A	10.0	9.78	0.6908322	0.6757065		-2.2	20
N-Nitroso-di-n-propylamine	A	10.0	9.53	0.9712971	0.9257172	0.05	-4.7	25
Pentachlorophenol	A	10.0	9.95	0.1427722	0.1421062		-0.5	20
Phenanthrene	A	10.0	9.61	1.178847	1.132926		-3.9	25
Phenol	A	10.0	10.3	1.661953	1.707032		2.7	20
Pyrene	A	10.0	9.73	1.034676	1.006542		-2.7	25

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP0809

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909647-BLK1 File ID: 0909647-blk1.D

Prepared: 08/18/09 07:41 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

Analyzed: 08/20/09 09:41 Instrument: 308

QC Batch: 0909647 Sequence: 9H20032 Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
84-66-2	Diethyl Phthalate	3.5	170	170	ug/kg wet	U
105-67-9	2,4-Dimethylphenol	1.5	170	170	ug/kg wet	U
131-11-3	Dimethyl Phthalate	0.87	170	170	ug/kg wet	U
534-52-1	4,6-Dinitro-2-methylphenol	20	170	170	ug/kg wet	U
51-28-5	2,4-Dinitrophenol	100	330	330	ug/kg wet	U
121-14-2	2,4-Dinitrotoluene	19	170	170	ug/kg wet	U
606-20-2	2,6-Dinitrotoluene	2.3	170	170	ug/kg wet	U
117-84-0	Di-n-octyl Phthalate	5.3	170	170	ug/kg wet	U
117-81-7	Bis(2-ethylhexyl) Phthalate	4.6	170	7.3	ug/kg wet	J
206-44-0	Fluoranthene	0.76	17	17	ug/kg wet	U
86-73-7	Fluorene	6.9	33	33	ug/kg wet	U
118-74-1	Hexachlorobenzene	4.3	170	170	ug/kg wet	U
87-68-3	Hexachlorobutadiene	3.4	170	170	ug/kg wet	U
77-47-4	Hexachlorocyclopentadiene	2.0	170	170	ug/kg wet	U
67-72-1	Hexachloroethane	2.5	170	170	ug/kg wet	U
193-39-5	Indeno(1,2,3-cd)pyrene	3.7	67	67	ug/kg wet	U
78-59-1	Isophorone	6.2	170	170	ug/kg wet	U
91-57-6	2-Methylnaphthalene	0.45	170	170	ug/kg wet	U
95-48-7	2-Methylphenol	4.8	170	170	ug/kg wet	U
106-44-5	4-Methylphenol	4.4	170	170	ug/kg wet	U
91-20-3	Naphthalene	2.1	17	17	ug/kg wet	U
88-74-4	2-Nitroaniline	7.1	170	170	ug/kg wet	U
99-09-2	3-Nitroaniline	7.1	170	170	ug/kg wet	U
100-01-6	4-Nitroaniline	1.6	170	170	ug/kg wet	U
98-95-3	Nitrobenzene	5.2	170	170	ug/kg wet	U
100-02-7	4-Nitrophenol	130	670	670	ug/kg wet	U
88-75-5	2-Nitrophenol	6.6	170	170	ug/kg wet	U
86-30-6	N-Nitroso-diphenylamine	9.7	170	170	ug/kg wet	U
621-64-7	N-Nitroso-di-n-propylamine	5.6	170	170	ug/kg wet	U
87-86-5	Pentachlorophenol	44	330	330	ug/kg wet	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0909647-BS1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
QC Batch: 0909647
Sequence: 9H20032

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	333	300	90	45 - 110	ug/kg wet
Acenaphthylene	333	301	90	45 - 105	ug/kg wet
Acetophenone	333	229	69	50 - 150	ug/kg wet
Anthracene	333	307	92	55 - 105	ug/kg wet
Atrazine	333	307	92	61 - 146	ug/kg wet
Benzaldehyde	333	12.0	4 *	50 - 150	ug/kg wet
Benzo(a)anthracene	333	304	91	50 - 110	ug/kg wet
Benzo(a)pyrene	333	313	94	50 - 110	ug/kg wet
Benzo(b)fluoranthene	333	301	90	45 - 115	ug/kg wet
Benzo(k)fluoranthene	333	317	95	45 - 125	ug/kg wet
Benzo(g,h,i)perylene	333	314	94	40 - 125	ug/kg wet
1,1'-Biphenyl	333	279	84	60 - 131	ug/kg wet
4-Bromophenyl Phenyl Ether	327	297	91	45 - 115	ug/kg wet
Butyl Benzyl Phthalate	327	323	99	50 - 125	ug/kg wet
Caprolactam	333	293	88	62 - 112	ug/kg wet
Carbazole	333	374	112	45 - 115	ug/kg wet
4-Chloro-3-methylphenol	333	272	82	45 - 115	ug/kg wet
4-Chloroaniline	327	145	44	10 - 95	ug/kg wet
Bis(2-chloroethoxy)methane	327	280	86	45 - 110	ug/kg wet
Bis(2-chloroethyl) Ether	327	276	85	40 - 105	ug/kg wet
Bis(2-chloroisopropyl) Ether	327	294	90	20 - 115	ug/kg wet
2-Chloronaphthalene	320	304	95	45 - 105	ug/kg wet
2-Chlorophenol	333	284	85	45 - 105	ug/kg wet
4-Chlorophenyl Phenyl Ether	327	301	92	45 - 110	ug/kg wet
Chrysene	333	304	91	55 - 110	ug/kg wet
Dibenz(a,h)anthracene	333	319	96	40 - 125	ug/kg wet
Dibenzofuran	327	315	96	50 - 105	ug/kg wet
Di-n-butyl Phthalate	327	313	96	55 - 110	ug/kg wet
3,3'-Dichlorobenzidine	667	416	62	10 - 130	ug/kg wet
2,4-Dichlorophenol	333	284	85	45 - 110	ug/kg wet

INTERNAL STANDARD AREA AND RT SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20032
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 308
Calibration: 9H18007

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
Calibration Check (9H20032-CCV1)			**Lab File ID: 10c0820a.D**			**Analyzed: 08/20/09 08:34**			
1,4-Dichlorobenzene-d4	189156	7.959	162142	8.052	117	50 - 200	-0.0930	+/-0.50	
Naphthalene-d8	742569	10.71	631706	10.803	118	50 - 200	-0.0930	+/-0.50	
Acenaphthene-d10	407108	14.837	345886	14.941	118	50 - 200	-0.1040	+/-0.50	
Phenanthrene-d10	613364	18.206	512675	18.281	120	50 - 200	-0.0750	+/-0.50	
Chrysene-d12	712924	21.732	651471	21.79	109	50 - 200	-0.0580	+/-0.50	
Perylene-d12	607566	23.527	523974	23.62	116	50 - 200	-0.0930	+/-0.50	
Calibration Check (9H20032-CCV2)			**Lab File ID: 10ab0820.D**			**Analyzed: 08/20/09 09:09**			
1,4-Dichlorobenzene-d4	209138	7.959	162142	8.052	129	50 - 200	-0.0930	+/-0.50	
Naphthalene-d8	838145	10.704	631706	10.803	133	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	444274	14.836	345886	14.941	128	50 - 200	-0.1050	+/-0.50	
Phenanthrene-d10	634120	18.2	512675	18.281	124	50 - 200	-0.0810	+/-0.50	
Chrysene-d12	828574	21.726	651471	21.79	127	50 - 200	-0.0640	+/-0.50	
Perylene-d12	700939	23.527	523974	23.62	134	50 - 200	-0.0930	+/-0.50	
Blank (0909647-BLK1)			**Lab File ID: 0909647-blk1.D**			**Analyzed: 08/20/09 09:41**			
1,4-Dichlorobenzene-d4	203172	7.964	162142	8.052	125	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	800556	10.704	631706	10.803	127	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	436688	14.831	345886	14.941	126	50 - 200	-0.1100	+/-0.50	
Phenanthrene-d10	616764	18.2	512675	18.281	120	50 - 200	-0.0810	+/-0.50	
Chrysene-d12	761507	21.726	651471	21.79	117	50 - 200	-0.0640	+/-0.50	
Perylene-d12	692831	23.521	523974	23.62	132	50 - 200	-0.0990	+/-0.50	
LCS (0909647-BS1)			**Lab File ID: 0909647-bs1.D**			**Analyzed: 08/20/09 10:15**			
1,4-Dichlorobenzene-d4	180033	7.964	162142	8.052	111	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	717763	10.704	631706	10.803	114	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	388753	14.836	345886	14.941	112	50 - 200	-0.1050	+/-0.50	
Phenanthrene-d10	572390	18.199	512675	18.281	112	50 - 200	-0.0820	+/-0.50	
Chrysene-d12	671391	21.732	651471	21.79	103	50 - 200	-0.0580	+/-0.50	
Perylene-d12	558618	23.527	523974	23.62	107	50 - 200	-0.0930	+/-0.50	
60SS1 (0908176-01)			**Lab File ID: 0908176-01.D**			**Analyzed: 08/20/09 13:41**			
1,4-Dichlorobenzene-d4	184602	7.964	162142	8.052	114	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	690612	10.704	631706	10.803	109	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	354626	14.831	345886	14.941	103	50 - 200	-0.1100	+/-0.50	
Phenanthrene-d10	408465	18.2	512675	18.281	80	50 - 200	-0.0810	+/-0.50	
Chrysene-d12	311557	21.726	651471	21.79	48	50 - 200	-0.0640	+/-0.50	*
Perylene-d12	235842	23.527	523974	23.62	45	50 - 200	-0.0930	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20032
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 308
Calibration: 9H18007

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
60SS2 (0908176-02)			**Lab File ID: 0908176-02.D**			**Analyzed: 08/20/09 14:16**			
1,4-Dichlorobenzene-d4	170073	7.964	162142	8.052	105	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	648980	10.704	631706	10.803	103	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	350692	14.836	345886	14.941	101	50 - 200	-0.1050	+/-0.50	
Phenanthrene-d10	474890	18.205	512675	18.281	93	50 - 200	-0.0760	+/-0.50	
Chrysene-d12	392310	21.726	651471	21.79	60	50 - 200	-0.0640	+/-0.50	
Perylene-d12	295287	23.527	523974	23.62	56	50 - 200	-0.0930	+/-0.50	
60SS3 (0908176-03)			**Lab File ID: 0908176-03.D**			**Analyzed: 08/20/09 14:50**			
1,4-Dichlorobenzene-d4	190447	7.965	162142	8.052	117	50 - 200	-0.0870	+/-0.50	
Naphthalene-d8	742064	10.704	631706	10.803	117	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	389840	14.831	345886	14.941	113	50 - 200	-0.1100	+/-0.50	
Phenanthrene-d10	533370	18.2	512675	18.281	104	50 - 200	-0.0810	+/-0.50	
Chrysene-d12	439728	21.726	651471	21.79	67	50 - 200	-0.0640	+/-0.50	
Perylene-d12	328325	23.527	523974	23.62	63	50 - 200	-0.0930	+/-0.50	
60SS4 (0908176-04)			**Lab File ID: 0908176-04.D**			**Analyzed: 08/20/09 15:25**			
1,4-Dichlorobenzene-d4	186613	7.965	162142	8.052	115	50 - 200	-0.0870	+/-0.50	
Naphthalene-d8	739365	10.704	631706	10.803	117	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	397154	14.837	345886	14.941	115	50 - 200	-0.1040	+/-0.50	
Phenanthrene-d10	540953	18.206	512675	18.281	106	50 - 200	-0.0750	+/-0.50	
Chrysene-d12	473756	21.732	651471	21.79	73	50 - 200	-0.0580	+/-0.50	
Perylene-d12	341899	23.527	523974	23.62	65	50 - 200	-0.0930	+/-0.50	
60SS5 (0908176-05)			**Lab File ID: 0908176-05.D**			**Analyzed: 08/20/09 15:59**			
1,4-Dichlorobenzene-d4	195586	7.964	162142	8.052	121	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	748251	10.704	631706	10.803	118	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	401139	14.836	345886	14.941	116	50 - 200	-0.1050	+/-0.50	
Phenanthrene-d10	536539	18.205	512675	18.281	105	50 - 200	-0.0760	+/-0.50	
Chrysene-d12	431665	21.732	651471	21.79	66	50 - 200	-0.0580	+/-0.50	
Perylene-d12	313655	23.533	523974	23.62	60	50 - 200	-0.0870	+/-0.50	
60SE1 (0908176-06)			**Lab File ID: 0908176-06.D**			**Analyzed: 08/20/09 16:33**			
1,4-Dichlorobenzene-d4	175260	7.964	162142	8.052	108	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	671993	10.704	631706	10.803	106	50 - 200	-0.0990	+/-0.50	
Acenaphthene-d10	340534	14.836	345886	14.941	98	50 - 200	-0.1050	+/-0.50	
Phenanthrene-d10	455971	18.205	512675	18.281	89	50 - 200	-0.0760	+/-0.50	
Chrysene-d12	318079	21.732	651471	21.79	49	50 - 200	-0.0580	+/-0.50	*
Perylene-d12	221816	23.533	523974	23.62	42	50 - 200	-0.0870	+/-0.50	*

INTERNAL STANDARD AREA AND RT SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H20032
Instrument: 308
Matrix: Soil
Calibration: 9H18007

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
60SE2 (0908176-07)			**Lab File ID: 0908176-07.D**			**Analyzed: 08/20/09 17:07**			
1,4-Dichlorobenzene-d4	163142	7.97	162142	8.052	101	50 - 200	-0.0820	+/-0.50	
Naphthalene-d8	627130	10.71	631706	10.803	99	50 - 200	-0.0930	+/-0.50	
Acenaphthene-d10	325369	14.837	345886	14.941	94	50 - 200	-0.1040	+/-0.50	
Phenanthrene-d10	431832	18.206	512675	18.281	84	50 - 200	-0.0750	+/-0.50	
Chrysene-d12	287841	21.732	651471	21.79	44	50 - 200	-0.0580	+/-0.50	*
Perylene-d12	194153	23.533	523974	23.62	37	50 - 200	-0.0870	+/-0.50	*
DUP-1 (0908176-08)			**Lab File ID: 0908176-08.D**			**Analyzed: 08/20/09 17:42**			
1,4-Dichlorobenzene-d4	193657	7.964	162142	8.052	119	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	739888	10.71	631706	10.803	117	50 - 200	-0.0930	+/-0.50	
Acenaphthene-d10	395802	14.836	345886	14.941	114	50 - 200	-0.1050	+/-0.50	
Phenanthrene-d10	544529	18.211	512675	18.281	106	50 - 200	-0.0700	+/-0.50	
Chrysene-d12	424053	21.732	651471	21.79	65	50 - 200	-0.0580	+/-0.50	
Perylene-d12	281011	23.539	523974	23.62	54	50 - 200	-0.0810	+/-0.50	
60TP1 (0908185-02)			**Lab File ID: 0908185-02.D**			**Analyzed: 08/20/09 18:16**			
1,4-Dichlorobenzene-d4	169997	7.97	162142	8.052	105	50 - 200	-0.0820	+/-0.50	
Naphthalene-d8	658183	10.71	631706	10.803	104	50 - 200	-0.0930	+/-0.50	
Acenaphthene-d10	355241	14.842	345886	14.941	103	50 - 200	-0.0990	+/-0.50	
Phenanthrene-d10	523065	18.206	512675	18.281	102	50 - 200	-0.0750	+/-0.50	
Chrysene-d12	591429	21.732	651471	21.79	91	50 - 200	-0.0580	+/-0.50	
Perylene-d12	434102	23.539	523974	23.62	83	50 - 200	-0.0810	+/-0.50	
77SB1A (0908185-03)			**Lab File ID: 0908185-03.D**			**Analyzed: 08/20/09 18:51**			
1,4-Dichlorobenzene-d4	163558	7.964	162142	8.052	101	50 - 200	-0.0880	+/-0.50	
Naphthalene-d8	602914	10.71	631706	10.803	95	50 - 200	-0.0930	+/-0.50	
Acenaphthene-d10	307188	14.842	345886	14.941	89	50 - 200	-0.0990	+/-0.50	
Phenanthrene-d10	390129	18.211	512675	18.281	76	50 - 200	-0.0700	+/-0.50	
Chrysene-d12	259411	21.743	651471	21.79	40	50 - 200	-0.0470	+/-0.50	*
Perylene-d12	139418	23.556	523974	23.62	27	50 - 200	-0.0640	+/-0.50	*
77SB1B (0908185-04)			**Lab File ID: 0908185-04.D**			**Analyzed: 08/20/09 19:25**			
1,4-Dichlorobenzene-d4	182895	7.976	162142	8.052	113	50 - 200	-0.0760	+/-0.50	
Naphthalene-d8	694561	10.716	631706	10.803	110	50 - 200	-0.0870	+/-0.50	
Acenaphthene-d10	379929	14.848	345886	14.941	110	50 - 200	-0.0930	+/-0.50	
Phenanthrene-d10	537739	18.217	512675	18.281	105	50 - 200	-0.0640	+/-0.50	
Chrysene-d12	496033	21.744	651471	21.79	76	50 - 200	-0.0460	+/-0.50	
Perylene-d12	299104	23.55	523974	23.62	57	50 - 200	-0.0700	+/-0.50	

INTERNAL STANDARD AREA AND RT SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20032
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 308
Calibration: 9H18007

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
77SB3A (0908185-05)			**Lab File ID: 0908185-05.D**			**Analyzed: 08/20/09 19:59**			
1,4-Dichlorobenzene-d4	179961	7.97	162142	8.052	111	50 - 200	-0.0820	+/-0.50	
Naphthalene-d8	663096	10.716	631706	10.803	105	50 - 200	-0.0870	+/-0.50	
Acenaphthene-d10	338822	14.848	345886	14.941	98	50 - 200	-0.0930	+/-0.50	
Phenanthrene-d10	405848	18.217	512675	18.281	79	50 - 200	-0.0640	+/-0.50	
Chrysene-d12	246714	21.744	651471	21.79	38	50 - 200	-0.0460	+/-0.50	*
Perylene-d12	134717	23.556	523974	23.62	26	50 - 200	-0.0640	+/-0.50	*

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

77SB1A

REVISED
JB 01/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL

Laboratory ID: 0909647-MS1
QC Batch: 0909647

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acenaphthene	417	2.50	372	89	45 - 110	ug/kg dry
Acenaphthylene	417	2.92	367	87	45 - 105	ug/kg dry
Acetophenone	417	ND	249	60	50 - 150	ug/kg dry
Anthracene	417	5.83	383	90	55 - 105	ug/kg dry
Atrazine	417	ND	313	75	61 - 146	ug/kg dry
Benzaldehyde	417	ND	ND	*	50 - 150	ug/kg dry
Benzo(a)anthracene	417	68.8	532	111 *	50 - 110	ug/kg dry
Benzo(a)pyrene	417	54.2	451	95	50 - 110	ug/kg dry
Benzo(b)fluoranthene	417	114	674	134 *	45 - 115	ug/kg dry
Benzo(k)fluoranthene	417	57.5	421	87	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	417	35.4	314	67	40 - 125	ug/kg dry
1,1'-Biphenyl	417	1.25	350	84	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	408	ND	491	120 *	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	408	25.4	582	136 *	50 - 125	ug/kg dry
Caprolactam	417	ND	320	77	62 - 112	ug/kg dry
Carbazole	417	ND	432	104	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	417	ND	303	73	45 - 115	ug/kg dry
4-Chloroaniline	408	ND	19.2	5 *	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	408	ND	338	83	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	408	ND	290	71	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	408	ND	334	82	20 - 115	ug/kg dry
2-Chloronaphthalene	400	ND	380	95	45 - 105	ug/kg dry
2-Chlorophenol	417	ND	335	80	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	408	ND	356	87	45 - 110	ug/kg dry
Chrysene	417	67.1	457	94	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	417	17.1	282	64	40 - 125	ug/kg dry
Dibenzofuran	408	ND	383	94	50 - 105	ug/kg dry
Di-n-butyl Phthalate	408	231	752	128 *	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	833	ND	ND	*	10 - 130	ug/kg dry
2,4-Dichlorophenol	417	ND	315	76	45 - 110	ug/kg dry
Diethyl Phthalate	408	135	328	47 *	50 - 115	ug/kg dry
2,4-Dimethylphenol	417	ND	297	71	30 - 105	ug/kg dry
Dimethyl Phthalate	408	ND	394	97	50 - 110	ug/kg dry

0228LA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

77SB1A

REVISED
1-12-09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL

Laboratory ID: 0909647-MS1
QC Batch: 0909647

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
4,6-Dinitro-2-methylphenol	417	ND	315	76	30 - 135	ug/kg dry
2,4-Dinitrophenol	417	ND	222	53	15 - 130	ug/kg dry
2,4-Dinitrotoluene	400	35.8	482	112	50 - 115	ug/kg dry
2,6-Dinitrotoluene	400	12.5	371	90	50 - 110	ug/kg dry
Di-n-octyl Phthalate	408	ND	513	126	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	408	149	801	160 *	45 - 125	ug/kg dry
Fluoranthene	417	72.9	480	98	55 - 115	ug/kg dry
Fluorene	417	ND	360	87	50 - 110	ug/kg dry
Hexachlorobenzene	400	ND	456	114	45 - 120	ug/kg dry
Hexachlorobutadiene	400	ND	335	84	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	400	ND	237	59	10 - 113	ug/kg dry
Hexachloroethane	400	ND	331	83	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	417	33.8	309	66	40 - 120	ug/kg dry
Isophorone	400	ND	358	89	45 - 110	ug/kg dry
2-Methylnaphthalene	408	4.58	376	91	45 - 105	ug/kg dry
2-Methylphenol	417	ND	365	88	40 - 105	ug/kg dry
4-Methylphenol	417	ND	377	90	40 - 105	ug/kg dry
Naphthalene	417	3.33	348	83	40 - 105	ug/kg dry
2-Nitroaniline	408	ND	427	105	45 - 120	ug/kg dry
3-Nitroaniline	408	ND	102	25	25 - 110	ug/kg dry
4-Nitroaniline	408	ND	128	31 *	35 - 115	ug/kg dry
Nitrobenzene	400	ND	368	92	40 - 115	ug/kg dry
4-Nitrophenol	417	ND	ND	*	15 - 140	ug/kg dry
2-Nitrophenol	417	ND	364	87	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	408	ND	321	79	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	408	ND	356	87	40 - 115	ug/kg dry
Pentachlorophenol	417	ND	311	75	25 - 120	ug/kg dry
Phenanthrene	417	39.6	526	117 *	50 - 110	ug/kg dry
Phenol	417	ND	318	76	40 - 100	ug/kg dry
Pyrene	417	115	724	146 *	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	208	ND	175	84	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	417	ND	223	53	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	417	ND	405	97	45 - 110	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

77SB1A

REVISED
JB 10/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL

Laboratory ID: 0909647-MS1
QC Batch: 0909647

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
2,4,5-Trichlorophenol	417	ND	267	64	50 - 110	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

02286

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

77SB1A

REVISED

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 1 mL

Laboratory ID: 0909647-MSD1

QC Batch: 0909647

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acenaphthene	417	329	78	12	30	45 - 110	ug/kg dry
Acenaphthylene	417	329	78	11	30	45 - 105	ug/kg dry
Acetophenone	417	227	54	9	30	50 - 150	ug/kg dry
Anthracene	417	356	84	7	30	55 - 105	ug/kg dry
Atrazine	417	305	73	2	30	61 - 146	ug/kg dry
Benzaldehyde	417	ND	*		30	50 - 150	ug/kg dry
Benzo(a)anthracene	417	480	99	10	30	50 - 110	ug/kg dry
Benzo(a)pyrene	417	393	81	14	30	50 - 110	ug/kg dry
Benzo(b)fluoranthene	417	606	118 *	11	30	45 - 115	ug/kg dry
Benzo(k)fluoranthene	417	377	77	11	30	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	417	273	57	14	30	40 - 125	ug/kg dry
1,1'-Biphenyl	417	320	76	9	30	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	408	477	117 *	3	30	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	408	561	131 *	4	30	50 - 125	ug/kg dry
Caprolactam	417	326	78	2	30	62 - 112	ug/kg dry
Carbazole	417	390	94	10	30	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	417	290	70	4	30	45 - 115	ug/kg dry
4-Chloroaniline	408	23.8	6 *	21	30	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	408	305	75	10	30	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	408	265	65	9	30	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	408	313	77	7	30	20 - 115	ug/kg dry
2-Chloronaphthalene	400	340	85	11	30	45 - 105	ug/kg dry
2-Chlorophenol	417	314	75	6	30	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	408	327	80	9	30	45 - 110	ug/kg dry
Chrysene	417	403	81	13	30	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	417	245	55	14	30	40 - 125	ug/kg dry
Dibenzofuran	408	345	84	11	30	50 - 105	ug/kg dry
Di-n-butyl Phthalate	408	1840	395 *	84 *	30	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	833	ND	*		30	10 - 130	ug/kg dry
2,4-Dichlorophenol	417	285	69	10	30	45 - 110	ug/kg dry
Diethyl Phthalate	408	443	75	30	30	50 - 115	ug/kg dry
2,4-Dimethylphenol	417	246	59	19	30	30 - 105	ug/kg dry
Dimethyl Phthalate	408	356	87	10	30	50 - 110	ug/kg dry
4,6-Dinitro-2-methylphenol	417	146	35	73 *	30	30 - 135	ug/kg dry

022816

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

77SB1A

REVISED
10/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL

Laboratory ID: 0909647-MSD1
QC Batch: 0909647

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
2,4-Dinitrophenol	417	ND	*		30	15 - 130	ug/kg dry
2,4-Dinitrotoluene	400	622	147 *	25	30	50 - 115	ug/kg dry
2,6-Dinitrotoluene	400	361	87	3	30	50 - 110	ug/kg dry
Di-n-octyl Phthalate	408	541	132 *	5	30	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	408	1210	261 *	41 *	30	45 - 125	ug/kg dry
Fluoranthene	417	402	79	18	30	55 - 115	ug/kg dry
Fluorene	417	324	78	11	30	50 - 110	ug/kg dry
Hexachlorobenzene	400	413	103	10	30	45 - 120	ug/kg dry
Hexachlorobutadiene	400	315	79	6	30	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	400	148	37	46 *	30	10 - 113	ug/kg dry
Hexachloroethane	400	313	78	5	30	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	417	286	61	8	30	40 - 120	ug/kg dry
Isophorone	400	327	82	9	30	45 - 110	ug/kg dry
2-Methylnaphthalene	408	352	85	7	30	45 - 105	ug/kg dry
2-Methylphenol	417	325	78	11	30	40 - 105	ug/kg dry
4-Methylphenol	417	367	88	3	30	40 - 105	ug/kg dry
Naphthalene	417	322	76	8	30	40 - 105	ug/kg dry
2-Nitroaniline	408	383	94	11	30	45 - 120	ug/kg dry
3-Nitroaniline	408	120	29	17	30	25 - 110	ug/kg dry
4-Nitroaniline	408	110	27 *	16	30	35 - 115	ug/kg dry
Nitrobenzene	400	329	82	11	30	40 - 115	ug/kg dry
4-Nitrophenol	417	ND	*		30	15 - 140	ug/kg dry
2-Nitrophenol	417	328	79	10	30	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	408	311	76	3	30	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	408	338	83	5	30	40 - 115	ug/kg dry
Pentachlorophenol	417	342	82	9	30	25 - 120	ug/kg dry
Phenanthrene	417	591	132 *	12	30	50 - 110	ug/kg dry
Phenol	417	298	71	7	30	40 - 100	ug/kg dry
Pyrene	417	661	131 *	9	30	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	208	156	75	11	30	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	417	198	47	12	30	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	417	381	91	6	30	45 - 110	ug/kg dry
2,4,5-Trichlorophenol	417	268	64	0.2	30	50 - 110	ug/kg dry

INTERNAL STANDARD AREA AND RT SUMMARY
USEPA-8270C

REVISED
DO 10/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H24008
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 308
Calibration: 9H18007

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
77SB4B (0908185-09)			**Lab File ID: 0908185-09.D**			**Analyzed: 08/21/09 19:48**			
1,4-Dichlorobenzene-d4	164478	7.939	162142	8.052	101	50 - 200	-0.1130	+/-0.50	
Naphthalene-d8	660469	10.672	631706	10.803	105	50 - 200	-0.1310	+/-0.50	
Acenaphthene-d10	344789	14.805	345886	14.941	100	50 - 200	-0.1360	+/-0.50	
Phenanthrene-d10	491149	18.185	512675	18.281	96	50 - 200	-0.0960	+/-0.50	
Chrysene-d12	591313	21.712	651471	21.79	91	50 - 200	-0.0780	+/-0.50	
Perylene-d12	524645	23.501	523974	23.62	100	50 - 200	-0.1190	+/-0.50	
60SE2 (0908176-07RE1)			**Lab File ID: 0908176-07 5x.D**			**Analyzed: 08/21/09 21:32**			
1,4-Dichlorobenzene-d4	188548	7.939	162142	8.052	116	50 - 200	-0.1130	+/-0.50	
Naphthalene-d8	738985	10.678	631706	10.803	117	50 - 200	-0.1250	+/-0.50	
Acenaphthene-d10	379704	14.805	345886	14.941	110	50 - 200	-0.1360	+/-0.50	
Phenanthrene-d10	495470	18.185	512675	18.281	97	50 - 200	-0.0960	+/-0.50	
Chrysene-d12	439522	21.712	651471	21.79	67	50 - 200	-0.0780	+/-0.50	
Perylene-d12	339730	23.507	523974	23.62	65	50 - 200	-0.1130	+/-0.50	
Matrix Spike (0909647-MS1)			**Lab File ID: 0909647-ms1.D**			**Analyzed: 08/22/09 02:09**			
1,4-Dichlorobenzene-d4	170271	7.944	162142	8.052	105	50 - 200	-0.1080	+/-0.50	
Naphthalene-d8	640411	10.684	631706	10.803	101	50 - 200	-0.1190	+/-0.50	
Acenaphthene-d10	319875	14.816	345886	14.941	92	50 - 200	-0.1250	+/-0.50	
Phenanthrene-d10	320180	18.197	512675	18.281	62	50 - 200	-0.0840	+/-0.50	
Chrysene-d12	243499	21.729	651471	21.79	37	50 - 200	-0.0610	+/-0.50	*
Perylene-d12	132142	23.536	523974	23.62	25	50 - 200	-0.0840	+/-0.50	*
Matrix Spike Dup (0909647-MSD1)			**Lab File ID: 0909647-msd1.D**			**Analyzed: 08/22/09 02:44**			
1,4-Dichlorobenzene-d4	179114	7.95	162142	8.052	110	50 - 200	-0.1020	+/-0.50	
Naphthalene-d8	682640	10.69	631706	10.803	108	50 - 200	-0.1130	+/-0.50	
Acenaphthene-d10	347247	14.822	345886	14.941	100	50 - 200	-0.1190	+/-0.50	
Phenanthrene-d10	324795	18.203	512675	18.281	63	50 - 200	-0.0780	+/-0.50	
Chrysene-d12	221164	21.735	651471	21.79	34	50 - 200	-0.0550	+/-0.50	*
Perylene-d12	112471	23.554	523974	23.62	21	50 - 200	-0.0660	+/-0.50	*

DATA VALIDATION WORKSHEET

Pesticides/PCBs

Reviewer: Andrea Sansom
Date: August 10, 2004
DV Level: II III IV
Review Document:
X SW-846 - 8081/8082
X NFG - Region III Modifications
____ CLP

Project Name: Radford SWMU41
Project Number: 21354893.05054
Laboratory: TriMatrix
SDG No.: 36440-9
Test Name: PEST/PCB
Method No.: 8081A/8082

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do any soil samples contain more than 50% water?	X		
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV report.			

Notes:

2.0 Preservation/ Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampleing to date of analysis, been exceeded? If yes, J(+)/UJ(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to five times the amount in the associated blank.		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.	Pest	PCB	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note it in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards included in the calibration curve? 1016 and 1260 need at least three peaks at five concentrations. The multi-component target compounds (the other Aroclors, Toxaphene, & Chlordane) must each be analyzed separately at a single concentration level during the initial calibration sequence.	X		
4.2	Has a continuing calibration standard been analyzed for every 12 hours or twenty samples?	X		
4.3	Are all calibration standard (IC and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r>0.99, %RSD < ± 20% and %D < ± 15%	PCB	Pest	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Do all standard retention times in the continuing calibration fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.	X		

Notes:

5.0 GC/ECD Instrument Performance Check for Pesticides		Yes	No	NA
5.1	Is the 4,4'-DDT breakdown </= to 15%? If No, for positive DDT results, DDT-L(+), DDD/DDE - NJ(+). For non detect DDT results, DDD/DDE - R(+).	X		
5.2	Is the endrin breakdown </= to 15%? If No, for positive endrin results, endrin-L(+), endrin aldehyde/ketone - NJ(+). For non-detect DDT results, endrin aldehyde/ketone - R(+).	X		

Notes:

6.0 Surrogate Recovery					Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?				X		
6.2	Do all surrogate retention times fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.				X		
6.3	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?				X		
6.4	If No in Section 6.3, are these sample(s) or method blank(s) reanalyzed?						X
6.5	If No in Section 6.4, is any sample dilution factor greater than 10? (recoveries may be diluted out.)						X
	# of outliers	Recovery	Sample result from column with non-conformance	Sample result from column without non-conformance			
	1 out	high/low	No action	No action			
	2 out	2 high same column	K	No action			
		2 low same column	L, UL	No action			
		mixed same column	J, UJ	No action			
		2 high diff columns	J	Not applicable			
		2 low diff columns	J, UJ	Not applicable			
		mixed diff columns	Professional judgement	Not applicable			
	3 out	All high	K	Not applicable			
		All low	L, UL	Not applicable			
		2 high, 1 low	K (2 high)	J (1 low 2nd column)			
		2 low, 1 high	L, UJ (2 low)	J (1 high 2nd column)			
		other mixed	J, UJ	Not applicable			
	4 out	All high	K	Not applicable			
		All low	L, UL	Not applicable			
		Mixed	J, UJ	Not applicable			
	If any recovery is >0% and <10% then L(+)/R(-).						
	If any recovery is 0% then R(+/-).						

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 30-150%?	X		
7.4	Are there any RPDs outside the QC limits not to exceed 60%?	Pest	PCB	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 30-150%?	Pest	PCB	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	If Yes, J(+) only.			

Notes:

9.0 Field Duplicate		Yes	No	NA
9.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
9.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

10.0 Compound Identification and Detection Limit Verification		Yes	No	NA
10.1	Is the percent difference calculated for the positive sample results on both columns < 40%? If No, J(+).		X	
10.2	Do detection limits meet those required by the project QAPP and were properly adjusted for dilution factors and moisture?	X		

Notes:

11.0 Pesticide Cleanup Checks		Yes	No	NA
11.1	Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts to reduce matrix interference caused by polar compounds.)			
	Every lot number of Florisil cartridges used for sample cleanup must be checked by spiking with 2,4,5-trichlorophenol and the midpoint concentration of Individual Standard Mixture A.			
11.2	Are all samples listed on the Pesticide Florisil cartridge Check Form?			
11.3	Are percent recoveries of pesticide and surrogate compounds within control limit, 80-120%(if the recovery of 2,4,5-trichlorophenol < 5%), for the florisil cartridge check? If No, the raw data should be examined for the presence of polar interferences and professional judgement should be used in qualifying the data.			

Notes:

CLP requirement, not provided

12.0 Data Completeness				Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	Pest	PCB	X		
	Number of samples:	17	17			
	Number of target compounds in each analysis:	21	7			
	Number of results rejected and not reported:	0	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)					
	% Completeness =	100%	100%			

Notes:

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27083

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9H27029 ✓

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Secondary Cal Check	9H27083-SCV1	A85_124-0	08/25/09 00:16
Secondary Cal Check	9H27083-SCV1	B85_124-0	08/25/09 00:16
Calibration Check	9H27083-CCV1	A85_139-0	08/25/09 09:38
Calibration Check	9H27083-CCV1	B85_139-0	08/25/09 09:38
Calibration Check	9H27083-CCV2	A85_140-0	08/25/09 10:15
Calibration Check	9H27083-CCV2	B85_140-0	08/25/09 10:15
60SS3	0908176-03	A85_141-0	08/25/09 10:53
60SS3	0908176-03	B85_141-0	08/25/09 10:53
60SS2	0908176-02	A85_142-0	08/25/09 11:30
60SS2	0908176-02	B85_142-0	08/25/09 11:30
60SS1	0908176-01	A85_143-0	08/25/09 12:08
60SS1	0908176-01	B85_143-0	08/25/09 12:08
LCS	0909442-BS2	A85_144-0	08/25/09 12:45
LCS	0909442-BS2	B85_144-0	08/25/09 12:45
LCS	0909442-BS1	A85_145-0	08/25/09 13:22
LCS	0909442-BS1	B85_145-0	08/25/09 13:22
Blank	0909442-BLK1	A85_146-0	08/25/09 14:00
Blank	0909442-BLK1	B85_146-0	08/25/09 14:00
Calibration Check	9H27083-CCV3	A85_147-0	08/25/09 14:37
Calibration Check	9H27083-CCV3	B85_147-0	08/25/09 14:37
Calibration Check	9H27083-CCV4	A85_148-0	08/25/09 15:15
Calibration Check	9H27083-CCV4	B85_148-0	08/25/09 15:15
Calibration Check	9H27083-CCV5	A85_156-0	08/25/09 20:14
Calibration Check	9H27083-CCV5	B85_156-0	08/25/09 20:14
Calibration Check	9H27083-CCV6	A85_157-0	08/25/09 20:51
Calibration Check	9H27083-CCV6	B85_157-0	08/25/09 20:51

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B85_147-0
Sequence: 9H27083
Lab Sample ID: 9H27083-CCV3

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9H27029
Calibration Date: 08/24/09 16:59
Injection Date: 08/25/09
Injection Time: 14:37

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC [2C]	A	0.0400	0.0403	.630088E+07	1.64387E+07		0.8	20
beta-BHC [2C]	A	0.0400	0.0385	6196266	5963025		-3.8	20
gamma-BHC (Lindane) [2C]	A	0.0400	0.0399	.442481E+07	.436523E+07		-0.4	20
delta-BHC [2C]	A	0.0400	0.0418	.240942E+07	.265258E+07		2.0	20
alpha-Chlordane [2C]	A	0.0400	0.0401	9428187	9318500		-1.2	20
gamma-Chlordane [2C]	A	0.0400	0.0400	.021323E+07	.746475E+06	+	71.0	20 *
4,4'-DDD [2C]	A	0.0400	0.0418	6306103	6540050		3.7	20
4,4'-DDE [2C]	A	0.0400	0.0414	8377120	8449850		0.9	20
4,4'-DDT [2C]	A	0.0400	0.0400	6641825	6448150		-2.9	20
Aldrin [2C]	A	0.0400	0.0403	.174321E+07	.177388E+07		0.3	20
Dieldrin [2C]	A	0.0400	0.0408	9081469	9206400		1.4	20
Endosulfan I [2C]	A	0.0400	0.0404	9042013	8939500		-1.1	20
Endosulfan II [2C]	A	0.0400	0.0414	6797889	6958425		2.4	20
Endosulfan Sulfate [2C]	A	0.0400	0.0404	6346316	6447975		1.6	20
Endrin [2C]	A	0.0400	0.0414	7827991	8022075		2.5	20
Endrin Aldehyde [2C]	A	0.0400	0.0407	4689722	4780275		1.9	20
Endrin Ketone [2C]	A	0.0400	0.0412	6929793	7071125		2.0	20
Heptachlor [2C]	A	0.0400	0.0404	.392543E+07	.384565E+07		-0.6	20
Heptachlor Epoxide [2C]	A	0.0400	0.0400	.035115E+07	1.02799E+07		-0.7	20
Methoxychlor [2C]	A	0.0400	0.0400	3320279	3333200		0.4	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27083
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9H27029

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Secondary Cal Check (9H27083-SCV1)		**Lab File ID: A85_124-0**		**Analyzed: 08/25/09 00:16**			
Tetrachloro-m-xylene	7.80	7.76	0.04	+/-1.0	100	80 - 120	
Tetrachloro-m-xylene [2C]	8.85	8.81	0.04	+/-1.0	86	80 - 120	
Decachlorobiphenyl	21.33	21.33	0.00	+/-1.0	103	80 - 120	
Decachlorobiphenyl [2C]	24.14	24.15	-0.01	+/-1.0	84	80 - 120	
Calibration Check (9H27083-CCV1)		**Lab File ID: A85_139-0**		**Analyzed: 08/25/09 09:38**			
Tetrachloro-m-xylene	7.76	7.76	0.00	+/-1.0	91	80 - 120	
Tetrachloro-m-xylene [2C]	8.80	8.81	-0.01	+/-1.0	94	80 - 120	
Decachlorobiphenyl	21.31	21.33	-0.02	+/-1.0	91	80 - 120	
Decachlorobiphenyl [2C]	24.10	24.15	-0.05	+/-1.0	94	80 - 120	
Calibration Check (9H27083-CCV2)		**Lab File ID: A85_140-0**		**Analyzed: 08/25/09 10:15**			
Tetrachloro-m-xylene	7.72	7.76	-0.04	+/-1.0	140	80 - 120	*
Tetrachloro-m-xylene [2C]	8.77	8.81	-0.04	+/-1.0	127	80 - 120	*
Decachlorobiphenyl	21.29	21.33	-0.04	+/-1.0	131	80 - 120	*
Decachlorobiphenyl [2C]	24.10	24.15	-0.05	+/-1.0	112	80 - 120	
60SS3 (0908176-03)		**Lab File ID: A85_141-0**		**Analyzed: 08/25/09 10:53**			
Tetrachloro-m-xylene	7.70	7.76	-0.06	+/-1.0	94	70 - 125	
Tetrachloro-m-xylene [2C]	8.75	8.81	-0.06	+/-1.0	95	70 - 125	
Decachlorobiphenyl	21.35	21.33	0.03	+/-1.0	93	55 - 130	
Decachlorobiphenyl [2C]	24.20	24.15	0.05	+/-1.0	99	55 - 130	
60SS2 (0908176-02)		**Lab File ID: A85_142-0**		**Analyzed: 08/25/09 11:30**			
Tetrachloro-m-xylene	7.72	7.76	-0.04	+/-1.0	101	70 - 125	
Tetrachloro-m-xylene [2C]	8.77	8.81	-0.04	+/-1.0	105	70 - 125	
Decachlorobiphenyl	21.36	21.33	0.04	+/-1.0	104	55 - 130	
Decachlorobiphenyl [2C]	24.16	24.15	0.01	+/-1.0	110	55 - 130	
60SS1 (0908176-01)		**Lab File ID: A85_143-0**		**Analyzed: 08/25/09 12:08**			
Tetrachloro-m-xylene	7.69	7.76	-0.07	+/-1.0	99	70 - 125	
Tetrachloro-m-xylene [2C]	8.74	8.81	-0.07	+/-1.0	101	70 - 125	
Decachlorobiphenyl	21.31	21.33	-0.02	+/-1.0	106	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.15	-0.06	+/-1.0	112	55 - 130	
LCS (0909442-BS2)		**Lab File ID: A85_144-0**		**Analyzed: 08/25/09 12:45**			
Tetrachloro-m-xylene	7.68	7.76	-0.08	+/-1.0	100	70 - 125	
Tetrachloro-m-xylene [2C]	8.73	8.81	-0.08	+/-1.0	90	70 - 125	
Decachlorobiphenyl	21.29	21.33	-0.04	+/-1.0	99	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.15	-0.06	+/-1.0	88	55 - 130	

Surrogates Pass
Toxaphene

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27083
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9H27029

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
LCS (0909442-BS1)		**Lab File ID: A85_145-0**		**Analyzed: 08/25/09 13:22**			
Tetrachloro-m-xylene	7.75	7.76	-0.01	+/-1.0	108	70 - 125	
Tetrachloro-m-xylene [2C]	8.80	8.81	-0.01	+/-1.0	111	70 - 125	
Decachlorobiphenyl	21.27	21.33	-0.05	+/-1.0	108	55 - 130	
Decachlorobiphenyl [2C]	24.06	24.15	-0.09	+/-1.0	111	55 - 130	
Blank (0909442-BLK1)		**Lab File ID: A85_146-0**		**Analyzed: 08/25/09 14:00**			
Tetrachloro-m-xylene	7.72	7.76	-0.04	+/-1.0	106	70 - 125	
Tetrachloro-m-xylene [2C]	8.77	8.81	-0.04	+/-1.0	114	70 - 125	
Decachlorobiphenyl	21.28	21.33	-0.04	+/-1.0	112	55 - 130	
Decachlorobiphenyl [2C]	24.11	24.15	-0.04	+/-1.0	118	55 - 130	
Calibration Check (9H27083-CCV3)		**Lab File ID: A85_147-0**		**Analyzed: 08/25/09 14:37**			
Tetrachloro-m-xylene	7.77	7.76	0.01	+/-1.0	98	80 - 120	
Tetrachloro-m-xylene [2C]	8.82	8.81	0.01	+/-1.0	98	80 - 120	
Decachlorobiphenyl	21.30	21.33	-0.02	+/-1.0	102	80 - 120	
Decachlorobiphenyl [2C]	24.11	24.15	-0.04	+/-1.0	103	80 - 120	
Calibration Check (9H27083-CCV4)		**Lab File ID: A85_148-0**		**Analyzed: 08/25/09 15:15**			
Tetrachloro-m-xylene	7.73	7.76	-0.03	+/-1.0	126	80 - 120	*
Tetrachloro-m-xylene [2C]	8.78	8.81	-0.03	+/-1.0	116	80 - 120	
Decachlorobiphenyl	21.32	21.33	0.00	+/-1.0	117	80 - 120	
Decachlorobiphenyl [2C]	24.11	24.15	-0.04	+/-1.0	101	80 - 120	
Calibration Check (9H27083-CCV5)		**Lab File ID: A85_156-0**		**Analyzed: 08/25/09 20:14**			
Tetrachloro-m-xylene	7.79	7.76	0.03	+/-1.0	113	80 - 120	
Tetrachloro-m-xylene [2C]	8.84	8.81	0.03	+/-1.0	112	80 - 120	
Decachlorobiphenyl	21.36	21.33	0.04	+/-1.0	118	80 - 120	
Decachlorobiphenyl [2C]	24.14	24.15	-0.01	+/-1.0	119	80 - 120	
Calibration Check (9H27083-CCV6)		**Lab File ID: A85_157-0**		**Analyzed: 08/25/09 20:51**			
Tetrachloro-m-xylene	7.75	7.76	-0.01	+/-1.0	114	80 - 120	
Tetrachloro-m-xylene [2C]	8.80	8.81	-0.01	+/-1.0	114	80 - 120	
Decachlorobiphenyl	21.30	21.33	-0.02	+/-1.0	140	80 - 120	*
Decachlorobiphenyl [2C]	24.09	24.15	-0.06	+/-1.0	120	80 - 120	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27089

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H27089-CCV1	A85_187-0	08/26/09 17:02
Calibration Check	9H27089-CCV1	B85_187-0	08/26/09 17:02
Calibration Check	9H27089-CCV4	A85_188-0	08/26/09 17:39
Calibration Check	9H27089-CCV4	B85_188-0	08/26/09 17:39
77SB1A	0909442-MS1	A85_189-0	08/26/09 18:17
77SB1A	0909442-MS1	B85_189-0	08/26/09 18:17
77SB1A	0909442-MSD1	A85_190-0	08/26/09 18:54
77SB1A	0909442-MSD1	B85_190-0	08/26/09 18:54
77SB2B	0908185-08	A85_193-0	08/26/09 20:47
77SB2B	0908185-08	B85_193-0	08/26/09 20:47
Calibration Check	9H27089-CCV3	A85_197-0	08/26/09 23:16
Calibration Check	9H27089-CCV3	B85_197-0	08/26/09 23:16
Calibration Check	9H27089-CCV2	A85_198-0	08/26/09 23:54
Calibration Check	9H27089-CCV2	B85_198-0	08/26/09 23:54

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_188-0
Sequence: 9H27089
Lab Sample ID: 9H27089-CCV4

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I08007
Calibration Date: 08/25/09 10:09
Injection Date: 08/26/09
Injection Time: 17:39

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.827	1130574	2154128		65.4	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: B85_188-0
Calibration Date: 08/25/09 10:09
Sequence: 9H27089
Injection Date: 08/26/09
Lab Sample ID: 9H27089-CCV4
Injection Time: 17:39

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.696	1494910	2066980		38.3	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_197-0
Sequence: 9H27089
Lab Sample ID: 9H27089-CCV3

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I08007
Calibration Date: 08/25/09 10:09
Injection Date: 08/26/09
Injection Time: 23:16

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0400	5995468	5990408		-0.08	20
beta-BHC	A	0.0400	0.0371	2149098	1994844		-7.2	20
gamma-BHC (Lindane)	A	0.0400	0.0393	5196859	5101330		-1.8	20
delta-BHC	A	0.0400	0.0390	4581752	4468070		-2.5	20
alpha-Chlordane	A	0.0400	0.0364	3932349	3582290		-8.9	20
gamma-Chlordane	A	0.0400	0.0364	4120711	3746775		-9.1	20
4,4'-DDD	A	0.0400	0.0363	2967226	2689898		-9.3	20
4,4'-DDE	A	0.0400	0.0362	3848836	3478645		-9.6	20
4,4'-DDT	A	0.0400	0.0334	2970675	2478502	-	-16.6	20
Aldrin	A	0.0400	0.0378	4724988	4468283		-5.4	20
Dieldrin	A	0.0400	0.0367	3824875	3508013		-8.3	20
Endosulfan I	A	0.0400	0.0368	3657648	3361003		-8.1	20
Endosulfan II	A	0.0400	0.0362	2824035	2559025		-9.4	20
Endosulfan Sulfate	A	0.0400	0.0366	2450729	2245113		-8.4	20
Endrin	A	0.0400	0.0365	3387779	3090348		-8.8	20
Endrin Aldehyde	A	0.0400	0.0362	1862380	1683222		-9.6	20
Endrin Ketone	A	0.0400	0.0359	2856336	2563495		-10.3	20
Heptachlor	A	0.0400	0.0379	5472984	5187005		-5.2	20
Heptachlor Epoxide	A	0.0400	0.0369	4140288	3814383		-7.9	20
Methoxychlor	A	0.0400	0.0325	1602837	1301630	-	-18.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27089
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H27089-CCV1)		**Lab File ID: A85_187-0**		**Analyzed: 08/26/09 17:02**			
Tetrachloro-m-xylene	7.74	7.78	-0.04	+/-1.0	102	80 - 120	
Tetrachloro-m-xylene [2C]	8.79	8.82	-0.03	+/-1.0	98	80 - 120	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	96	80 - 120	
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	106	80 - 120	
Calibration Check (9H27089-CCV4)		**Lab File ID: A85_188-0**		**Analyzed: 08/26/09 17:39**			
Tetrachloro-m-xylene	7.72	7.78	-0.06	+/-1.0	174	80 - 120	*
Tetrachloro-m-xylene [2C]	9.00	8.82	0.18	+/-1.0	1	80 - 120	*
Decachlorobiphenyl	21.28	21.32	-0.04	+/-1.0	195	80 - 120	*
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	146	80 - 120	*
Matrix Spike (0909442-MS1)		**Lab File ID: A85_189-0**		**Analyzed: 08/26/09 18:17**			
Tetrachloro-m-xylene	7.75	7.78	-0.03	+/-1.0	97	70 - 125	
Tetrachloro-m-xylene [2C]	8.79	8.82	-0.03	+/-1.0	97	70 - 125	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	109	55 - 130	
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	119	55 - 130	
Matrix Spike Dup (0909442-MSD1)		**Lab File ID: A85_190-0**		**Analyzed: 08/26/09 18:54**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	88	70 - 125	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	94	70 - 125	
Decachlorobiphenyl	21.29	21.32	-0.03	+/-1.0	95	55 - 130	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	116	55 - 130	
77SB2B (0908185-08)		**Lab File ID: A85_193-0**		**Analyzed: 08/26/09 20:47**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	109	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	108	70 - 125	
Decachlorobiphenyl	21.36	21.32	0.04	+/-1.0	97	55 - 130	
Decachlorobiphenyl [2C]	24.12	24.11	0.01	+/-1.0	111	55 - 130	
Calibration Check (9H27089-CCV3)		**Lab File ID: A85_197-0**		**Analyzed: 08/26/09 23:16**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	100	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	89	80 - 120	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	96	80 - 120	
Calibration Check (9H27089-CCV2)		**Lab File ID: A85_198-0**		**Analyzed: 08/26/09 23:54**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	154	80 - 120	*
Tetrachloro-m-xylene [2C]	8.79	8.82	-0.03	+/-1.0	134	80 - 120	*
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	148	80 - 120	*
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	131	80 - 120	*

: 01122

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I01016-CCV1	A85_228-0	08/27/09 18:37
Calibration Check	9I01016-CCV1	B85_228-0	08/27/09 18:37
Calibration Check	9I01016-CCV2	A85_229-0	08/27/09 19:15
Calibration Check	9I01016-CCV2	B85_229-0	08/27/09 19:15
60SE2	0908176-07	A85_230-0	08/27/09 20:29
60SE2	0908176-07	B85_230-0	08/27/09 20:29
60SS4	0908176-04	A85_231-0	08/27/09 21:07
60SS4	0908176-04	B85_231-0	08/27/09 21:07
DUP-1	0908176-08	A85_232-0	08/27/09 21:44
DUP-1	0908176-08	B85_232-0	08/27/09 21:44
77SB1A	0908185-03	A85_233-0	08/27/09 22:22
77SB1A	0908185-03	B85_233-0	08/27/09 22:22
EQBK-1	0908185-10	A85_234-0	08/27/09 22:59
EQBK-1	0908185-10	B85_234-0	08/27/09 22:59
LCS Dup	0909501-BSD2	A85_235-0	08/27/09 23:36
LCS Dup	0909501-BSD2	B85_235-0	08/27/09 23:36
LCS	0909501-BS2	A85_236-0	08/28/09 00:14
LCS	0909501-BS2	B85_236-0	08/28/09 00:14
LCS Dup	0909501-BSD1	A85_237-0	08/28/09 00:51
LCS Dup	0909501-BSD1	B85_237-0	08/28/09 00:51
LCS	0909501-BS1	A85_238-0	08/28/09 01:29
LCS	0909501-BS1	B85_238-0	08/28/09 01:29
Blank	0909501-BLK1	A85_239-0	08/28/09 02:06
Blank	0909501-BLK1	B85_239-0	08/28/09 02:06
Calibration Check	9I01016-CCV3	A85_240-0	08/28/09 02:43
Calibration Check	9I01016-CCV3	B85_240-0	08/28/09 02:43
Calibration Check	9I01016-CCV4	A85_241-0	08/28/09 03:21
Calibration Check	9I01016-CCV4	B85_241-0	08/28/09 03:21
77SB3B	0908185-06	A85_244-0	08/28/09 05:13
77SB3B	0908185-06	B85_244-0	08/28/09 05:13
77SB2A	0908185-07	A85_245-0	08/28/09 05:50
77SB2A	0908185-07	B85_245-0	08/28/09 05:50

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
77SB4B	0908185-09	A85_246-0	08/28/09 06:28
77SB4B	0908185-09	B85_246-0	08/28/09 06:28
LCS	0909501-BS4	A85_249-0	08/28/09 08:20
LCS	0909501-BS4	B85_249-0	08/28/09 08:20
LCS	0909501-BS3	A85_250-0	08/28/09 08:58
LCS	0909501-BS3	B85_250-0	08/28/09 08:58
Blank	0909501-BLK2	A85_251-0	08/28/09 09:35
Blank	0909501-BLK2	B85_251-0	08/28/09 09:35
Calibration Check	9I01016-CCV5	A85_252-0	08/28/09 10:12
Calibration Check	9I01016-CCV5	B85_252-0	08/28/09 10:12
Calibration Check	9I01016-CCV6	A85_253-0	08/28/09 10:50
Calibration Check	9I01016-CCV6	B85_253-0	08/28/09 10:50

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_229-0
Sequence: 9I01016
Lab Sample ID: 9I01016-CCV2

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I08007
Calibration Date: 08/25/09 10:09
Injection Date: 08/27/09
Injection Time: 19:15

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.600	1130574	1550682		20.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_252-0
Sequence: 9I01016
Lab Sample ID: 9I01016-CCV5

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I08007
Calibration Date: 08/25/09 10:09
Injection Date: 08/28/09
Injection Time: 10:12

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0392	5995468	5877630		-2.0	20
beta-BHC	A	0.0400	0.0364	2149098	1954396		-9.1	20
gamma-BHC (Lindane)	A	0.0400	0.0384	5196859	4991550		-4.0	20
delta-BHC	A	0.0400	0.0372	4581752	4256335		-7.1	20
alpha-Chlordane	A	0.0400	0.0363	3932349	3571820		-9.2	20
gamma-Chlordane	A	0.0400	0.0367	4120711	3781483		-8.2	20
4,4'-DDD	A	0.0400	0.0367	2967226	2725048		-8.2	20
4,4'-DDE	A	0.0400	0.0367	3848836	3528583		-8.3	20
4,4'-DDT	A	0.0400	0.0340	2970675	2526720		-14.9	20
Aldrin	A	0.0400	0.0384	4724988	4533383		-4.1	20
Dieldrin	A	0.0400	0.0366	3824875	3497635		-8.6	20
Endosulfan I	A	0.0400	0.0367	3657648	3352413		-8.3	20
Endosulfan II	A	0.0400	0.0363	2824035	2565200		-9.2	20
Endosulfan Sulfate	A	0.0400	0.0370	2450729	2265386		-7.6	20
Endrin	A	0.0400	0.0363	3387779	3074303		-9.3	20
Endrin Aldehyde	A	0.0400	0.0366	1862380	1702350		-8.6	20
Endrin Ketone	A	0.0400	0.0368	2856336	2627935		-8.0	20
Heptachlor	A	0.0400	0.0380	5472984	5198428		-5.0	20
Heptachlor Epoxide	A	0.0400	0.0370	4140288	3833283		-7.4	20
Methoxychlor	A	0.0400	0.0336	1602837	1344557		-16.1	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_253-0
Sequence: 9I01016
Lab Sample ID: 9I01016-CCV6

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I08007
Calibration Date: 08/25/09 10:09
Injection Date: 08/28/09
Injection Time: 10:50

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.603	1130574	1558464		20.6	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV1)		**Lab File ID: A85_228-0**		**Analyzed: 08/27/09 18:37**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	104	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	99	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	105	80 - 120	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	106	80 - 120	
Calibration Check (9I01016-CCV2)		**Lab File ID: A85_229-0**		**Analyzed: 08/27/09 19:15**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	112	80 - 120	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	130	80 - 120	*
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	109	80 - 120	
60SE2 (0908176-07)		**Lab File ID: A85_230-0**		**Analyzed: 08/27/09 20:29**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	97	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	99	70 - 125	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	99	55 - 130	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	108	55 - 130	
60SS4 (0908176-04)		**Lab File ID: A85_231-0**		**Analyzed: 08/27/09 21:07**			
Tetrachloro-m-xylene	7.81	7.78	0.03	+/-1.0	106	70 - 125	
Tetrachloro-m-xylene [2C]	8.84	8.82	0.02	+/-1.0	105	70 - 125	
Decachlorobiphenyl	21.38	21.32	0.06	+/-1.0	104	55 - 130	
Decachlorobiphenyl [2C]	24.13	24.11	0.02	+/-1.0	113	55 - 130	
DUP-1 (0908176-08)		**Lab File ID: A85_232-0**		**Analyzed: 08/27/09 21:44**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	115	70 - 125	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	112	70 - 125	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	110	55 - 130	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	118	55 - 130	
77SB1A (0908185-03)		**Lab File ID: A85_233-0**		**Analyzed: 08/27/09 22:22**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	109	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	108	70 - 125	
Decachlorobiphenyl	21.33	21.32	0.01	+/-1.0	115	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	126	55 - 130	
EQBK-1 (0908185-10)		**Lab File ID: A85_234-0**		**Analyzed: 08/27/09 22:59**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	83	25 - 140	
Tetrachloro-m-xylene [2C]	8.80	8.82	-0.02	+/-1.0	79	25 - 140	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	95	30 - 135	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	99	30 - 135	

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
LCS Dup (0909501-BSD2)		**Lab File ID: A85_235-0**		**Analyzed: 08/27/09 23:36**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	69	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	59	25 - 140	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	109	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	90	30 - 135	
LCS (0909501-BS2)		**Lab File ID: A85_236-0**		**Analyzed: 08/28/09 00:14**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	74	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	61	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	115	30 - 135	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	93	30 - 135	
LCS Dup (0909501-BSD1)		**Lab File ID: A85_237-0**		**Analyzed: 08/28/09 00:51**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	60	25 - 140	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	57	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	91	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	92	30 - 135	
LCS (0909501-BS1)		**Lab File ID: A85_238-0**		**Analyzed: 08/28/09 01:29**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	72	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	66	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	97	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	99	30 - 135	
Blank (0909501-BLK1)		**Lab File ID: A85_239-0**		**Analyzed: 08/28/09 02:06**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	132	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	127	25 - 140	
Decachlorobiphenyl	21.28	21.32	-0.04	+/-1.0	126	30 - 135	
Decachlorobiphenyl [2C]	24.04	24.11	-0.07	+/-1.0	130	30 - 135	
Calibration Check (9I01016-CCV3)		**Lab File ID: A85_240-0**		**Analyzed: 08/28/09 02:43**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	107	80 - 120	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	101	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	108	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	110	80 - 120	
Calibration Check (9I01016-CCV4)		**Lab File ID: A85_241-0**		**Analyzed: 08/28/09 03:21**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	113	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	94	80 - 120	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	106	80 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV6)		**Lab File ID: A85_253-0**		**Analyzed: 08/28/09 10:50**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	116	80 - 120	
Tetrachloro-m-xylene [2C]	8.75	8.82	-0.07	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.29	21.32	-0.03	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.03	24.11	-0.08	+/-1.0	108	80 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I01016
Instrument: 199
Matrix: Water
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV1)		**Lab File ID: A85_228-0**		**Analyzed: 08/27/09 18:37**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	104	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	99	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	105	80 - 120	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	106	80 - 120	
Calibration Check (9I01016-CCV2)		**Lab File ID: A85_229-0**		**Analyzed: 08/27/09 19:15**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	112	80 - 120	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	130	80 - 120	*
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	109	80 - 120	
LCS Dup (0909501-BSD2)		**Lab File ID: A85_235-0**		**Analyzed: 08/27/09 23:36**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	69	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	59	25 - 140	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	109	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	90	30 - 135	
LCS (0909501-BS2)		**Lab File ID: A85_236-0**		**Analyzed: 08/28/09 00:14**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	74	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	61	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	115	30 - 135	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	93	30 - 135	
LCS Dup (0909501-BSD1)		**Lab File ID: A85_237-0**		**Analyzed: 08/28/09 00:51**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	60	25 - 140	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	57	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	91	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	92	30 - 135	
LCS (0909501-BS1)		**Lab File ID: A85_238-0**		**Analyzed: 08/28/09 01:29**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	72	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	66	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	97	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	99	30 - 135	
Blank (0909501-BLK1)		**Lab File ID: A85_239-0**		**Analyzed: 08/28/09 02:06**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	132	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	127	25 - 140	
Decachlorobiphenyl	21.28	21.32	-0.04	+/-1.0	126	30 - 135	
Decachlorobiphenyl [2C]	24.04	24.11	-0.07	+/-1.0	130	30 - 135	

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I01016
Instrument: 199
Matrix: Water
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV3)		**Lab File ID: A85_240-0**		**Analyzed: 08/28/09 02:43**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	107	80 - 120	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	101	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	108	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	110	80 - 120	
Calibration Check (9I01016-CCV4)		**Lab File ID: A85_241-0**		**Analyzed: 08/28/09 03:21**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	113	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	94	80 - 120	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	106	80 - 120	
LCS (0909501-BS4)		**Lab File ID: A85_249-0**		**Analyzed: 08/28/09 08:20**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	82	25 - 140	
Tetrachloro-m-xylene [2C]	8.80	8.82	-0.02	+/-1.0	70	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	106	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	88	30 - 135	
LCS (0909501-BS3)		**Lab File ID: A85_250-0**		**Analyzed: 08/28/09 08:58**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	64	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	61	25 - 140	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	94	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	100	30 - 135	
Blank (0909501-BLK2)		**Lab File ID: A85_251-0**		**Analyzed: 08/28/09 09:35**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	89	25 - 140	
Tetrachloro-m-xylene [2C]	8.76	8.82	-0.06	+/-1.0	88	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	90	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	98	30 - 135	
Calibration Check (9I01016-CCV5)		**Lab File ID: A85_252-0**		**Analyzed: 08/28/09 10:12**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	99	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	95	80 - 120	
Decachlorobiphenyl	21.33	21.32	0.01	+/-1.0	97	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	99	80 - 120	
Calibration Check (9I01016-CCV6)		**Lab File ID: A85_253-0**		**Analyzed: 08/28/09 10:50**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	116	80 - 120	
Tetrachloro-m-xylene [2C]	8.75	8.82	-0.07	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.29	21.32	-0.03	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.03	24.11	-0.08	+/-1.0	108	80 - 120	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02022

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I02022-CCV1	A85_312-0	08/30/09 18:03
Calibration Check	9I02022-CCV1	B85_312-0	08/30/09 18:03
Cal Standard	9I02022-CAL1	A85_313-0	08/30/09 18:41
Cal Standard	9I02022-CAL1	B85_313-0	08/30/09 18:41
Cal Standard	9I02022-CAL2	A85_314-0	08/30/09 19:18
Cal Standard	9I02022-CAL2	B85_314-0	08/30/09 19:18
Cal Standard	9I02022-CAL3	A85_315-0	08/30/09 19:56
Cal Standard	9I02022-CAL3	B85_315-0	08/30/09 19:56
Cal Standard	9I02022-CAL4	A85_316-0	08/30/09 20:33
Cal Standard	9I02022-CAL4	B85_316-0	08/30/09 20:33
Cal Standard	9I02022-CAL5	A85_317-0	08/30/09 21:11
Cal Standard	9I02022-CAL5	B85_317-0	08/30/09 21:11
Cal Standard	9I02022-CAL6	A85_318-0	08/30/09 21:48
Cal Standard	9I02022-CAL6	B85_318-0	08/30/09 21:48
Secondary Cal Check	9I02022-SCV1	A85_319-0	08/30/09 22:26
Secondary Cal Check	9I02022-SCV1	B85_319-0	08/30/09 22:26
77SB1A	0909442-MS2	A85_321-0	08/30/09 23:41
77SB1A	0909442-MS2	B85_321-0	08/30/09 23:41
77SB1A	0909442-MSD2	A85_322-0	08/31/09 00:18
77SB1A	0909442-MSD2	B85_322-0	08/31/09 00:18
60SE1	0908176-06	A85_323-0	08/31/09 00:56
60SE1	0908176-06	B85_323-0	08/31/09 00:56
77SB3A	0908185-05	A85_324-0	08/31/09 01:33
77SB3A	0908185-05	B85_324-0	08/31/09 01:33
60SS5	0908176-05	A85_325-0	08/31/09 02:11
60SS5	0908176-05	B85_325-0	08/31/09 02:11
77SB1B	0908185-04	A85_326-0	08/31/09 02:48
77SB1B	0908185-04	B85_326-0	08/31/09 02:48
60TP1	0908185-02	A85_328-0	08/31/09 04:03
60TP1	0908185-02	B85_328-0	08/31/09 04:03
Calibration Check	9I02022-CCV2	A85_329-0	08/31/09 04:41
Calibration Check	9I02022-CCV2	B85_329-0	08/31/09 04:41

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02022

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I02022-CCV3	A85_330-0	08/31/09 05:18
Calibration Check	9I02022-CCV3	B85_330-0	08/31/09 05:18
Calibration Check	9I02022-CCV4	A85_338-0	08/31/09 10:18
Calibration Check	9I02022-CCV4	B85_338-0	08/31/09 10:18
Calibration Check	9I02022-CCV5	A85_339-0	08/31/09 10:56
Calibration Check	9I02022-CCV5	B85_339-0	08/31/09 10:56

N/A

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_312-0
Sequence: 9I02022
Lab Sample ID: 9I02022-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I02009
Calibration Date: 08/30/09 10:21
Injection Date: 08/30/09
Injection Time: 18:03

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.404	1130574	1016014		-19.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B85_312-0
Sequence: 9I02022
Lab Sample ID: 9I02022-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I02009
Calibration Date: 08/30/09 10:21
Injection Date: 08/30/09
Injection Time: 18:03

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.420	1494910	1248580		-16.5	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I02009
Lab File ID: B85_329-0
Calibration Date: 08/30/09 10:21
Sequence: 9I02022
Injection Date: 08/31/09
Lab Sample ID: 9I02022-CCV2
Injection Time: 04:41

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC [2C]	A	0.0400	0.0398	4997595	4977480		-0.4	20
beta-BHC [2C]	A	0.0400	0.0399	1682315	1676169		-0.4	20
gamma-BHC (Lindane) [2C]	A	0.0400	0.0402	4267314	4289035		0.5	20
delta-BHC [2C]	A	0.0400	0.0413	3536121	3649175		3.2	20
alpha-Chlordane [2C]	A	0.0400	0.0396	2749870	2722513		-1.0	20
gamma-Chlordane [2C]	A	0.0400	0.0397	2932077	2910575		-0.7	20
4,4'-DDD [2C]	A	0.0400	0.0409	1907056	1949387		2.2	20
4,4'-DDE [2C]	A	0.0400	0.0399	2572548	2563068		-0.4	20
4,4'-DDT [2C]	A	0.0400	0.0390	1978696	1928711		-2.5	20
Aldrin [2C]	A	0.0400	0.0401	3561120	3571500		0.3	20
Dieldrin [2C]	A	0.0400	0.0411	2625473	2698333		2.8	20
Endosulfan I [2C]	A	0.0400	0.0405	2564462	2595925		1.2	20
Endosulfan II [2C]	A	0.0400	0.0410	1947466	1996775		2.5	20
Endosulfan Sulfate [2C]	A	0.0400	0.0403	1769404	1783791		0.8	20
Endrin [2C]	A	0.0400	0.0470	1957864	2299097		17.4	20
Endrin Aldehyde [2C]	A	0.0400	0.0403	1321641	1331061		0.7	20
Endrin Ketone [2C]	A	0.0400	0.0380	2057923	1957425		-4.9	20
Heptachlor [2C]	A	0.0400	0.0398	4247382	4224683		-0.5	20
Heptachlor Epoxide [2C]	A	0.0400	0.0401	2968092	2977293		0.3	20
Methoxychlor [2C]	A	0.0400	0.0393	1007494	989167.8		-1.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I02009
Lab File ID: A85_330-0
Calibration Date: 08/30/09 10:21
Sequence: 9I02022
Injection Date: 08/31/09
Lab Sample ID: 9I02022-CCV3
Injection Time: 05:18

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.422	1130574	1065946		-15.6	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B85_330-0
Sequence: 9I02022
Lab Sample ID: 9I02022-CCV3

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9I02009
Calibration Date: 08/30/09 10:21
Injection Date: 08/31/09
Injection Time: 05:18

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.409	1494910	1215100		-18.7	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I02022
Instrument: 199
Matrix: Soil
Calibration: 9I02009

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I02022-CCV1)		**Lab File ID: A85_312-0**		**Analyzed: 08/30/09 18:03**			
Tetrachloro-m-xylene	7.70	7.78	-0.08	+/-1.0	82	80 - 120	
Tetrachloro-m-xylene [2C]	8.71	8.78	-0.07	+/-1.0	88	80 - 120	
Decachlorobiphenyl	21.27	21.29	-0.02	+/-1.0	78	80 - 120	*
Decachlorobiphenyl [2C]	23.99	24.01	-0.02	+/-1.0	89	80 - 120	
Cal Standard (9I02022-CAL1)		**Lab File ID: A85_313-0**		**Analyzed: 08/30/09 18:41**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.78	8.78	0.00	+/-1.0	NA	NA	
Decachlorobiphenyl	21.28	21.29	-0.01	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	23.99	24.01	-0.02	+/-1.0	NA	NA	
Cal Standard (9I02022-CAL2)		**Lab File ID: A85_314-0**		**Analyzed: 08/30/09 19:18**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.79	8.78	0.01	+/-1.0	NA	NA	
Decachlorobiphenyl	21.28	21.29	-0.01	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.00	24.01	-0.01	+/-1.0	NA	NA	
Cal Standard (9I02022-CAL3)		**Lab File ID: A85_315-0**		**Analyzed: 08/30/09 19:56**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.78	8.78	0.00	+/-1.0	NA	NA	
Decachlorobiphenyl	21.28	21.29	-0.01	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.00	24.01	-0.01	+/-1.0	NA	NA	
Cal Standard (9I02022-CAL4)		**Lab File ID: A85_316-0**		**Analyzed: 08/30/09 20:33**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.80	8.78	0.02	+/-1.0	NA	NA	
Decachlorobiphenyl	21.30	21.29	0.01	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.01	24.01	0.00	+/-1.0	NA	NA	
Cal Standard (9I02022-CAL5)		**Lab File ID: A85_317-0**		**Analyzed: 08/30/09 21:11**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.79	8.78	0.01	+/-1.0	NA	NA	
Decachlorobiphenyl	21.32	21.29	0.03	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.03	24.01	0.02	+/-1.0	NA	NA	
Cal Standard (9I02022-CAL6)		**Lab File ID: A85_318-0**		**Analyzed: 08/30/09 21:48**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.76	8.78	-0.02	+/-1.0	NA	NA	
Decachlorobiphenyl	21.30	21.29	0.01	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.01	24.01	0.00	+/-1.0	NA	NA	

Semivolatiles GC, Soil, 3550B Sonication Extraction

Surrogate #1 = 9040924 (Pre-Prep)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908176	8081A DoD Pests plus custom	0908185	8081A DoD Pests plus custom	0908228	8081A DoD Pests plus custom

Lab Number	*Contain*	*Prepared*	*By*	*Initial (g)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909442-BLK1		Aug-17-09 08:13	BJH	30	10	1000				BLANK	
0909442-BS1		Aug-17-09 08:13	BJH	30	10	1000		9061341	500	LCS	Chlorinated Pests
0909442-BS2		Aug-17-09 08:13	BJH	30	10	1000		9080435	1000	LCS	Toxaphene
0909442-MS1		Aug-17-09 08:13	BJH	30	10	1000	0908185-03	9061341	500	MATRIX SPIKE	Chlorinated Pests
0909442-MS2		Aug-17-09 08:13	BJH	30	10	1000	0908185-03	9080435	1000	MATRIX SPIKE	Toxaphene
0909442-MSD1		Aug-17-09 08:13	BJH	30	10	1000	0908185-03	9061341	500	MATRIX SPIKE DUP	Chlorinated Pests
0909442-MSD2		Aug-17-09 08:13	BJH	30	10	1000	0908185-03	9080435	1000	MATRIX SPIKE DUP	Toxaphene
0908176-01	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908176-02	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908176-03	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908176-04	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908176-05	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908176-06	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908176-07	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908176-08	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-02	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-03	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-04	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-05	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-06	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-07	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-08	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908185-09	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	
0908228-01	A	Aug-17-09 08:13	BJH	30	10	1000				URS Corporation	

Comments:

Analyst Initials:

Semivolatiles GC, Water, 3510C Liquid-Liquid Extraction

Surrogate #1 = 9070942 (Pre-Prep)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908185	8081A DoD Pests plus custom	0908228	8081A DoD Pests plus custom	0908257	8081A DoD Pests plus custom

Lab Number	*Contain*	*Prepared*	*By*	*Initial (mL)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909501-BLK1		Aug-13-09 09:24	JTS	1000	2	1000				BLANK	
0909501-BS1		Aug-13-09 09:24	JTS	1000	2	1000		9061341	100	LCS	Chlorinated Pests
0909501-BS2		Aug-13-09 09:24	JTS	1000	2	1000		9080435	200	LCS	Toxaphene
0909501-BSD1		Aug-13-09 09:24	JTS	1000	2	1000		9061341	100	LCS DUP	Chlorinated Pests
0909501-BSD2		Aug-13-09 09:24	JTS	1000	2	1000		9080435	200	LCS DUP	Toxaphene
0908185-10	G	Aug-13-09 09:24	JTS	990	2	1000				URS Corporation	
0909501-BLK2		Aug-17-09 09:24	DCG	1000	2	1000				BLANK	
0909501-BS3		Aug-17-09 09:24	DCG	1000	2	1000		9061341	100	LCS	Chlorinated Pests
0909501-BS4		Aug-17-09 09:24	DCG	1000	2	1000		9080435	200	LCS	Toxaphene
0908228-17	H	Aug-17-09 09:24	DCG	990	2	1000				URS Corporation	
0908257-15	G	Aug-17-09 09:24	DCG	970	2	1000				URS Corporation	

Comments:

Analyst Initials:

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
7.69	TCMX	404771.07	1257150	0.0993		30.000	10	0.03310	
9.16	ALPHA-BHC	256.54	828	0.0000		30.000	10	0.00002	<MDL
9.93	GAMMA-BHC	1160.41	4752	0.0002		30.000	10	0.00008	↓
10.18	BETA-BHC	10417.28	57198	0.0053		30.000	10	0.00178	BNC
10.65	DELTA-BHC	1026.32	10129	0.0002		30.000	10	0.00008	<MDL
11.28	HEPTACHLOR	1119.45	2934	0.0002		30.000	10	0.00008	↓
11.94	ALDRIN	6537.55	29266	0.0016		30.000	10	0.00053	RT
13.40	HEPTACHLOR EPOXIDE	7640.72	37060	0.0022		30.000	10	0.00072	BNC
13.62	GAMMA-CHLORDANE	12300.35	48967	0.0035		30.000	10	0.00118	RT
14.10	ALPHA-CHLORDANE	9845.06	40399	0.0030		30.000	10	0.00100	RT
14.20	4,4'-DDE	20935.91	79990	0.0066		30.000	10	0.00220	BNC
14.31	ENDOSULFAN I	8069.39	30941	0.0026		30.000	10	0.00087	RT
14.95	DIELDRIN	19060.25	71392	0.0060		30.000	10	0.00199	
15.49	ENDRIN	4540.44	14907	0.0016		30.000	10	0.00054	RT
15.64	4,4'-DDD	40070.19	156460	0.0169		30.000	10	0.00564	RT
16.07	ENDOSULFAN II	4090.90	15166	0.0017		30.000	10	0.00057	BNC
16.32	4,4'-DDT	49999.01	224846	0.0205		30.000	10	0.00684	RT
17.21	ENDRIN ALDEHYDE	5907.66	20214	0.0038		30.000	10	0.00128	RT
17.64	METHOXYCHLOR	8918.96	46112	0.0070		30.000	10	0.00232	RT
18.26	ENDOSULFAN SULFATE	2338.91	9975	0.0012		30.000	10	0.00038	RT
18.84	ENDRIN KETONE	4700.12	26322	0.0020		30.000	10	0.00067	BNC
21.31	DCB	229251.99	838791	0.1060		30.000	10	0.03534	

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_143.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
8.74	TCMX-2C	363476.39	1207370	0.1006		30.000	10	0.03353	
10.48	ALPHA-BHC-2C	841.00	4000	0.0002		30.000	10	0.00006	<MDL
11.33	GAMMA-BHC-2C	10701.36	52558	0.0025		30.000	10	0.00085	RT
11.59	BETA-BHC-2C	1543.90	16474	0.0009		30.000	10	0.00029	RT
12.49	DELTA-BHC-2C	1549.54	9538	0.0004		30.000	10	0.00014	<MDL
12.61	HEPTACHLOR-2C	3839.31	18344	0.0010		30.000	10	0.00032	
13.61	ALDRIN-2C	4097.10	18609	0.0012		30.000	10	0.00041	
14.93	HEPTACHLOR EPOXIDE-2	16456.50	59024	0.0057		30.000	10	0.00191	
15.41	GAMMA-CHLORDANE-2C	23068.54	93741	0.0082		30.000	10	0.00275	BDL
15.65	ALPHA-CHLORDANE-2C	7886.75	37948	0.0030		30.000	10	0.00101	RT
15.98	ENDOSULFAN I-2C	2026.65	9818	0.0008		30.000	10	0.00027	BDL
16.29	4,4'-DDE-2C	16194.50	68771	0.0066		30.000	10	0.00220	RT
16.66	DIELDRIN-2C	3635.91	10234	0.0015		30.000	10	0.00049	
17.41	ENDRIN-2C	5626.74	24139	0.0027		30.000	10	0.00091	
17.57	4,4'-DDD-2C	22829.20	88186	0.0127		30.000	10	0.00425	RT
18.01	ENDOSULFAN II-2C	17367.17	118889	0.0096		30.000	10	0.00321	RT
18.47	4,4'-DDT-2C	37311.79	182862	0.0202		30.000	10	0.00673	BDL
18.82	ENDRIN ALDEHYDE-2C	3496.63	13153	0.0028		30.000	10	0.00094	BDL
19.61	ENDOSULFAN SULFATE-2	3922.06	19541	0.0023		30.000	10	0.00077	RT
20.04	METHOXYCHLOR-2C	12403.80	62399	0.0132		30.000	10	0.00439	RT
20.95	ENDRIN KETONE-2C	7957.27	37742	0.0045		30.000	10	0.00150	RT
24.09	DCB-2C	141377.24	664066	0.1125		30.000	10	0.03751	

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_143.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
7.72	TCMX	412772.54	1302293	0.1013		30.000	10	0.03375	
9.21	ALPHA-BHC	1213.72	4368	0.0002		30.000	10	0.00007	<MDL
9.98	GAMMA-BHC	411.27	4338	0.0001		30.000	10	0.00003	
10.20	BETA-BHC	313.71	1051	0.0002		30.000	10	0.00005	
10.64	DELTA-BHC	838.22	7105	0.0002		30.000	10	0.00007	
11.05	HEPTACHLOR	2176.87	18252	0.0005		30.000	10	0.00015	
11.89	ALDRIN	1452.02	6789	0.0004		30.000	10	0.00012	
13.35	HEPTACHLOR EPOXIDE	563.87	2602	0.0002		30.000	10	0.00005	
13.79	GAMMA-CHLORDANE	2610.39	9506	0.0008		30.000	10	0.00025	
13.99	ALPHA-CHLORDANE	530.85	2860	0.0002		30.000	10	0.00005	
14.19	4,4'-DDE	915.19	5869	0.0003		30.000	10	0.00010	
14.31	ENDOSULFAN I	798.42	5472	0.0003		30.000	10	0.00009	
14.93	DIELDRIN	1057.69	5030	0.0003		30.000	10	0.00011	
15.37	ENDRIN	337.42	1986	0.0001		30.000	10	0.00004	
15.62	4,4'-DDD	2528.54	11944	0.0011		30.000	10	0.00036	RT
16.09	ENDOSULFAN II	256.08	1284	0.0001		30.000	10	0.00004	<MDL
16.32	4,4'-DDT	1502.85	9410	0.0006		30.000	10	0.00021	
17.22	ENDRIN ALDEHYDE	218.26	2151	0.0001		30.000	10	0.00005	
17.38	METHOXYCHLOR	2334.41	9087	0.0018		30.000	10	0.00061	RT
18.20	ENDOSULFAN SULFATE	520.50	2354	0.0003		30.000	10	0.00009	<MDL
19.00	ENDRIN KETONE	1689.23	15765	0.0007		30.000	10	0.00024	
21.36	DCB	224111.46	827360	0.1035		30.000	10	0.03451	

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_142.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.77	TCMX-2C	380402.66	1225151	0.1054		30.000	10	0.03512
10.52	ALPHA-BHC-2C	2682.34	11090	0.0005		30.000	10	0.00018 <MDL
11.47	GAMMA-BHC-2C	634.74	2400	0.0002		30.000	10	0.00005
11.72	BETA-BHC-2C	1123.63	4960	0.0006		30.000	10	0.00021
12.33	DELTA-BHC-2C	4251.26	16998	0.0012		30.000	10	0.00040 RT
12.79	HEPTACHLOR-2C	329.51	1224	0.0001		30.000	10	0.00003 <MDL
13.58	ALDRIN-2C	1121.86	5207	0.0003		30.000	10	0.00011
14.92	HEPTACHLOR EPOXIDE-2	713.26	2654	0.0002		30.000	10	0.00008
15.46	GAMMA-CHLORDANE-2C	872.41	2543	0.0003		30.000	10	0.00010
15.81	ALPHA-CHLORDANE-2C	0.00	0	0.0000		30.000	10	0.00000
15.96	ENDOSULFAN I-2C	425.39	2142	0.0002		30.000	10	0.00006
16.29	4,4'-DDE-2C	788.79	4291	0.0003		30.000	10	0.00011
16.56	DIELDRIN-2C	2080.63	8237	0.0008		30.000	10	0.00028 RT
17.43	ENDRIN-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL (ND)
17.58	4,4'-DDD-2C	596.77	2799	0.0003		30.000	10	0.00011
17.90	ENDOSULFAN II-2C	312.45	1232	0.0002		30.000	10	0.00006
18.49	4,4'-DDT-2C	1305.42	7972	0.0007		30.000	10	0.00024
18.80	ENDRIN ALDEHYDE-2C	1557.98	7040	0.0013		30.000	10	0.00042
19.36	ENDOSULFAN SULFATE-2	1802.05	7152	0.0011		30.000	10	0.00035 RT
20.18	METHOXYCHLOR-2C	728.97	11194	0.0008		30.000	10	0.00026 <MDL
20.84	ENDRIN KETONE-2C	1221.63	19411	0.0007		30.000	10	0.00023
24.16	DCB-2C	137831.53	639464	0.1096		30.000	10	0.03653

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_142.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
7.70	TCMX	381585.49	1195200	0.0936		30.000	10	0.03121	
9.22	ALPHA-BHC	2444.46	6063	0.0004		30.000	10	0.00015	<RDL
9.93	GAMMA-BHC	349.10	2526	0.0001		30.000	10	0.00002	↓
10.17	BETA-BHC	2839.89	16743	0.0015		30.000	10	0.00048	DNC
10.63	DELTA-BHC	1657.14	19120	0.0004		30.000	10	0.00013	<RDL
11.26	HEPTACHLOR	1560.64	7894	0.0003		30.000	10	0.00011	↓
11.92	ALDRIN	4195.41	14102	0.0010		30.000	10	0.00034	
13.48	HEPTACHLOR EPOXIDE	19723.21	124499	0.0056		30.000	10	0.00186	RT
13.77	GAMMA-CHLORDANE	1177.66	4550	0.0003		30.000	10	0.00011	<RDL
14.06	ALPHA-CHLORDANE	7461.94	27643	0.0023		30.000	10	0.00075	RT
14.27	4,4'-DDE	6042.94	27219	0.0019		30.000	10	0.00063	RT
14.46	ENDOSULFAN I	31476.79	120093	0.0102		30.000	10	0.00339	RT
14.90	DIELDRIN	11534.21	43437	0.0036		30.000	10	0.00121	RT
15.58	ENDRIN	21298.38	83718	0.0076		30.000	10	0.00253	RT
15.81	4,4'-DDD	9933.40	32438	0.0042		30.000	10	0.00140	RT
16.13	ENDOSULFAN II	2106.46	7192	0.0009		30.000	10	0.00030	RT
16.48	4,4'-DDT	802.64	3036	0.0003		30.000	10	0.00011	<MDL
17.17	ENDRIN ALDEHYDE	1069.78	4805	0.0007		30.000	10	0.00023	↓
17.59	METHOXYCHLOR	5051.84	34653	0.0039		30.000	10	0.00132	DNC
18.12	ENDOSULFAN SULFATE	361.00	1516	0.0002		30.000	10	0.00006	<MDL
18.97	ENDRIN KETONE	3010.66	23504	0.0013		30.000	10	0.00043	RT
21.35	DCB	203074.16	761182	0.0934		30.000	10	0.03113	

DNC - Report % recovery

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_141.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.75	TCMX-2C	342878.54	1126423	0.0948		30.000	10	0.03161
10.51	ALPHA-BHC-2C	1285.01	7299	0.0003		30.000	10	0.00009 <MDL
11.42	GAMMA-BHC-2C	1354.45	7868	0.0003		30.000	10	0.00011 ↓
11.55	BETA-BHC-2C	1914.35	8925	0.0011		30.000	10	0.00036 RT
12.46	DELTA-BHC-2C	2606.11	16281	0.0007		30.000	10	0.00024 <MDL
12.59	HEPTACHLOR-2C	1966.96	11742	0.0005		30.000	10	0.00016 ↓
13.57	ALDRIN-2C	4449.56	17179	0.0013		30.000	10	0.00044 <MDL
15.00	HEPTACHLOR EPOXIDE-2	3058.12	12920	0.0011		30.000	10	0.00036 DNC-RT
15.51	GAMMA-CHLORDANE-2C	8305.76	37992	0.0030		30.000	10	0.00099 RT
15.71	ALPHA-CHLORDANE-2C	2483.64	11179	0.0010		30.000	10	0.00032 RT
16.07	ENDOSULFAN I-2C	6772.05	48950	0.0027		30.000	10	0.00091 RT
16.23	4,4'-DDE-2C	14284.58	61360	0.0058		30.000	10	0.00194 DNC
16.78	DIELDRIN-2C	2008.62	15497	0.0008		30.000	10	0.00027 RT
17.36	ENDRIN-2C	3218.78	13564	0.0016		30.000	10	0.00052 DNC
17.52	4,4'-DDD-2C	12313.95	52380	0.0069		30.000	10	0.00229 RT
17.96	ENDOSULFAN II-2C	11900.62	80285	0.0066		30.000	10	0.00220 DNC
18.44	4,4'-DDT-2C	21457.57	114942	0.0116		30.000	10	0.00387 DNC
18.76	ENDRIN ALDEHYDE-2C	2376.51	25749	0.0019		30.000	10	0.00064 DNC
19.61	ENDOSULFAN SULFATE-2	2335.46	15321	0.0014		30.000	10	0.00046 RT
20.24	METHOXYCHLOR-2C	812.34	5828	0.0009		30.000	10	0.00029 <MDL
20.80	ENDRIN KETONE-2C	744.45	5880	0.0004		30.000	10	0.00014 ↓
24.20	DCB-2C	124671.31	593938	0.0987		30.000	10	0.03291

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_141.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.81	TCMX	440534.29	1463767	0.1063		30.000	10	0.03545
9.16	ALPHA-BHC	2115.89	8471	0.0004		30.000	10	0.00012 <MDL
9.96	GAMMA-BHC	189.33	496	0.0000		30.000	10	0.00001
10.20	BETA-BHC	419.08	1814	0.0002		30.000	10	0.00007
10.53	DELTA-BHC	231.84	852	0.0001		30.000	10	0.00002
11.18	HEPTACHLOR	4309.62	22553	0.0008		30.000	10	0.00026 <MDL
11.83	ALDRIN	1527.41	9242	0.0003		30.000	10	0.00011
13.47	HEPTACHLOR EPOXIDE	3191.81	12583	0.0008		30.000	10	0.00026 RT
13.76	GAMMA-CHLORDANE	11179.02	59173	0.0027		30.000	10	0.00090 RT
14.06	ALPHA-CHLORDANE	26232.41	134589	0.0067		30.000	10	0.00222 DWC
14.27	4,4'-DDE	290986.29	1242850	0.0756		30.000	10	0.02520
14.57	ENDOSULFAN I	12501.39	43244	0.0034		30.000	10	0.00114 RT
15.02	DIELDRIN	6220.37	22902	0.0016		30.000	10	0.00054 RT
15.56	ENDRIN	1682.00	6095	0.0005		30.000	10	0.00017 <MDL
15.69	4,4'-DDD	17616.25	77192	0.0059		30.000	10	0.00198
16.13	ENDOSULFAN II	2811.06	13556	0.0010		30.000	10	0.00033 RT
16.38	4,4'-DDT	20463.89	108610	0.0069		30.000	10	0.00230 DWC
17.09	ENDRIN ALDEHYDE	12218.16	73972	0.0066		30.000	10	0.00219 DWC
17.70	METHOXYCHLOR	2722.29	22312	0.0017		30.000	10	0.00057 RT
18.23	ENDOSULFAN SULFATE	645.57	3188	0.0003		30.000	10	0.00009 <MDL
18.81	ENDRIN KETONE	1267.21	5205	0.0004		30.000	10	0.00015
21.38	DCB	257954.35	956715	0.1036		30.000	10	0.03454

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_231.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.84	TCMX-2C	387884.24	1291792	0.1046		30.000	10	0.03486
10.39	ALPHA-BHC-2C	4238.39	18207	0.0008		30.000	10	0.00027 <MDL
11.39	GAMMA-BHC-2C	1883.66	7235	0.0004		30.000	10	0.00014 ↓
11.63	BETA-BHC-2C	2401.42	9766	0.0013		30.000	10	0.00043 ΔMC
12.41	DELTA-BHC-2C	47117.91	168916	0.0121		30.000	10	0.00403 ΔMC
12.67	HEPTACHLOR-2C	1740.29	8146	0.0004		30.000	10	0.00013 <MDL
13.44	ALDRIN-2C	394.36	2520	0.0001		30.000	10	0.00004 ↓
14.97	HEPTACHLOR EPOXIDE-2	6288.94	23510	0.0020		30.000	10	0.00067 ΔMC
15.46	GAMMA-CHLORDANE-2C	11718.63	63741	0.0038		30.000	10	0.00126 ΔMC
15.85	ALPHA-CHLORDANE-2C	7048.55	25912	0.0024		30.000	10	0.00082 RT
16.01	ENDOSULFAN I-2C	1240.03	5700	0.0005		30.000	10	0.00015 <MDL
16.16	4,4'-DDE-2C	2866.62	16667	0.0010		30.000	10	0.00034
16.69	DIELDRIN-2C	1280.95	4219	0.0005		30.000	10	0.00016 <MDL
17.44	ENDRIN-2C	2204.08	12416	0.0009		30.000	10	0.00031
17.60	4,4'-DDD-2C	8134.81	45288	0.0039		30.000	10	0.00130
18.04	ENDOSULFAN II-2C	7073.39	66401	0.0035		30.000	10	0.00117 RT
18.50	4,4'-DDT-2C	14141.19	79143	0.0069		30.000	10	0.00230 RT
18.81	ENDRIN ALDEHYDE-2C	3760.42	38923	0.0027		30.000	10	0.00091 RT
19.39	ENDOSULFAN SULFATE-2	4667.89	32526	0.0025		30.000	10	0.00084 ΔMC
20.07	METHOXYCHLOR-2C	3043.85	13536	0.0029		30.000	10	0.00096 ΔMC
21.00	ENDRIN KETONE-2C	2301.46	11285	0.0012		30.000	10	0.00039 RT
24.13	DCB-2C	154980.32	720925	0.1130		30.000	10	0.03767

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_231.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.77	TCMX	349670.74	1133818	0.1078		30.000	10	0.03592
9.09	ALPHA-BHC	1888.07	8639	0.0004		30.000	10	0.00014 <MDL
10.01	GAMMA-BHC	540.65	3596	0.0001		30.000	10	0.00005
10.25	BETA-BHC	1127.92	8079	0.0007		30.000	10	0.00025
10.60	DELTA-BHC	884.68	4717	0.0003		30.000	10	0.00009
11.13	HEPTACHLOR	2735.88	18963	0.0007		30.000	10	0.00024
11.96	ALDRIN	1140.13	4551	0.0003		30.000	10	0.00012
13.39	HEPTACHLOR EPOXIDE	1639.23	7736	0.0006		30.000	10	0.00019 <MDL
13.62	GAMMA-CHLORDANE	2676.90	15839	0.0010		30.000	10	0.00032 RT
14.08	ALPHA-CHLORDANE	1720.21	6125	0.0007		30.000	10	0.00022 <MDL
14.29	4,4'-DDE	952.32	2870	0.0004		30.000	10	0.00013 <MDL
14.48	ENDOSULFAN I	6729.58	23717	0.0028		30.000	10	0.00092 RT
14.92	DIELDRIN	3451.69	14671	0.0014		30.000	10	0.00046 RT
15.46	ENDRIN	735.38	2920	0.0004		30.000	10	0.00013 <MDL
15.60	4,4'-DDD	6196.80	24082	0.0035		30.000	10	0.00117 RT
16.04	ENDOSULFAN II	483.01	1927	0.0003		30.000	10	0.00009 <MDL
16.29	4,4'-DDT	7882.49	35605	0.0042		30.000	10	0.00140 RT
17.19	ENDRIN ALDEHYDE	1303.04	5512	0.0010		30.000	10	0.00034 <MDL
17.60	METHOXYCHLOR	2030.87	20695	0.0021		30.000	10	0.00069 DLLC
18.23	ENDOSULFAN SULFATE	596.83	12007	0.0004		30.000	10	0.00012 <MDL
18.94	ENDRIN KETONE	1168.75	8746	0.0006		30.000	10	0.00020
21.29	DCB	168933.59	616018	0.1084		30.000	10	0.03612

ND

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_325.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.77	TCMX-2C	383781.51	1269445	0.1105		30.000	10	0.03683
10.47	ALPHA-BHC-2C	943.62	5837	0.0002		30.000	10	0.00006
11.39	GAMMA-BHC-2C	1109.70	6028	0.0003		30.000	10	0.00009
11.57	BETA-BHC-2C	1406.28	9852	0.0008		30.000	10	0.00028
12.44	DELTA-BHC-2C	714.84	2853	0.0002		30.000	10	0.00007
12.59	HEPTACHLOR-2C	0.00	0	0.0000		30.000	10	0.00000
13.53	ALDRIN-2C	6192.24	23945	0.0017		30.000	10	0.00058
14.85	HEPTACHLOR EPOXIDE-2	4799.96	18767	0.0016		30.000	10	0.00054
15.32	GAMMA-CHLORDANE-2C	6064.22	24310	0.0021		30.000	10	0.00069
15.72	ALPHA-CHLORDANE-2C	355.01	1285	0.0001		30.000	10	0.00004
16.03	ENDOSULFAN I-2C	3501.93	27683	0.0014		30.000	10	0.00046
16.19	4,4'-DDE-2C	3999.54	15614	0.0016		30.000	10	0.00052
16.47	DIELDRIN-2C	7405.64	26970	0.0028		30.000	10	0.00094
17.31	ENDRIN-2C	1378.05	8382	0.0007		30.000	10	0.00023
17.47	4,4'-DDD-2C	4649.12	19604	0.0024		30.000	10	0.00081
17.91	ENDOSULFAN II-2C	3931.49	26530	0.0020		30.000	10	0.00067
18.37	4,4'-DDT-2C	8809.80	46736	0.0045		30.000	10	0.00148
18.68	ENDRIN ALDEHYDE-2C	4185.84	31620	0.0032		30.000	10	0.00106
19.26	ENDOSULFAN SULFATE-2	1692.36	8273	0.0010		30.000	10	0.00032
19.95	METHOXYCHLOR-2C	1546.38	6503	0.0015		30.000	10	0.00051
20.87	ENDRIN KETONE-2C	1710.40	27665	0.0008		30.000	10	0.00028
24.00	DCB-2C	155108.04	709985	0.1126		30.000	10	0.03754

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_325.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.79	TCMX	318348.41	1057166	0.0977		30.000	10	0.03258
9.13	ALPHA-BHC	1343.46	5464	0.0003		30.000	10	0.00010 <MDL
9.91	GAMMA-BHC	116.15	399	0.0000		30.000	10	0.00001 ↓
10.26	BETA-BHC	3376.71	22762	0.0022		30.000	10	0.00074 RT
10.70	DELTA-BHC	948.06	8616	0.0003		30.000	10	0.00010 <MDL
11.18	HEPTACHLOR	979.43	5626	0.0003		30.000	10	0.00008 ↓
11.97	ALDRIN	1419.69	5435	0.0004		30.000	10	0.00014 ↓
13.40	HEPTACHLOR EPOXIDE	3847.72	15967	0.0014		30.000	10	0.00045 DUP
13.63	GAMMA-CHLORDANE	1199.94	3589	0.0004		30.000	10	0.00015 <MDL
14.09	ALPHA-CHLORDANE	1691.52	5277	0.0006		30.000	10	0.00021 ↓
14.20	4,4'-DDE	5241.41	19264	0.0022		30.000	10	0.00073 RT
14.31	ENDOSULFAN I	2137.78	6979	0.0009		30.000	10	0.00029 RT
14.93	DIELDRIN	7457.88	31448	0.0030		30.000	10	0.00100 RT
15.47	ENDRIN	1095.50	3464	0.0006		30.000	10	0.00019 <MDL
15.74	4,4'-DDD	656.80	2018	0.0004		30.000	10	0.00012 ↓
16.04	ENDOSULFAN II	943.98	3678	0.0005		30.000	10	0.00017 ↓
16.29	4,4'-DDT	14298.23	69799	0.0076		30.000	10	0.00254 RT
17.18	ENDRIN ALDEHYDE	1271.74	4664	0.0010		30.000	10	0.00033 <MDL
17.61	METHOXYCHLOR	1735.43	8260	0.0018		30.000	10	0.00059 DUP
17.92	ENDOSULFAN SULFATE	2809.78	10677	0.0017		30.000	10	0.00056 DUP RT
18.79	ENDRIN KETONE	679.13	8274	0.0003		30.000	10	0.00011 <MDL
21.29	DCB	142918.86	536326	0.0899		30.000	10	0.02997

(DS) DS/P

9/3/09

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_323.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.79	TCMX-2C	355190.30	1213456	0.1020		30.000	10	0.03401
10.50	ALPHA-BHC-2C	1787.15	9176	0.0004		30.000	10	0.00012 <MDL
11.42	GAMMA-BHC-2C	1967.59	7725	0.0005		30.000	10	0.00015 J
11.72	BETA-BHC-2C	1513.79	7202	0.0009		30.000	10	0.00030 RT
12.32	DELTA-BHC-2C	33529.93	116636	0.0095		30.000	10	0.00316 RT
12.46	HEPTACHLOR-2C	727.25	2754	0.0002		30.000	10	0.00006 <MDL
13.55	ALDRIN-2C	4572.76	17513	0.0013		30.000	10	0.00043 J
14.87	HEPTACHLOR EPOXIDE-2	8109.47	34197	0.0027		30.000	10	0.00091 RT
15.33	GAMMA-CHLORDANE-2C	10926.20	58022	0.0037		30.000	10	0.00124 RT
15.73	ALPHA-CHLORDANE-2C	7901.93	30031	0.0029		30.000	10	0.00096 DNC
15.85	ENDOSULFAN I-2C	1845.02	10737	0.0007		30.000	10	0.00024 <MDL
16.20	4,4'-DDE-2C	5282.25	19044	0.0021		30.000	10	0.00068 DNC
16.48	DIELDRIN-2C	12321.19	47710	0.0047		30.000	10	0.00156 RT
17.32	ENDRIN-2C	1693.60	7820	0.0009		30.000	10	0.00029 <MDL
17.48	4,4'-DDD-2C	8278.49	45500	0.0043		30.000	10	0.00145 RT
17.91	ENDOSULFAN II-2C	7252.29	55208	0.0037		30.000	10	0.00124 DNC
18.38	4,4'-DDT-2C	14109.25	67979	0.0071		30.000	10	0.00238 DNC
18.69	ENDRIN ALDEHYDE-2C	4322.20	32740	0.0033		30.000	10	0.00109 DNC
19.27	ENDOSULFAN SULFATE-2	3356.46	14257	0.0019		30.000	10	0.00063 RT
19.95	METHOXYCHLOR-2C	3626.92	16570	0.0036		30.000	10	0.00120 RT
20.87	ENDRIN KETONE-2C	2120.05	17406	0.0010		30.000	10	0.00034 <MDL
24.00	DCB-2C	136332.39	635643	0.0977		30.000	10	0.03256

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_323.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.79	TCMX	403932.44	1319869	0.0972		30.000	10	0.03241
9.15	ALPHA-BHC	1227.50	3309	0.0002		30.000	10	0.00007 <MDL
10.04	GAMMA-BHC	1089.77	7567	0.0002		30.000	10	0.00007 ↓
10.28	BETA-BHC	2916.69	21247	0.0014		30.000	10	0.00045 RT
10.72	DELTA-BHC	1757.90	18348	0.0004		30.000	10	0.00013 <MDL
11.16	HEPTACHLOR	2733.89	28327	0.0005		30.000	10	0.00017 ↓
11.81	ALDRIN	1536.77	16092	0.0003		30.000	10	0.00011 ↓
13.44	HEPTACHLOR EPOXIDE	3449.01	14716	0.0008		30.000	10	0.00028
13.66	GAMMA-CHLORDANE	5097.92	28547	0.0012		30.000	10	0.00041 RT
14.01	ALPHA-CHLORDANE	9216.44	53787	0.0023		30.000	10	0.00078 DWC
14.23	4,4'-DDE	9708.40	38594	0.0025		30.000	10	0.00084 DWC
14.34	ENDOSULFAN I	3654.42	15193	0.0010		30.000	10	0.00033 RT
14.96	DIELDRIN	9792.87	40240	0.0026		30.000	10	0.00085 DWC
15.50	ENDRIN	2112.65	7427	0.0006		30.000	10	0.00021 <MDL
15.64	4,4'-DDD	19137.38	77764	0.0064		30.000	10	0.00215 RT
16.06	ENDOSULFAN II	1814.15	5437	0.0006		30.000	10	0.00021 <MDL
16.32	4,4'-DDT	23079.45	100738	0.0078		30.000	10	0.00259 RT
17.02	ENDRIN ALDEHYDE	10533.03	35143	0.0057		30.000	10	0.00189 RT
17.63	METHOXYCHLOR	4618.70	30611	0.0029		30.000	10	0.00096 RT
18.25	ENDOSULFAN SULFATE	753.66	9076	0.0003		30.000	10	0.00010 <MDL
18.83	ENDRIN KETONE	1438.57	6649	0.0005		30.000	10	0.00017 ↓
21.32	DCB	245837.95	910515	0.0988		30.000	10	0.03292

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_230.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.82	TCMX-2C	367336.59	1237591	0.0988		30.000	10	0.03293
10.55	ALPHA-BHC-2C	1216.22	7099	0.0002		30.000	10	0.00008 <MDL
11.38	GAMMA-BHC-2C	1677.87	7351	0.0004		30.000	10	0.00012
11.63	BETA-BHC-2C	695.78	4538	0.0004		30.000	10	0.00012
12.37	DELTA-BHC-2C	31158.00	110249	0.0080		30.000	10	0.00267 RT
12.52	HEPTACHLOR-2C	667.47	2316	0.0002		30.000	10	0.00005 <MDL
13.61	ALDRIN-2C	5091.30	20076	0.0014		30.000	10	0.00047
14.92	HEPTACHLOR EPOXIDE-2	8474.64	31295	0.0027		30.000	10	0.00090
15.39	GAMMA-CHLORDANE-2C	11293.09	48410	0.0037		30.000	10	0.00122 DNC
15.80	ALPHA-CHLORDANE-2C	1111.23	3617	0.0004		30.000	10	0.00013 <MDL
15.95	ENDOSULFAN I-2C	682.74	3887	0.0003		30.000	10	0.00008
16.26	4,4'-DDE-2C	6798.88	24858	0.0024		30.000	10	0.00082 RT
16.63	DIELDRIN-2C	1819.41	5476	0.0007		30.000	10	0.00022 <MDL
17.38	ENDRIN-2C	2507.50	11698	0.0011		30.000	10	0.00036 DNC
17.54	4,4'-DDD-2C	10315.56	44112	0.0049		30.000	10	0.00165 RT
17.97	ENDOSULFAN II-2C	7602.65	51371	0.0038		30.000	10	0.00126 RT
18.44	4,4'-DDT-2C	16880.99	84457	0.0082		30.000	10	0.00275 DNC
18.74	ENDRIN ALDEHYDE-2C	4697.28	32617	0.0034		30.000	10	0.00114 DNC
19.32	ENDOSULFAN SULFATE-2	4336.21	19143	0.0023		30.000	10	0.00078 RT
20.20	METHOXYCHLOR-2C	1004.40	6320	0.0010		30.000	10	0.00032 RT
20.93	ENDRIN KETONE-2C	3601.51	19243	0.0018		30.000	10	0.00061 RT
24.07	DCB-2C	148596.97	693361	0.1082		30.000	10	0.03605

Dgm 8/31/09

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_230.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time (min)	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.79	TCMX	474568.41	1524354	0.1149		30.000	10	0.03829
9.13	ALPHA-BHC	1703.82	7025	0.0003		30.000	10	0.00009 <MDL
9.91	GAMMA-BHC	261.92	646	0.0001		30.000	10	0.00002
10.15	BETA-BHC	480.49	2120	0.0002		30.000	10	0.00007
10.71	DELTA-BHC	1631.87	12341	0.0004		30.000	10	0.00012
11.14	HEPTACHLOR	4484.59	29419	0.0008		30.000	10	0.00027
11.98	ALDRIN	4094.53	14864	0.0009		30.000	10	0.00029
13.42	HEPTACHLOR EPOXIDE	4813.38	22064	0.0012		30.000	10	0.00039
13.70	GAMMA-CHLORDANE	10149.89	37648	0.0025		30.000	10	0.00082
14.10	ALPHA-CHLORDANE	6297.94	21667	0.0016		30.000	10	0.00053 RT
14.21	4,4'-DDE	13171.52	48781	0.0034		30.000	10	0.00114 RT
14.32	ENDOSULFAN I	4746.24	17645	0.0013		30.000	10	0.00043 RT
14.94	DIELDRIN	9411.55	36266	0.0025		30.000	10	0.00082 BWC
15.48	ENDRIN	2403.57	7971	0.0007		30.000	10	0.00024 <MDL
15.62	4,4'-DDD	22537.65	92936	0.0076		30.000	10	0.00253 RT
16.05	ENDOSULFAN II	1439.00	3587	0.0005		30.000	10	0.00017 <MDL
16.31	4,4'-DDT	27050.04	130490	0.0091		30.000	10	0.00304 RT
17.01	ENDRIN ALDEHYDE	14892.01	131631	0.0080		30.000	10	0.00267 RT
17.62	METHOXYCHLOR	4179.25	17467	0.0026		30.000	10	0.00087 RT
18.25	ENDOSULFAN SULFATE	476.95	1989	0.0002		30.000	10	0.00006 <MDL
18.82	ENDRIN KETONE	921.28	4551	0.0003		30.000	10	0.00011
21.31	DCB	273912.14	1013152	0.1100		30.000	10	0.03666

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_232.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.81	TCMX-2C	414745.65	1362067	0.1121		30.000	10	0.03738
10.54	ALPHA-BHC-2C	493.66	2222	0.0001		30.000	10	0.00003 <MDL
11.35	GAMMA-BHC-2C	1541.43	8443	0.0003		30.000	10	0.00011
11.62	BETA-BHC-2C	1110.20	4783	0.0006		30.000	10	0.00020
12.35	DELTA-BHC-2C	32172.57	118374	0.0083		30.000	10	0.00275 RT
12.61	HEPTACHLOR-2C	1171.48	4760	0.0003		30.000	10	0.00009 <MDL
13.40	ALDRIN-2C	972.22	4566	0.0003		30.000	10	0.00009
14.90	HEPTACHLOR EPOXIDE-2	11616.38	44376	0.0037		30.000	10	0.00124
15.38	GAMMA-CHLORDANE-2C	16544.93	83717	0.0054		30.000	10	0.00179
15.78	ALPHA-CHLORDANE-2C	6723.74	24036	0.0023		30.000	10	0.00078 DLC
15.94	ENDOSULFAN I-2C	1218.40	4890	0.0004		30.000	10	0.00015 <MDL
16.24	4,4'-DDE-2C	9612.33	36792	0.0035		30.000	10	0.00115 DLC
16.78	DIELDRIN-2C	1595.57	10262	0.0006		30.000	10	0.00019 <MDL
17.37	ENDRIN-2C	3455.75	19978	0.0015		30.000	10	0.00049 DLC
17.52	4,4'-DDD-2C	12146.91	68240	0.0058		30.000	10	0.00194 RT
17.96	ENDOSULFAN II-2C	11451.84	107961	0.0057		30.000	10	0.00189 DLC
18.42	4,4'-DDT-2C	19271.78	103522	0.0094		30.000	10	0.00313 DLC
18.73	ENDRIN ALDEHYDE-2C	3901.60	41020	0.0028		30.000	10	0.00095 DLC
19.31	ENDOSULFAN SULFATE-2	5970.17	35105	0.0032		30.000	10	0.00107 RT
20.00	METHOXYCHLOR-2C	4239.16	21985	0.0040		30.000	10	0.00134 RT
20.92	ENDRIN KETONE-2C	2769.01	12624	0.0014		30.000	10	0.00047 RT
24.07	DCB-2C	162175.51	748632	0.1185		30.000	10	0.03949

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_232.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.80	TCMX	319175.72	1055164	0.0980		30.000	10	0.03267
9.08	ALPHA-BHC	295.67	837	0.0001		30.000	10	0.00002 < MDL
9.71	GAMMA-BHC	117.62	518	0.0000		30.000	10	0.00001 ↓
10.31	BETA-BHC	1373.69	8817	0.0009		30.000	10	0.00030 RT
10.63	DELTA-BHC	545.80	2380	0.0002		30.000	10	0.00006 < MDL
11.17	HEPTACHLOR	3386.80	17045	0.0009		30.000	10	0.00029
11.82	ALDRIN	345.84	1640	0.0001		30.000	10	0.00004
13.45	HEPTACHLOR EPOXIDE	424.91	2687	0.0001		30.000	10	0.00005
13.73	GAMMA-CHLORDANE	3061.31	12117	0.0011		30.000	10	0.00037 DNC
14.05	ALPHA-CHLORDANE	265.29	1261	0.0001		30.000	10	0.00003 < MDL
14.25	4,4'-DDE	324.06	2252	0.0001		30.000	10	0.00004 ↓
14.41	ENDOSULFAN I	18963.54	60666	0.0078		30.000	10	0.00259 DNC
14.99	DIELDRIN	861.78	3540	0.0003		30.000	10	0.00012 < MDL
15.59	ENDRIN	1056.64	5722	0.0005		30.000	10	0.00018
15.82	4,4'-DDD	936.28	10419	0.0005		30.000	10	0.00018
16.16	ENDOSULFAN II	3599.47	15149	0.0019		30.000	10	0.00065 RT
16.36	4,4'-DDT	278.22	2065	0.0001		30.000	10	0.00005 < MDL
17.06	ENDRIN ALDEHYDE	13457.06	74676	0.0105		30.000	10	0.00351 RT
17.76	METHOXYCHLOR	790.57	11339	0.0008		30.000	10	0.00027 < MDL
18.20	ENDOSULFAN SULFATE	697.80	5140	0.0004		30.000	10	0.00014 ↓
18.79	ENDRIN KETONE	5846.76	23353	0.0029		30.000	10	0.00098 RT
21.36	DCB	156411.06	584127	0.0994		30.000	10	0.03313

(11)

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_328.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.81	TCMX-2C	352699.88	1204555	0.1013		30.000	10	0.03376
10.53	ALPHA-BHC-2C	318.11	2028	0.0001		30.000	10	0.00002 <MDL
11.43	GAMMA-BHC-2C	478.53	1862	0.0001		30.000	10	0.00004 ↓
11.62	BETA-BHC-2C	2110.60	9062	0.0013		30.000	10	0.00042 BNC
12.36	DELTA-BHC-2C	20862.16	76274	0.0059		30.000	10	0.00197 RT
12.50	HEPTACHLOR-2C	688.59	2905	0.0002		30.000	10	0.00005 <MDL
13.60	ALDRIN-2C	5964.87	23140	0.0017		30.000	10	0.00056 <MDL
14.72	HEPTACHLOR EPOXIDE-2	1001.36	9905	0.0003		30.000	10	0.00011
15.48	GAMMA-CHLORDANE-2C	1611.90	18497	0.0005		30.000	10	0.00018
15.67	ALPHA-CHLORDANE-2C	2140.38	16866	0.0008		30.000	10	0.00026
15.84	ENDOSULFAN I-2C	1200.92	6365	0.0005		30.000	10	0.00016
16.14	4,4'-DDE-2C	1601.15	12996	0.0006		30.000	10	0.00021 ↓
16.56	DIELDRIN-2C	3730.67	44366	0.0014		30.000	10	0.00047 BNC
17.21	ENDRIN-2C	3099.61	34972	0.0016		30.000	10	0.00053 RT
17.72	4,4'-DDD-2C	3880.68	98291	0.0020		30.000	10	0.00068 RT
17.87	ENDOSULFAN II-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
18.38	4,4'-DDT-2C	0.00	0	0.0000		30.000	10	0.00000 ↓
18.75	ENDRIN ALDEHYDE-2C	14678.25	168951	0.0111		30.000	10	0.00370 BNC
19.58	ENDOSULFAN SULFATE-2	1964.84	100771	0.0011		30.000	10	0.00037 RT
20.03	METHOXYCHLOR-2C	6166.54	36806	0.0061		30.000	10	0.00204 BNC
21.04	ENDRIN KETONE-2C	3272.05	32823	0.0016		30.000	10	0.00053 RT
24.08	DCB-2C	143965.88	683632	0.1037		30.000	10	0.03457

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3/3/09

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_328.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time (min)	Component Name	Height (µV)	Area (µV·s)	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
7.79	TCMX	450623.97	1442664	0.1089		30.000	10	0.03629	
9.14	ALPHA-BHC	8960.37	29643	0.0015		30.000	10	0.00050	RT
9.92	GAMMA-BHC	249.90	773	0.0000		30.000	10	0.00002	<MDL
10.10	BETA-BHC	1375.08	7227	0.0006		30.000	10	0.00021	
10.75	DELTA-BHC	2059.20	24939	0.0004		30.000	10	0.00015	
11.12	HEPTACHLOR	4012.47	25672	0.0007		30.000	10	0.00024	
12.02	ALDRIN	6430.59	35417	0.0014		30.000	10	0.00045	
13.46	HEPTACHLOR EPOXIDE	9864.57	39465	0.0024		30.000	10	0.00079	RT
13.68	GAMMA-CHLORDANE	18195.39	91997	0.0044		30.000	10	0.00147	RT
14.03	ALPHA-CHLORDANE	11229.47	66994	0.0029		30.000	10	0.00095	DWC
14.27	4,4'-DDE	71038.32	321004	0.0185		30.000	10	0.00615	
14.40	ENDOSULFAN I	26863.81	118197	0.0073		30.000	10	0.00245	DWC
14.99	DIELDRIN	83024.82	311556	0.0217		30.000	10	0.00724	
15.53	ENDRIN	21851.64	77415	0.0065		30.000	10	0.00215	
15.67	4,4'-DDD	171007.46	680054	0.0576		30.000	10	0.01921	RT
16.09	ENDOSULFAN II	6742.88	19373	0.0024		30.000	10	0.00080	
16.35	4,4'-DDT	204377.31	1070616	0.0688		30.000	10	0.02293	RT
17.05	ENDRIN ALDEHYDE	62122.73	222803	0.0334		30.000	10	0.01112	RT
17.66	METHOXYCHLOR	24603.70	100834	0.0154		30.000	10	0.00512	RT
18.28	ENDOSULFAN SULFATE	3761.28	11058	0.0015		30.000	10	0.00051	RT
18.85	ENDRIN KETONE	30910.47	94940	0.0108		30.000	10	0.00361	
21.33	DCB	287630.59	1048078	0.1154		30.000	10	0.03848	

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_233.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.82	TCMX-2C	400079.01	1337541	0.1080		30.000	10	0.03600
10.54	ALPHA-BHC-2C	799.02	3906	0.0002		30.000	10	0.00005 <MDL
11.48	GAMMA-BHC-2C	1477.88	6648	0.0003		30.000	10	0.00011
11.64	BETA-BHC-2C	1369.34	8654	0.0007		30.000	10	0.00024
12.39	DELTA-BHC-2C	44953.29	165842	0.0115		30.000	10	0.00385 DLC
12.68	HEPTACHLOR-2C	895.46	4100	0.0002		30.000	10	0.00007 <MDL
13.31	ALDRIN-2C	1647.05	4916	0.0005		30.000	10	0.00015
14.95	HEPTACHLOR EPOXIDE-2	24331.72	94416	0.0078		30.000	10	0.00259 DLC
15.41	GAMMA-CHLORDANE-2C	34873.23	135116	0.0113		30.000	10	0.00376 DLC
15.82	ALPHA-CHLORDANE-2C	1518.86	5291	0.0005		30.000	10	0.00018 <MDL
15.98	ENDOSULFAN I-2C	2032.90	6533	0.0007		30.000	10	0.00025 <MDL
16.22	4,4'-DDE-2C	26551.39	80012	0.0096		30.000	10	0.00319
16.66	DIELDRIN-2C	26520.52	91480	0.0097		30.000	10	0.00323
17.40	ENDRIN-2C	21451.88	83231	0.0092		30.000	10	0.00306
17.56	4,4'-DDD-2C	110570.54	424019	0.0530		30.000	10	0.01766 RT
17.96	ENDOSULFAN II-2C	60841.07	400322	0.0302		30.000	10	0.01006
18.45	4,4'-DDT-2C	167846.44	841294	0.0819		30.000	10	0.02730 DLC
18.81	ENDRIN ALDEHYDE-2C	36398.52	195268	0.0266		30.000	10	0.00886 DLC RT
19.41	ENDOSULFAN SULFATE-2	61029.68	353045	0.0329		30.000	10	0.01098 DLC
20.20	METHOXYCHLOR-2C	4484.02	20256	0.0043		30.000	10	0.00142 RT
20.94	ENDRIN KETONE-2C	94680.70	460832	0.0479		30.000	10	0.01595 RT
24.09	DCB-2C	171954.13	806024	0.1259		30.000	10	0.04198

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_233.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.80	TCMX	317078.42	1033109	0.0973		30.000	10	0.03244
9.15	ALPHA-BHC	687.05	1776	0.0002		30.000	10	0.00005 <MDL
9.70	GAMMA-BHC	141.38	912	0.0000		30.000	10	0.00001
10.11	BETA-BHC	238.04	904	0.0002		30.000	10	0.00005
10.53	DELTA-BHC	1182.46	4262	0.0004		30.000	10	0.00012
11.17	HEPTACHLOR	3233.02	21984	0.0008		30.000	10	0.00028
11.91	ALDRIN	504.83	3027	0.0002		30.000	10	0.00005
13.45	HEPTACHLOR EPOXIDE	529.32	4288	0.0002		30.000	10	0.00006
13.74	GAMMA-CHLORDANE	3395.40	12908	0.0012		30.000	10	0.00041 DUL
14.08	ALPHA-CHLORDANE	191.59	568	0.0001		30.000	10	0.00002 <MDL
14.28	4,4'-DDE	317.05	2592	0.0001		30.000	10	0.00004
14.42	ENDOSULFAN I	5573.35	18826	0.0023		30.000	10	0.00076 LOQ
15.00	DIELDRIN	209.13	873	0.0001		30.000	10	0.00003 <MDL
15.45	ENDRIN	629.04	5844	0.0003		30.000	10	0.00011
15.70	4,4'-DDD	565.50	5489	0.0003		30.000	10	0.00011
16.11	ENDOSULFAN II	687.88	3201	0.0004		30.000	10	0.00012
16.38	4,4'-DDT	674.84	7803	0.0004		30.000	10	0.00012
17.07	ENDRIN ALDEHYDE	6095.79	34395	0.0048		30.000	10	0.00159
17.44	METHOXYCHLOR	1753.95	26404	0.0018		30.000	10	0.00060 RT
17.89	ENDOSULFAN SULFATE	366.71	23024	0.0002		30.000	10	0.00007 <MDL
18.70	ENDRIN KETONE	324.10	5315	0.0002		30.000	10	0.00005
21.35	DCB	158375.91	582056	0.1008		30.000	10	0.03359

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_326.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time (min)	Component Name	Height (µV)	Area (µV·s)	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.81	TCMX-2C	348423.25	1191978	0.1000		30.000	10	0.03334
10.53	ALPHA-BHC-2C	575.66	3556	0.0001		30.000	10	0.00004
11.43	GAMMA-BHC-2C	486.88	2337	0.0001		30.000	10	0.00004
11.63	BETA-BHC-2C	1885.92	8506	0.0011		30.000	10	0.00037
12.37	DELTA-BHC-2C	41279.03	139960	0.0117		30.000	10	0.00389
12.59	HEPTACHLOR-2C	0.00	0	0.0000		30.000	10	0.00000
13.60	ALDRIN-2C	7214.36	28053	0.0020		30.000	10	0.00068
14.92	HEPTACHLOR EPOXIDE-2	260.52	659	0.0001		30.000	10	0.00003
15.49	GAMMA-CHLORDANE-2C	701.58	5074	0.0002		30.000	10	0.00008
15.70	ALPHA-CHLORDANE-2C	385.26	2210	0.0001		30.000	10	0.00005
15.99	ENDOSULFAN I-2C	531.19	3657	0.0002		30.000	10	0.00007
16.30	4,4'-DDE-2C	297.33	2801	0.0001		30.000	10	0.00004
16.58	DIELDRIN-2C	947.32	5014	0.0004		30.000	10	0.00012
17.22	ENDRIN-2C	591.05	6164	0.0003		30.000	10	0.00010
17.75	4,4'-DDD-2C	1331.10	20350	0.0007		30.000	10	0.00023
17.97	ENDOSULFAN II-2C	1641.94	19627	0.0008		30.000	10	0.00028
18.38	4,4'-DDT-2C	0.00	0	0.0000		30.000	10	0.00000
18.76	ENDRIN ALDEHYDE-2C	5832.94	54356	0.0044		30.000	10	0.00147
19.39	ENDOSULFAN SULFATE-2	0.00	0	0.0000		30.000	10	0.00000
20.06	METHOXYCHLOR-2C	0.00	0	0.0000		30.000	10	0.00000
21.03	ENDRIN KETONE-2C	1974.82	59012	0.0010		30.000	10	0.00032
24.05	DCB-2C	141721.56	680554	0.1019		30.000	10	0.03397

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_326.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.80	TCMX	312333.66	1015597	0.0958		30.000	10	0.03194
9.15	ALPHA-BHC	6380.65	27805	0.0014		30.000	10	0.00048 RT
9.80	GAMMA-BHC	250.99	1146	0.0001		30.000	10	0.00002 < MDL
10.11	BETA-BHC	390.93	2298	0.0003		30.000	10	0.00009
10.75	DELTA-BHC	771.70	13435	0.0002		30.000	10	0.00008
11.15	HEPTACHLOR	420.22	2622	0.0001		30.000	10	0.00004
12.03	ALDRIN	3167.40	12252	0.0010		30.000	10	0.00032 < MDL
13.47	HEPTACHLOR EPOXIDE	5250.00	23023	0.0019		30.000	10	0.00062 RT
13.76	GAMMA-CHLORDANE	17499.40	94705	0.0064		30.000	10	0.00212
14.06	ALPHA-CHLORDANE	23199.94	129095	0.0088		30.000	10	0.00295
14.29	4,4'-DDE	31871.41	136583	0.0133		30.000	10	0.00442
14.38	ENDOSULFAN I	3135.41	11161	0.0013		30.000	10	0.00043 DUC
15.01	DIELDRIN	16038.70	61528	0.0064		30.000	10	0.00215
15.55	ENDRIN	3206.21	11642	0.0016		30.000	10	0.00055
15.69	4,4'-DDD	30552.01	143168	0.0173		30.000	10	0.00577 RT
16.12	ENDOSULFAN II	2710.26	10640	0.0015		30.000	10	0.00049 DUC
16.38	4,4'-DDT	35322.83	128392	0.0188		30.000	10	0.00628
17.08	ENDRIN ALDEHYDE	16075.50	84752	0.0126		30.000	10	0.00419
17.69	METHOXYCHLOR	7868.99	59198	0.0080		30.000	10	0.00268 RT
18.20	ENDOSULFAN SULFATE	2171.14	12191	0.0013		30.000	10	0.00044
18.89	ENDRIN KETONE	3255.94	17155	0.0016		30.000	10	0.00055 RT
21.36	DCB	172022.11	631301	0.1106		30.000	10	0.03687

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_324.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.81	TCMX-2C	352327.09	1196757	0.1012		30.000	10	0.03372
10.53	ALPHA-BHC-2C	621.61	3209	0.0001		30.000	10	0.00004 <MDL
11.36	GAMMA-BHC-2C	1110.21	7100	0.0003		30.000	10	0.00009
11.53	BETA-BHC-2C	1297.88	9495	0.0008		30.000	10	0.00026 ↓
12.37	DELTA-BHC-2C	40514.11	136086	0.0115		30.000	10	0.00382 RT
12.63	HEPTACHLOR-2C	511.47	2637	0.0001		30.000	10	0.00004 <MDL
13.29	ALDRIN-2C	1383.33	4305	0.0004		30.000	10	0.00013 ↓
14.93	HEPTACHLOR EPOXIDE-2	16134.14	60030	0.0054	DSM 9/1/09	30.000	10	0.00181 DWC
15.42	GAMMA-CHLORDANE-2C	29983.62	158678	0.0102		30.000	10	0.00341
15.82	ALPHA-CHLORDANE-2C	16188.44	58298	0.0059		30.000	10	0.00196
15.98	ENDOSULFAN I-2C	1295.38	4579	0.0005		30.000	10	0.00017 <MDL
16.22	4,4'-DDE-2C	30922.31	154395	0.0120		30.000	10	0.00401
16.57	DIELDRIN-2C	29950.12	105156	0.0114		30.000	10	0.00380
17.40	ENDRIN-2C	6123.47	23235	0.0031		30.000	10	0.00104
17.56	4,4'-DDD-2C	23682.20	124563	0.0124		30.000	10	0.00414 ΔHX
17.99	ENDOSULFAN II-2C	19334.45	184578	0.0099		30.000	10	0.00331 RT
18.45	4,4'-DDT-2C	70931.71	325391	0.0358		30.000	10	0.01195
18.69	ENDRIN ALDEHYDE-2C	8160.56	41953	0.0062		30.000	10	0.00206
19.41	ENDOSULFAN SULFATE-2	8389.72	34601	0.0047		30.000	10	0.00158
20.02	METHOXYCHLOR-2C	17626.82	74008	0.0175		30.000	10	0.00583 DWC
20.94	ENDRIN KETONE-2C	13312.05	98606	0.0065		30.000	10	0.00216 RT
24.06	DCB-2C	162846.60	754592	0.1189		30.000	10	0.03963

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_324.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
7.78	TCMX	452195.24	1436357	0.1093		30.000	10	0.03642	
9.45	ALPHA-BHC	1280.28	4784	0.0002		30.000	10	0.00007	<MDL
9.67	GAMMA-BHC	366.38	1379	0.0001		30.000	10	0.00002	
10.28	BETA-BHC	997.41	3225	0.0005		30.000	10	0.00015	
10.73	DELTA-BHC	2838.50	10659	0.0006		30.000	10	0.00021	
11.15	HEPTACHLOR	8883.04	38150	0.0016		30.000	10	0.00054	>MC
11.79	ALDRIN	392.61	3136	0.0001		30.000	10	0.00003	<MDL
13.40	HEPTACHLOR EPOXIDE	1156.06	8720	0.0003		30.000	10	0.00009	
13.69	GAMMA-CHLORDANE	3746.39	16609	0.0009		30.000	10	0.00030	Dilx.
14.03	ALPHA-CHLORDANE	910.97	9581	0.0002		30.000	10	0.00008	<MDL
14.23	4,4'-DDE	659.07	4708	0.0002		30.000	10	0.00006	
14.37	ENDOSULFAN I	658.05	2983	0.0002		30.000	10	0.00006	
14.95	DIELDRIN	949.76	14446	0.0002		30.000	10	0.00008	
15.55	ENDRIN	370.25	1912	0.0001		30.000	10	0.00004	
15.71	4,4'-DDD	0.00	0	0.0000		30.000	10	0.00000	
16.08	ENDOSULFAN II	0.00	0	0.0000		30.000	10	0.00000	
16.52	4,4'-DDT	5365.16	110864	0.0018		30.000	10	0.00060	RT
17.01	ENDRIN ALDEHYDE	12589.95	154533	0.0068		30.000	10	0.00225	RT
17.35	METHOXYCHLOR	2904.04	58107	0.0018		30.000	10	0.00060	<MDL
18.22	ENDOSULFAN SULFATE	0.00	0	0.0000		30.000	10	0.00000	
18.96	ENDRIN KETONE	1435.46	9617	0.0005		30.000	10	0.00017	
21.30	DCB	262403.65	963437	0.1054		30.000	10	0.03513	

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_244.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.81	TCMX-2C	399083.01	1331251	0.1077		30.000	10	0.03591
10.54	ALPHA-BHC-2C	1014.84	7249	0.0002		30.000	10	0.00006 <MDL
11.43	GAMMA-BHC-2C	883.43	4321	0.0002		30.000	10	0.00007
11.62	BETA-BHC-2C	4904.86	21564	0.0026		30.000	10	0.00087 ΔWC
12.36	DELTA-BHC-2C	47582.01	164000	0.0122		30.000	10	0.00407 RT
12.59	HEPTACHLOR-2C	437.49	2024	0.0001		30.000	10	0.00003 <MDL
13.59	ALDRIN-2C	6637.11	31420	0.0018		30.000	10	0.00061 RT
14.93	HEPTACHLOR EPOXIDE-2	321.86	2713	0.0001		30.000	10	0.00003 <MDL
15.45	GAMMA-CHLORDANE-2C	1041.26	7561	0.0003		30.000	10	0.00011
15.66	ALPHA-CHLORDANE-2C	244.61	1127	0.0001		30.000	10	0.00003
15.97	ENDOSULFAN I-2C	570.66	2982	0.0002		30.000	10	0.00007
16.27	4,4'-DDE-2C	278.69	2858	0.0001		30.000	10	0.00003
16.60	DIELDRIN-2C	1183.95	10603	0.0004		30.000	10	0.00014
17.41	ENDRIN-2C	4209.74	44965	0.0018		30.000	10	0.00060 ΔWC
17.70	4,4'-DDD-2C	5529.79	82522	0.0026		30.000	10	0.00088 RT
17.92	ENDOSULFAN II-2C	6503.43	91783	0.0032		30.000	10	0.00108 ΔWC
18.49	4,4'-DDT-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
18.72	ENDRIN ALDEHYDE-2C	7618.17	219198	0.0056		30.000	10	0.00185 ΔWC
19.43	ENDOSULFAN SULFATE-2	0.00	0	0.0000		30.000	10	0.00000 <MDL
20.18	METHOXYCHLOR-2C	0.00	0	0.0000		30.000	10	0.00000
20.75	ENDRIN KETONE-2C	1049.51	299918	0.0005		30.000	10	0.00018
24.05	DCB-2C	162725.45	747755	0.1189		30.000	10	0.03963

(ND)

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_244.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.80	TCMX	492394.35	1582204	0.1193		30.000	10	0.03978
9.07	ALPHA-BHC	897.01	9909	0.0001		30.000	10	0.00005 <MDL
9.95	GAMMA-BHC	310.61	1358	0.0001		30.000	10	0.00002
10.19	BETA-BHC	1391.15	7034	0.0006		30.000	10	0.00022
10.64	DELTA-BHC	641.89	2633	0.0001		30.000	10	0.00005
11.18	HEPTACHLOR	7167.34	28304	0.0013		30.000	10	0.00044
11.81	ALDRIN	288.74	1712	0.0001		30.000	10	0.00002
13.43	HEPTACHLOR EPOXIDE	4017.56	42117	0.0010		30.000	10	0.00032
13.73	GAMMA-CHLORDANE	6489.73	44544	0.0016		30.000	10	0.00052
14.05	ALPHA-CHLORDANE	2993.51	27934	0.0008		30.000	10	0.00025 <MDL
14.24	4,4'-DDE	3993.13	40307	0.0010		30.000	10	0.00035 DUC
14.41	ENDOSULFAN I	43325.27	150087	0.0118		30.000	10	0.00395 DUC
14.99	DIELDRIN	4513.50	54854	0.0012		30.000	10	0.00039 DUC
15.48	ENDRIN	2413.75	18724	0.0007		30.000	10	0.00024 <MDL
15.68	4,4'-DDD	2727.53	13630	0.0009		30.000	10	0.00031 DUC
16.17	ENDOSULFAN II	7528.61	28636	0.0027		30.000	10	0.00089 RT
16.36	4,4'-DDT	1629.47	6564	0.0005		30.000	10	0.00018 <MDL
17.06	ENDRIN ALDEHYDE	19615.13	80633	0.0105		30.000	10	0.00351
17.71	METHOXYCHLOR	1700.05	29117	0.0011		30.000	10	0.00035 <MDL
18.19	ENDOSULFAN SULFATE	1290.22	12860	0.0005		30.000	10	0.00018 <MDL
18.80	ENDRIN KETONE	13919.89	48681	0.0049		30.000	10	0.00162 RT
21.37	DCB	276778.50	1029114	0.1111		30.000	10	0.03704

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_245.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.83	TCMX-2C	418526.40	1394737	0.1132		30.000	10	0.03774
10.45	ALPHA-BHC-2C	572.88	2638	0.0001		30.000	10	0.00004 <MDL
11.53	GAMMA-BHC-2C	2502.53	16982	0.0006		30.000	10	0.00019
11.65	BETA-BHC-2C	4008.58	17122	0.0021		30.000	10	0.00071 DNC
12.39	DELTA-BHC-2C	25842.75	92398	0.0066		30.000	10	0.00221 DNC
12.67	HEPTACHLOR-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
13.31	ALDRIN-2C	302.74	4605	0.0001		30.000	10	0.00003
14.93	HEPTACHLOR EPOXIDE-2	2473.28	10728	0.0008		30.000	10	0.00026
15.41	GAMMA-CHLORDANE-2C	10478.63	48406	0.0034		30.000	10	0.00113
15.87	ALPHA-CHLORDANE-2C	792.56	3798	0.0003		30.000	10	0.00009 <MDL
15.99	ENDOSULFAN I-2C	772.61	3518	0.0003		30.000	10	0.00009
16.23	4,4'-DDE-2C	391.96	1400	0.0001		30.000	10	0.00005
16.75	DIELDRIN-2C	1054.99	5077	0.0004		30.000	10	0.00013
17.42	ENDRIN-2C	584.80	3735	0.0003		30.000	10	0.00008
17.75	4,4'-DDD-2C	1018.37	5485	0.0005		30.000	10	0.00016
17.99	ENDOSULFAN II-2C	534.88	3756	0.0003		30.000	10	0.00009
18.47	4,4'-DDT-2C	1466.99	9217	0.0007		30.000	10	0.00024
18.78	ENDRIN ALDEHYDE-2C	14027.24	47418	0.0102		30.000	10	0.00341
19.61	ENDOSULFAN SULFATE-2	381.80	6698	0.0002		30.000	10	0.00007 <MDL
20.04	METHOXYCHLOR-2C	7273.21	36302	0.0069		30.000	10	0.00230 RT
21.07	ENDRIN KETONE-2C	4493.50	20545	0.0023		30.000	10	0.00076 RT
24.12	DCB-2C	162992.42	752929	0.1191		30.000	10	0.03970

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_245.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.78	TCMX	452143.26	1442989	0.1092		30.000	10	0.03642
9.06	ALPHA-BHC	1098.00	6157	0.0002		30.000	10	0.00006
9.98	GAMMA-BHC	304.36	1482	0.0001		30.000	10	0.00002
10.17	BETA-BHC	433.63	1662	0.0002		30.000	10	0.00007
10.63	DELTA-BHC	1571.94	8673	0.0003		30.000	10	0.00011
11.16	HEPTACHLOR	2020.31	12435	0.0004		30.000	10	0.00012
11.83	ALDRIN	162.06	1024	0.0000		30.000	10	0.00001
13.43	HEPTACHLOR EPOXIDE	1884.89	26640	0.0005		30.000	10	0.00015
13.72	GAMMA-CHLORDANE	3706.42	21368	0.0009		30.000	10	0.00030
14.06	ALPHA-CHLORDANE	507.04	2638	0.0001		30.000	10	0.00004
14.25	4,4'-DDE	678.07	3113	0.0002		30.000	10	0.00006
14.41	ENDOSULFAN I	6447.12	22964	0.0018		30.000	10	0.00059
15.00	DIELDRIN	593.75	5408	0.0002		30.000	10	0.00005
15.48	ENDRIN	1240.26	20392	0.0004		30.000	10	0.00012
15.71	4,4'-DDD	0.00	0	0.0000		30.000	10	0.00000
15.99	ENDOSULFAN II	776.71	23513	0.0003		30.000	10	0.00009
16.43	4,4'-DDT	1571.94	34545	0.0005		30.000	10	0.00018
17.06	ENDRIN ALDEHYDE	12042.89	95680	0.0065		30.000	10	0.00216
17.40	METHOXYCHLOR	3350.89	72819	0.0021		30.000	10	0.00070
18.71	ENDOSULFAN SULFATE	466.30	14893	0.0002		30.000	10	0.00006
19.02	ENDRIN KETONE	1651.64	10774	0.0006		30.000	10	0.00019
21.36	DCB	240360.85	884431	0.0966		30.000	10	0.03219

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_193.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.82	TCMX-2C	399802.77	1338036	0.1079		30.000	10	0.03598
10.44	ALPHA-BHC-2C	510.74	1938	0.0001		30.000	10	0.00003 <MDL
11.15	GAMMA-BHC-2C	450.79	4190	0.0001		30.000	10	0.00003
11.65	BETA-BHC-2C	1373.02	15121	0.0007		30.000	10	0.00024
12.39	DELTA-BHC-2C	48107.90	165256	0.0124		30.000	10	0.00412 DWC
12.53	HEPTACHLOR-2C	446.77	1563	0.0001		30.000	10	0.00003 <MDL
13.63	ALDRIN-2C	6911.09	28827	0.0019		30.000	10	0.00063
14.95	HEPTACHLOR EPOXIDE-2	747.13	3103	0.0002		30.000	10	0.00008
15.51	GAMMA-CHLORDANE-2C	1594.66	14137	0.0005		30.000	10	0.00017
15.85	ALPHA-CHLORDANE-2C	1884.09	35072	0.0007		30.000	10	0.00022
16.02	ENDOSULFAN I-2C	2312.94	21859	0.0009		30.000	10	0.00028 RT
16.22	4,4'-DDE-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
16.47	DIELDRIN-2C	4881.90	125740	0.0018		30.000	10	0.00059 RT
17.46	ENDRIN-2C	6032.76	237770	0.0026		30.000	10	0.00086 DWC
17.67	4,4'-DDD-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
17.98	ENDOSULFAN II-2C	7988.19	216463	0.0040		30.000	10	0.00132 RT
18.49	4,4'-DDT-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
18.80	ENDRIN ALDEHYDE-2C	9089.23	243619	0.0066		30.000	10	0.00221
19.62	ENDOSULFAN SULFATE-2	3797.83	223820	0.0021		30.000	10	0.00068 RT
20.22	METHOXYCHLOR-2C	1106.33	45695	0.0011		30.000	10	0.00035 <MDL
20.81	ENDRIN KETONE-2C	1392.05	16127	0.0007		30.000	10	0.00023
24.12	DCB-2C	152104.86	725238	0.1108		30.000	10	0.03694

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_193.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.80	TCMX	486081.89	1547604	0.1178		30.000	10	0.03925
9.08	ALPHA-BHC	599.89	3211	0.0001		30.000	10	0.00003
9.97	GAMMA-BHC	239.50	1102	0.0000		30.000	10	0.00002
10.19	BETA-BHC	882.38	3635	0.0004		30.000	10	0.00014
10.65	DELTA-BHC	710.34	3087	0.0002		30.000	10	0.00005
11.18	HEPTACHLOR	2180.31	11300	0.0004		30.000	10	0.00013
11.84	ALDRIN	231.82	1390	0.0000		30.000	10	0.00002
13.44	HEPTACHLOR EPOXIDE	2087.33	21487	0.0005		30.000	10	0.00017
13.73	GAMMA-CHLORDANE	5050.01	24519	0.0012		30.000	10	0.00041
14.06	ALPHA-CHLORDANE	459.42	1576	0.0001		30.000	10	0.00004
14.25	4,4'-DDE	1230.57	4509	0.0003		30.000	10	0.00011
14.42	ENDOSULFAN I	21119.00	65620	0.0058		30.000	10	0.00192
15.00	DIELDRIN	1649.03	18816	0.0004		30.000	10	0.00014
15.60	ENDRIN	1342.74	26908	0.0004		30.000	10	0.00013
15.69	4,4'-DDD	1051.70	4318	0.0004		30.000	10	0.00012
16.10	ENDOSULFAN II	639.12	2834	0.0002		30.000	10	0.00008
16.44	4,4'-DDT	467.49	5613	0.0002		30.000	10	0.00005
17.06	ENDRIN ALDEHYDE	17989.31	114180	0.0097		30.000	10	0.00322
17.40	METHOXYCHLOR	8782.37	123050	0.0055		30.000	10	0.00183
17.86	ENDOSULFAN SULFATE	1796.73	122612	0.0007		30.000	10	0.00024
18.68	ENDRIN KETONE	792.44	17147	0.0003		30.000	10	0.00009
21.33	DCB	288094.03	1057640	0.1156		30.000	10	0.03854

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_246.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
8.83	TCMX-2C	419775.46	1385532	0.1136		30.000	10	0.03786
10.45	ALPHA-BHC-2C	402.58	1288	0.0001		30.000	10	0.00003 <MDL
11.31	GAMMA-BHC-2C	427.95	2499	0.0001		30.000	10	0.00003
11.65	BETA-BHC-2C	1129.47	6128	0.0006		30.000	10	0.00020
12.39	DELTA-BHC-2C	46109.64	154681	0.0118		30.000	10	0.00395 DNC
12.67	HEPTACHLOR-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
13.47	ALDRIN-2C	316.84	1555	0.0001		30.000	10	0.00003
14.93	HEPTACHLOR EPOXIDE-2	1816.81	6710	0.0006		30.000	10	0.00019
15.50	GAMMA-CHLORDANE-2C	1287.84	9176	0.0004		30.000	10	0.00014
15.70	ALPHA-CHLORDANE-2C	446.38	1724	0.0002		30.000	10	0.00005
16.01	ENDOSULFAN I-2C	629.22	2825	0.0002		30.000	10	0.00008
16.32	4,4'-DDE-2C	280.77	2610	0.0001		30.000	10	0.00003
16.66	DIELDRIN-2C	473.95	3878	0.0002		30.000	10	0.00006
17.45	ENDRIN-2C	296.17	3215	0.0001		30.000	10	0.00004
17.75	4,4'-DDD-2C	2396.05	18985	0.0011		30.000	10	0.00038 DNC -RT
17.96	ENDOSULFAN II-2C	4370.40	48778	0.0022		30.000	10	0.00072 DNC
18.49	4,4'-DDT-2C	0.00	0	0.0000		30.000	10	0.00000 <MDL
18.76	ENDRIN ALDEHYDE-2C	13722.53	237666	0.0100		30.000	10	0.00334
19.43	ENDOSULFAN SULFATE-2	0.00	0	0.0000		30.000	10	0.00000 <MDL
20.06	METHOXYCHLOR-2C	2038.59	17455	0.0019		30.000	10	0.00065 DNC
20.78	ENDRIN KETONE-2C	1124.60	25279	0.0006		30.000	10	0.00019 <MDL
24.08	DCB-2C	169339.17	782468	0.1239		30.000	10	0.04132

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_246.TX0

Trimatrix Labs. GC199 Sample Quant. Water 8081/608/608.2

Column: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time (min)	Component Name	Amount (ng/ul)	Height (µV)	Area (µV·s)	Initial (ml)	Final (ml)	Conc. (ug/l)
7.78	TCMX	0.0831	347199.65	1128209.18	990	2	0.16796
9.05	ALPHA-BHC	0.0002	1229.05	6532.53	990	2	0.00041 <MDL
9.96	GAMMA-BHC	0.0005	2387.68	12832.00	990	2	0.00093
10.15	BETA-BHC	0.1215	261154.68	1052987.33	990	2	0.24549 RT
10.59	DELTA-BHC	0.0020	9095.96	51762.73	990	2	0.00401 RT
11.22	HEPTACHLOR	0.0009	4787.48	22678.82	990	2	0.00177 RT
11.85	ALDRIN	0.0007	3406.09	15527.83	990	2	0.00146 RT
13.39	HEPTACHLOR EPOXIDE	0.0003	1404.50	16782.08	990	2	0.00069
13.66	GAMMA-CHLORDANE	0.0013	5452.96	30778.00	990	2	0.00267 RT
14.09	ALPHA-CHLORDANE	0.0003	1280.82	24509.20	990	2	0.00066 RT
14.20	4,4'-DDE	0.0003	1209.41	8817.89	990	2	0.00063 RT
14.45	ENDOSULFAN I	0.0003	1242.42	14348.91	990	2	0.00069 RT
14.93	DIELDRIN	0.0002	710.55	3011.00	990	2	0.00038 <MDL
15.60	ENDRIN	0.0028	9587.04	240320.98	990	2	0.00572 RT
15.76	4,4'-DDD	0.0037	11126.62	102877.71	990	2	0.00758 RT
15.98	ENDOSULFAN II	0.0039	10907.25	137961.21	990	2	0.00780 RT
16.37	4,4'-DDT	0.0041	12163.71	95641.02	990	2	0.00827 ΔMDL
17.00	ENDRIN ALDEHYDE	0.0225	41828.38	291408.05	990	2	0.04537 RT
17.59	METHOXYCHLOR	0.0037	5983.64	83221.49	990	2	0.00754 ΔMDL
18.24	ENDOSULFAN SULFATE	0.0019	4730.19	52061.50	990	2	0.00390 RT
18.74	ENDRIN KETONE	0.0022	6221.34	33386.98	990	2	0.00440 RT
21.31	DCB	0.0947	235720.39	871540.00	990	2	0.19133
			978829.80	4297196.45			

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_234.TX0

Trimatrix Labs. GC199 Sample Quant. Water 8081/608/608.2

Column: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Amount (ng/ul)	Height [µV]	Area [µV·s]	Initial (ml)	Final (ml)	Conc. (ug/l)
8.80	TCMX-2C	0.0791	296651.52	984648.76	990	2	0.15986
10.53	ALPHA-BHC-2C	0.0008	4417.22	58249.00	990	2	0.00170 RT
11.44	GAMMA-BHC-2C	0.0011	4751.59	43190.63	990	2	0.00213
11.61	BETA-BHC-2C	0.0044	8256.84	39964.01	990	2	0.00890 DWC
12.48	DELTA-BHC-2C	0.0006	2170.23	12153.50	990	2	0.00113 RT
12.65	HEPTACHLOR-2C	0.0002	856.37	3695.00	990	2	0.00040 DWC
13.57	ALDRIN-2C	0.0009	3340.78	12978.00	990	2	0.00185 RT
14.97	HEPTACHLOR EPOXIDE-2	0.0008	2527.90	36574.00	990	2	0.00163
15.44	GAMMA-CHLORDANE-2C	0.0018	5514.10	75810.25	990	2	0.00361 DWC
15.84	ALPHA-CHLORDANE-2C	0.0012	3516.65	54401.57	990	2	0.00247 DWC
15.97	ENDOSULFAN I-2C	0.0000	0.00	0.00	990	2	0.00000 < MDL
16.38	4,4'-DDE-2C	0.0005	1341.21	67095.00	990	2	0.00098 RT
16.69	DIELDRIN-2C	0.0000	0.00	0.00	990	2	0.00000 < MDL
17.43	ENDRIN-2C	0.0000	0.00	0.00	990	2	0.00000
17.67	4,4'-DDD-2C	0.0000	0.00	0.00	990	2	0.00000
18.04	ENDOSULFAN II-2C	0.0038	7729.77	120647.00	990	2	0.00775 RT
18.31	4,4'-DDT-2C	0.0005	1037.60	7008.00	990	2	0.00102 RT
18.73	ENDRIN ALDEHYDE-2C	0.0171	23431.26	97918.42	990	2	0.03455 DWC
19.37	ENDOSULFAN SULFATE-2	0.0009	1677.53	49597.74	990	2	0.00183 RT
20.28	METHOXYCHLOR-2C	0.0013	1368.69	20464.80	990	2	0.00263 RT
20.75	ENDRIN KETONE-2C	0.0014	2679.12	33960.09	990	2	0.00274 DWC
24.07	DCB-2C	0.0987	136038.75	629460.00	990	2	0.19930
			507307.11	2347815.78			

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_234.TX0

LCS / LCS DUPLICATE RECOVERY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 2 mL
Laboratory ID: 0909501-BSD1
QC Batch: 0909501
Sequence: 9I01016

Analyte	Spike Added ug/L	LCSD Conc.	LCSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
alpha-BHC	0.0800	0.0776	97	8	30	60 - 130	ug/L
alpha-BHC [2C]	0.0800	0.0730	91	7	30	60 - 130	ug/L
beta-BHC	0.0800	0.0782	98	3	30	65 - 125	ug/L
beta-BHC [2C]	0.0800	0.107	134 *	24	30	65 - 125	ug/L
gamma-BHC (Lindane)	0.0800	0.0776	97	7	30	25 - 135	ug/L
gamma-BHC (Lindane) [2C]	0.0800	0.0756	94	5	30	25 - 135	ug/L
delta-BHC	0.0800	0.0834	104	4	30	45 - 135	ug/L
delta-BHC [2C]	0.0800	0.0784	98	4	30	45 - 135	ug/L
alpha-Chlordane	0.0800	0.0730	91	6	30	65 - 125	ug/L
alpha-Chlordane [2C]	0.0800	0.0718	90	6	30	65 - 125	ug/L
gamma-Chlordane	0.0800	0.0758	95	4	30	60 - 125	ug/L
gamma-Chlordane [2C]	0.0800	0.0726	91	6	30	60 - 125	ug/L
4,4'-DDD	0.0800	0.0770	96	7	30	25 - 150	ug/L
4,4'-DDD [2C]	0.0800	0.0770	96	7	30	25 - 150	ug/L
4,4'-DDE	0.0800	0.0762	95	3	30	35 - 140	ug/L
4,4'-DDE [2C]	0.0800	0.0728	91	5	30	35 - 140	ug/L
4,4'-DDT	0.0800	0.0746	93	7	30	45 - 140	ug/L
4,4'-DDT [2C]	0.0800	0.0722	90	9	30	45 - 140	ug/L
Aldrin	0.0800	0.0666	83	9	30	25 - 140	ug/L
Aldrin [2C]	0.0800	0.0632	79	9	30	25 - 140	ug/L
Dieldrin	0.0800	0.0780	98	6	30	60 - 130	ug/L
Dieldrin [2C]	0.0800	0.0774	97	5	30	60 - 130	ug/L
Endosulfan I	0.0800	0.0676	84	5	30	50 - 110	ug/L
Endosulfan I [2C]	0.0800	0.0658	82	5	30	50 - 110	ug/L
Endosulfan II	0.0800	0.0724	91	6	30	30 - 130	ug/L
Endosulfan II [2C]	0.0800	0.0726	91	5	30	30 - 130	ug/L
Endosulfan Sulfate	0.0800	0.0812	102	4	30	55 - 135	ug/L
Endosulfan Sulfate [2C]	0.0800	0.0770	96	7	30	55 - 135	ug/L
Endrin	0.0800	0.0776	97	2	30	55 - 135	ug/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8081A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 10 mL
Laboratory ID: 0909442-MS1
QC Batch: 0909442

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
alpha-BHC	0.0167	ND	0.0156	94	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0167	ND	0.0155	93	60 - 125	mg/kg dry
beta-BHC	0.0167	ND	0.0130	78	60 - 125	mg/kg dry
beta-BHC [2C]	0.0167	ND	0.0131	79	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0167	ND	0.0147	88	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0167	ND	0.0149	89	60 - 125	mg/kg dry
delta-BHC	0.0167	ND	0.0140	84	55 - 130	mg/kg dry
delta-BHC [2C]	0.0167	ND	0.0143	86	55 - 130	mg/kg dry
alpha-Chlordane	0.0167	ND	0.0154	92	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0167	ND	0.0153	92	65 - 120	mg/kg dry
gamma-Chlordane	0.0167	ND	0.0151	91	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0167	ND	0.0174	104	65 - 125	mg/kg dry
4,4'-DDD	0.0167	ND	0.0179	108	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0167	ND	0.0173	104	30 - 135	mg/kg dry
4,4'-DDE	0.0167	0.00771	0.0271	116	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0167	0.00400	0.0258	130 *	70 - 125	mg/kg dry
4,4'-DDT	0.0167	ND	0.0343	206 *	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0167	ND	0.0610	366 *	45 - 140	mg/kg dry
Aldrin	0.0167	ND	0.0149	89	45 - 140	mg/kg dry
Aldrin [2C]	0.0167	ND	0.0150	90	45 - 140	mg/kg dry
Dieldrin	0.0167	0.00904	0.0241	90	65 - 125	mg/kg dry
Dieldrin [2C]	0.0167	0.00404	0.0138	59 *	65 - 125	mg/kg dry
Endosulfan I	0.0167	ND	0.0131	78	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0167	ND	0.0130	78	15 - 135	mg/kg dry
Endosulfan II	0.0167	0.00100	0.0158	88	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0167	0.0126	0.0270	86	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0167	ND	0.0179	108	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0167	ND	0.0188	112	60 - 135	mg/kg dry
Endrin	0.0167	0.00271	0.0130	62	60 - 135	mg/kg dry
Endrin [2C]	0.0167	0.00383	0.0192	92	60 - 135	mg/kg dry
Endrin Aldehyde	0.0167	ND	0.0158	94	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0167	ND	0.0176	106	35 - 145	mg/kg dry
Endrin Ketone	0.0167	ND	0.0190	114	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8081A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 10 mL

Laboratory ID: 0909442-MS1
QC Batch: 0909442

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Endrin Ketone [2C]	0.0167	ND	0.0164	98	65 - 135	mg/kg dry
Heptachlor	0.0167	ND	0.0151	91	50 - 140	mg/kg dry
Heptachlor [2C]	0.0167	ND	0.0153	92	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0167	ND	0.0160	96	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0167	ND	0.0182	109	65 - 130	mg/kg dry
Methoxychlor	0.0167	ND	0.0197	118	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0167	ND	0.0215	129	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909442-MSD1

QC Batch: 0909442

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
alpha-BHC	0.0167	0.0138	83	12	30	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0167	0.0147	88	5	30	60 - 125	mg/kg dry
beta-BHC	0.0167	0.0113	68	14	30	60 - 125	mg/kg dry
beta-BHC [2C]	0.0167	0.0122	73	8	30	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0167	0.0130	78	12	30	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0167	0.0145	87	3	30	60 - 125	mg/kg dry
delta-BHC	0.0167	0.0122	73	14	30	55 - 130	mg/kg dry
delta-BHC [2C]	0.0167	0.0133	80	7	30	55 - 130	mg/kg dry
alpha-Chlordane	0.0167	0.0136	82	12	30	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0167	0.0145	87	5	30	65 - 120	mg/kg dry
gamma-Chlordane	0.0167	0.0130	78	15	30	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0167	0.0166	100	4	30	65 - 125	mg/kg dry
4,4'-DDD	0.0167	0.0156	94	14	30	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0167	0.0168	101	3	30	30 - 135	mg/kg dry
4,4'-DDE	0.0167	0.0249	103	9	30	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0167	0.0269	138 *	4	30	70 - 125	mg/kg dry
4,4'-DDT	0.0167	0.0318	191 *	7	30	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0167	0.0648	388 *	6	30	45 - 140	mg/kg dry
Aldrin	0.0167	0.0124	74	18	30	45 - 140	mg/kg dry
Aldrin [2C]	0.0167	0.0145	87	3	30	45 - 140	mg/kg dry
Dieldrin	0.0167	0.0226	81	6	30	65 - 125	mg/kg dry
Dieldrin [2C]	0.0167	0.0108	41 *	24	30	65 - 125	mg/kg dry
Endosulfan I	0.0167	0.0114	68	14	30	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0167	0.0128	77	2	30	15 - 135	mg/kg dry
Endosulfan II	0.0167	0.0138	76	14	30	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0167	0.0273	88	1	30	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0167	0.0157	94	13	30	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0167	0.0195	117	4	30	60 - 135	mg/kg dry
Endrin	0.0167	0.0144	70	10	30	60 - 135	mg/kg dry
Endrin [2C]	0.0167	0.0189	90	2	30	60 - 135	mg/kg dry
Endrin Aldehyde	0.0167	0.0138	83	13	30	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0167	0.0171	103	3	30	35 - 145	mg/kg dry
Endrin Ketone	0.0167	0.0167	100	13	30	65 - 135	mg/kg dry
Endrin Ketone [2C]	0.0167	0.0210	126	25	30	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909442-MSD1

QC Batch: 0909442

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Heptachlor	0.0167	0.0131	79	14	30	50 - 140	mg/kg dry
Heptachlor [2C]	0.0167	0.0147	88	4	30	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0167	0.0138	82	15	30	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0167	0.0168	100	8	30	65 - 130	mg/kg dry
Methoxychlor	0.0167	0.0167	100	16	30	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0167	0.0203	122	6	30	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909442-MS2

QC Batch: 0909442

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Toxaphene	0.417	ND	1.23	296 *	40 - 150	mg/kg dry
Toxaphene [2C]	0.417	ND	0.868	208 *	40 - 150	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909442-MSD2

QC Batch: 0909442

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Toxaphene	0.417	0.674	162 *	59 *	30	40 - 150	mg/kg dry
Toxaphene [2C]	0.417	0.678	163 *	25	30	40 - 150	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DUAL COLUMN CONFIRMATION CHECK

60SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:15
Solids: 86.40
QC Batch: 0909442
GC Column(1):

Laboratory ID: 0908176-01
Prepared: 08/17/09 08:13
Preparation: 3550B Sonication Extracti
Sequence: 9H27083
GC Column(2): RTX CLP Pest2

SDG: SSP0809
Project: RFAAP SSP at Six Sites
File ID: A85_143-0
Analyzed: 08/25/09 12:08
Instrument: 199

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
Dieldrin	1	14.95	14.95	0	19060.25	0.00231	
	* 2	16.66	16.66	0	3635.91	0.000579	119.8
Heptachlor Epoxide	1	13.4	13.39333	0.00667	7640.72	0.000849	
	* 2	14.93	14.96167	0.0317	16456.5	0.00220	88.6

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SS3

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-03
File ID: A85_141-0
Sampled: 08/10/09 14:10
Prepared: 08/17/09 08:13
Analyzed: 08/25/09 10:53
Solids: 92.04
Preparation: 3550B Sonication Extracti
Instrument: 199
QC Batch: 0909442
Sequence: 9H27083
GC Column(1):
GC Column(2): RTX CLP Pest2

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
4,4'-DDE	1	14.27	14.23167	0.0383	6042.94	0.000688	
	* 2	16.23	16.21667	0.0133	14284.58	0.00210	101.3

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SS4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:15
Solids: 78.77
QC Batch: 0909442
GC Column(1):

Laboratory ID: 0908176-04
Prepared: 08/17/09 08:13
Preparation: 3550B Sonication Extracti
Sequence: 9I01016
GC Column(2): RTX CLP Pest2

SDG: SSP0809
Project: RFAAP SSP at Six Sites
File ID: A85_231-0
Analyzed: 08/27/09 21:07
Instrument: 199

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
4,4'-DDD	* 1	15.69	15.72	0.03	17616.25	0.00250	41.0
	2	17.6	17.66333	0.0633	8134.81	0.00165	
4,4'-DDE	* 1	14.27	14.255	0.015	290986.3	0.0320	194.8
	2	16.16	16.22	0.06	2866.62	0.000423	

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SE2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 15:40
Solids: 59.69
QC Batch: 0909442
GC Column(1):

Laboratory ID: 0908176-07
Prepared: 08/17/09 08:13
Preparation: 3550B Sonication Extracti
Sequence: 9I01016
GC Column(2): RTX CLP Pest2

SDG: SSP0809
Project: RFAAP SSP at Six Sites
File ID: A85_230-0
Analyzed: 08/27/09 20:29
Instrument: 199

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
Heptachlor Epoxide	1	13.44	13.415	0.025	3449.01	0.000447	
	* 2	14.92	14.97	0.05	8474.64	0.00151	108.6

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

DUP-1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-08
File ID: A85_232-0
Sampled: 08/10/09 00:00
Prepared: 08/17/09 08:13
Analyzed: 08/27/09 21:44
Solids: 78.01
Preparation: 3550B Sonication Extracti
Instrument: 199
QC Batch: 0909442
Sequence: 9I01016
GC Column(1):
GC Column(2): RTX CLP Pest2

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
gamma-Chlordane	1	13.7	13.72167	0.0217	10149.89	0.00107	
	* 2	15.38	15.45167	0.0717	16544.93	0.00231	73.4
Heptachlor Epoxide	1	13.42	13.415	0.005	4813.38	0.000513	
	* 2	14.9	14.97	0.07	11616.38	0.00158	102.0

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908185-03
File ID: A85_233-0
Sampled: 08/11/09 13:00
Prepared: 08/17/09 08:13
Analyzed: 08/27/09 22:22
Solids: 79.99
Preparation: 3550B Sonication Extracti
Instrument: 199
QC Batch: 0909442
Sequence: 9I01016
GC Column(1):
GC Column(2): RTX CLP Pest2

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
4,4'-DDE	* 1	14.27	14.255	0.015	71038.32	0.00771	63.4
	2	16.22	16.22	0	26551.39	0.00400	
Dieldrin	* 1	14.99	14.97333	0.0167	83024.82	0.00904	76.5
	2	16.66	16.66	0	26520.52	0.00404	
Endosulfan II	* 1	16.09	16.08833	0.00167	6742.88	0.00100	170.6
	2	17.96	17.94667	0.0133	60841.07	0.0126	
Endrin	* 1	15.53	15.53833	0.00833	21851.64	0.00271	34.3
	2	17.4	17.42833	0.0283	21451.88	0.00383	

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

77SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/11/09 13:40
Solids: 70.86
QC Batch: 0909442
GC Column(1):

Laboratory ID: 0908185-05
Prepared: 08/17/09 08:13
Preparation: 3550B Sonication Extracti
Sequence: 9I02022
GC Column(2): RTX CLP Pest2

SDG: SSP0809
Project: RFAAP SSP at Six Sites
File ID: A85_324-0
Analyzed: 08/31/09 01:33
Instrument: 199

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
4,4'-DDE	* 1	14.29	14.24333	0.0467	31871.41	0.00626	10.4
	2	16.22	16.15833	0.0617	30922.31	0.00564	
4,4'-DDT	1	16.38	16.38	0	35322.83	0.00884	
	* 2	18.45	18.38167	0.0683	70931.71	0.0168	62.1
alpha-Chlordane	* 1	14.06	14.03667	0.0233	23199.94	0.00414	39.3
	2	15.82	15.75333	0.0667	16188.44	0.00278	
Dieldrin	1	15.01	14.95833	0.0517	16038.7	0.00301	
	* 2	16.57	16.59	0.02	29950.12	0.00536	56.2
Endosulfan Sulfate	1	18.2	18.16333	0.0367	2171.14	0.000612	
	* 2	19.41	19.39167	0.0183	8389.72	0.00221	113.3
Endrin	1	15.55	15.52333	0.0267	3206.21	0.000753	
	* 2	17.4	17.35167	0.0483	6123.47	0.00146	63.9
Endrin Aldehyde	* 1	17.08	17.10167	0.0217	16075.5	0.00593	68.0
	2	18.69	18.70167	0.0117	8160.56	0.00292	
gamma-Chlordane	1	13.76	13.70667	0.0533	17499.4	0.00301	
	* 2	15.42	15.38667	0.0333	29983.62	0.00480	45.8

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

77SB2A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908185-07
File ID: A85_245-0
Sampled: 08/11/09 14:15
Prepared: 08/17/09 08:13
Analyzed: 08/28/09 05:50
Solids: 69.36
Preparation: 3550B Sonication Extracti
Instrument: 199
QC Batch: 0909442
Sequence: 9I01016
GC Column(1):
GC Column(2): RTX CLP Pest2

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
Endrin Aldehyde	* 1	17.06	17.12167	0.0617	19615.13	0.00505	3.0
	2	18.78	18.78167	0.00167	14027.24	0.00490	
gamma-Chlordane	1	13.73	13.72167	0.00833	6489.73	0.000769	
	* 2	15.41	15.45167	0.0417	10478.63	0.00163	71.8
Heptachlor Epoxide	* 1	13.43	13.415	0.015	4017.56	0.000481	22.4
	2	14.93	14.97	0.04	2473.28	0.000384	

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

EQBK-1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Laboratory ID: 0908185-10
File ID: A85_234-0
Sampled: 08/11/09 11:10
Prepared: 08/13/09 09:24
Analyzed: 08/27/09 22:59
Solids: 0.00
Preparation: 3510C Liquid-Liquid Extr
Instrument: 199
QC Batch: 0909501
Sequence: 9I01016
GC Column(1):
GC Column(2): RTX CLP Pest2

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
gamma-BHC (Lindane)	1	9.96	9.96	0	2387.68	0.00101	
	* 2	11.44	11.44667	0.00667	4751.59	0.00222	74.9
Heptachlor Epoxide	1	13.39	13.415	0.025	1404.5	0.000606	
	* 2	14.97	14.97	0	2527.9	0.00162	91.1

* Column used for quantitation

SAMPLE ID SUMMARY

USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE2	0908176-07
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1B	0908185-04
77SB3A	0908185-05
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09
EQBK-1	0908185-10

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8082

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909440-MS1

QC Batch: 0909440

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
PCB-1016	208	ND	202	97	40 - 140	ug/kg dry
PCB-1016 [2C]	208	ND	195	93	40 - 140	ug/kg dry
PCB-1260	208	314	435	58 *	60 - 130	ug/kg dry
PCB-1260 [2C]	208	277	387	53 *	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8082

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909440-MSD1

QC Batch: 0909440

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
PCB-1016	208	202	97	0.2	30	40 - 140	ug/kg dry
PCB-1016 [2C]	208	194	93	0.2	30	40 - 140	ug/kg dry
PCB-1260	208	424	53 *	2	30	60 - 130	ug/kg dry
PCB-1260 [2C]	208	383	51 *	1	30	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DUAL COLUMN CONFIRMATION CHECK

60SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 13:15
Solids: 86.40
QC Batch: 0909440
GC Column(1): DB-35 30m x 0.32mm

Laboratory ID: 0908176-01
Prepared: 08/17/09 08:11
Preparation: 3550B Sonication Extracti
Sequence: 9H21024
GC Column(2): DB-XLB 30m x 0.32mm

SDG: SSP0809
Project: RFAAP SSP at Six Sites
File ID: A41_256-0
Analyzed: 08/19/09 18:01
Instrument: 144

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	13.59	13.59143	0.00143	157679.2	89.1	20.5
	2	12.04	12.04	0	73716.1	72.5	
PCB-1260	1	15.01	15.02	0.01	37156.14	32.0	
	* 2	13.33	13.34	0.01	87788.57	50.3	44.5

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 14:10
Solids: 92.04
QC Batch: 0909440
GC Column(1): DB-35 30m x 0.32mm

Laboratory ID: 0908176-03
Prepared: 08/17/09 08:11
Preparation: 3550B Sonication Extracti
Sequence: 9H21024
GC Column(2): DB-XLB 30m x 0.32mm

SDG: SSP0809
Project: RFAAP SSP at Six Sites
File ID: A41_255-0
Analyzed: 08/19/09 17:13
Instrument: 144

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	13.59	13.59143	0.00143	108513.7	52.6	1.1
	2	12.04	12.04	0	59206.55	52.0	
PCB-1260	1	18.32	15.02	3.3	19895.02	16.1	
	* 2	13.33	13.34	0.01	46747.35	25.2	44.1

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SS4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/10/09 16:15
Solids: 78.77
QC Batch: 0909440
GC Column(1): DB-35 30m x 0.32mm

Laboratory ID: 0908176-04
Prepared: 08/17/09 08:11
Preparation: 3550B Sonication Extracti
Sequence: 9H21024
GC Column(2): DB-XLB 30m x 0.32mm

SDG: SSP0809
Project: RFAAP SSP at Six Sites
File ID: A41_254-0
Analyzed: 08/19/09 16:48
Instrument: 144

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	13.59	13.59143	0.00143	55964.02	22.6	8.3
	2	11.5	12.04	0.54	28354.02	20.8	
PCB-1260	1	18.32	15.02	3.3	13080.64	12.4	
	* 2	13.33	13.34	0.01	30065.78	18.9	41.5

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SS5

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-05
File ID: A41_253-0
Sampled: 08/10/09 16:00
Prepared: 08/17/09 08:11
Analyzed: 08/19/09 16:24
Solids: 70.71
Preparation: 3550B Sonication Extracti
Instrument: 144
QC Batch: 0909440
Sequence: 9H21024
GC Column(1): DB-35 30m x 0.32mm
GC Column(2): DB-XLB 30m x 0.32mm

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	13.59	13.59143	0.00143	39705.5	11.8	26.4
	2	12.04	12.04	0	18552.01	9.05	
PCB-1260	1	15.01	15.02	0.01	7417.56	7.83	
	* 2	13.34	13.34	0	20337.87	14.2	57.8

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SE1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-06
File ID: A41_252-0
Sampled: 08/10/09 15:55
Prepared: 08/17/09 08:11
Analyzed: 08/19/09 16:00
Solids: 67.98
Preparation: 3550B Sonication Extracti
Instrument: 144
QC Batch: 0909440
Sequence: 9H21024
GC Column(1): DB-35 30m x 0.32mm
GC Column(2): DB-XLB 30m x 0.32mm

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	12.17	13.59143	1.42	93854.59	58.6	52.0
	2	11.51	12.04	0.53	35218.1	34.4	
PCB-1260	1	18.32	15.02	3.3	18781.56	20.6	
	* 2	13.33	13.34	0.01	37543.17	27.4	28.3

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

60SE2

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-07
File ID: A41_251-0
Sampled: 08/10/09 15:40
Prepared: 08/17/09 08:11
Analyzed: 08/19/09 15:36
Solids: 59.69
Preparation: 3550B Sonication Extracti
Instrument: 144
QC Batch: 0909440
Sequence: 9H21024
GC Column(1): DB-35 30m x 0.32mm
GC Column(2): DB-XLB 30m x 0.32mm

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	13.59	13.59143	0.00143	68525.78	42.1	25.4
	2	12.04	12.04	0	31353.32	32.6	
PCB-1260	1	18.32	15.02	3.3	16546.59	20.7	
	* 2	13.33	13.34	0.01	37646.61	31.3	40.8

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

DUP-1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908176-08
File ID: A41_250-0
Sampled: 08/10/09 00:00
Prepared: 08/17/09 08:11
Analyzed: 08/19/09 15:11
Solids: 78.01
Preparation: 3550B Sonication Extracti
Instrument: 144
QC Batch: 0909440
Sequence: 9H21024
GC Column(1): DB-35 30m x 0.32mm
GC Column(2): DB-XLB 30m x 0.32mm

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	13.59	13.59143	0.00143	86666.99	45.8	2.0
	2	11.51	12.04	0.53	46620.45	44.9	
PCB-1260	1	15.01	15.02	0.01	11468.86	10.9	
	* 2	13.33	13.34	0.01	37700.48	24.0	75.1

* Column used for quantitation

DATA VALIDATION WORKSHEET

Reviewer: Andrea Sansom
Date: October 19, 2009
DV Level: II III IV
Review Document:
_X_ Region III Modified for National Functional Guidelines
____ NFG for organic Data review (February 1994)
_X_ Project QAPP/SAP

Explosives

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP0809
Test Name: Explosives
Method No.: 8330-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%		X	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 40-150%?		X	
6.4	Are there any RPDs outside the QC limits not to exceed 60%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 40-150%?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are all positive identifications confirmed on second column or detector? If not, reject or estimate this detection.			X
9.2	For positive sample detections, is RPD <40% between first and second columns. If not, apply J.			X
9.3	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

10.0 Data Completeness			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	17			
	Number of target compounds in each analysis:	14			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE2	0908176-07
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1B	0908185-04
77SB3A	0908185-05
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09
EQBK-1	0908185-10

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25042

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H25042-CCV1	expa021-0	08/22/09 21:30
Blank	0909626-BLK1	expa022-0	08/22/09 22:13
LCS	0909626-BS1	expa023-0	08/22/09 22:55
60SS1	0908176-01	expa024-0	08/22/09 23:37
60SS2	0908176-02	expa025-0	08/23/09 00:19
60SS3	0908176-03	expa026-0	08/23/09 01:01
60SS4	0908176-04	expa027-0	08/23/09 01:43
60SS5	0908176-05	expa028-0	08/23/09 02:25
Calibration Check	9H25042-CCV2	expa029-0	08/23/09 03:08

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H25042
Instrument: 221
Matrix: Soil
Calibration: 9F23012

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H25042-CCV1)		**Lab File ID: expa021-0**		**Analyzed: 08/22/09 21:30**			
4-Nitroaniline	8.33	8.86	-0.53	+/-1.0	81	85 - 115	*
Blank (0909626-BLK1)		**Lab File ID: expa022-0**		**Analyzed: 08/22/09 22:13**			
4-Nitroaniline	8.34	8.86	-0.52	+/-1.0	94	57 - 139	
LCS (0909626-BS1)		**Lab File ID: expa023-0**		**Analyzed: 08/22/09 22:55**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	132	57 - 139	
60SS1 (0908176-01)		**Lab File ID: expa024-0**		**Analyzed: 08/22/09 23:37**			
4-Nitroaniline	8.38	8.86	-0.48	+/-1.0	112	57 - 139	
60SS2 (0908176-02)		**Lab File ID: expa025-0**		**Analyzed: 08/23/09 00:19**			
4-Nitroaniline	8.43	8.86	-0.43	+/-1.0	97	57 - 139	
60SS3 (0908176-03)		**Lab File ID: expa026-0**		**Analyzed: 08/23/09 01:01**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	97	57 - 139	
60SS4 (0908176-04)		**Lab File ID: expa027-0**		**Analyzed: 08/23/09 01:43**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	91	57 - 139	
60SS5 (0908176-05)		**Lab File ID: expa028-0**		**Analyzed: 08/23/09 02:25**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	97	57 - 139	
Calibration Check (9H25042-CCV2)		**Lab File ID: expa029-0**		**Analyzed: 08/23/09 03:08**			
4-Nitroaniline	8.33	8.86	-0.53	+/-1.0	81	85 - 115	*

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa029-0
Calibration Date: 06/22/09 14:47
Sequence: 9H25042
Injection Date: 08/23/09
Lab Sample ID: 9H25042-CCV2
Injection Time: 03:08

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	726	21.60856	19.60844		-9.3	20
1,3-Dinitrobenzene	A	800	743	23.2766	21.60546		-7.2	20
2,4,6-Trinitrotoluene	A	800	758	14.05836	13.318		-5.3	20
2,4-Dinitrotoluene	A	800	744	15.58131	14.49589		-7.0	20
2,6-Dinitrotoluene	A	800	721	8.967104	8.078238		-9.9	20
2-Amino-4,6-dinitrotoluene	A	800	717	7.924614	7.106863		-10.3	20
2-Nitrotoluene	A	800	716	6.897007	6.173588		-10.5	20
3-Nitrotoluene	A	800	719	6.600428	5.93235		-10.1	20
4-Amino-2,6-dinitrotoluene	A	800	688	6.172953	5.306388		-14.0	20
4-Nitrotoluene	A	800	728	5.405638	4.917513		-9.0	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	706	7.391476	6.518525		-11.8	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	663	9.42282	7.806925		-17.1	20
Nitrobenzene	A	800	742	14.12719	13.10404		-7.2	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	681	8.330255	7.095763		-14.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25035

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

E2

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H25035-CCV1	expa002-0	08/24/09 10:19
60SE1	0908176-06	xpa003-20090824-114513-	08/24/09 11:45
60SE2	0908176-07	expa004-0	08/24/09 12:27
DUP-1	0908176-08	expa005-0	08/24/09 13:09
60TP1	0908185-02	expa006-0	08/24/09 13:51
77SB1A	0908185-03	expa007-0	08/24/09 14:33
77SB1B	0908185-04	expa008-0	08/24/09 15:16
77SB3A	0908185-05	expa009-0	08/24/09 15:58
Calibration Check	9H25035-CCV2	expa010-0	08/24/09 16:40
77SB3B	0908185-06	expa011-0	08/24/09 17:24
77SB2A	0908185-07	expa012-0	08/24/09 18:06
77SB2B	0908185-08	expa013-0	08/24/09 18:48
77SB4B	0908185-09	expa014-0	08/24/09 19:30
Calibration Check	9H25035-CCV3	expa016-0	08/24/09 20:56

Confirmation Run CCV 1659 ✓

0908176-06 8/28/09 2012
8330 Hydro

0908185-10 8/28/09 1804

CCV 1940 ✓

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25035
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H25035-CCV1)		**Lab File ID: expa002-0**		**Analyzed: 08/24/09 10:19**			
4-Nitroaniline	8.45	8.86	-0.41	+/-1.0	81	85 - 115	*
60SE1 (0908176-06)		**Lab File ID: expa003-20090Analyzed: 08/24/09 11:45**					
4-Nitroaniline	8.38	8.86	-0.48	+/-1.0	90	57 - 139	
60SE2 (0908176-07)		**Lab File ID: expa004-0**		**Analyzed: 08/24/09 12:27**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	90	57 - 139	
DUP-1 (0908176-08)		**Lab File ID: expa005-0**		**Analyzed: 08/24/09 13:09**			
4-Nitroaniline	8.45	8.86	-0.41	+/-1.0	90	57 - 139	
60TP1 (0908185-02)		**Lab File ID: expa006-0**		**Analyzed: 08/24/09 13:51**			
4-Nitroaniline	8.38	8.86	-0.48	+/-1.0	94	57 - 139	
77SB1A (0908185-03)		**Lab File ID: expa007-0**		**Analyzed: 08/24/09 14:33**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	90	57 - 139	
77SB1B (0908185-04)		**Lab File ID: expa008-0**		**Analyzed: 08/24/09 15:16**			
4-Nitroaniline	8.40	8.86	-0.46	+/-1.0	94	57 - 139	
77SB3A (0908185-05)		**Lab File ID: expa009-0**		**Analyzed: 08/24/09 15:58**			
4-Nitroaniline	8.35	8.86	-0.51	+/-1.0	90	57 - 139	
Calibration Check (9H25035-CCV2)		**Lab File ID: expa010-0**		**Analyzed: 08/24/09 16:40**			
4-Nitroaniline	8.35	8.86	-0.51	+/-1.0	81	85 - 115	*
77SB3B (0908185-06)		**Lab File ID: expa011-0**		**Analyzed: 08/24/09 17:24**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	102	57 - 139	
77SB2A (0908185-07)		**Lab File ID: expa012-0**		**Analyzed: 08/24/09 18:06**			
4-Nitroaniline	8.43	8.86	-0.43	+/-1.0	101	57 - 139	
77SB2B (0908185-08)		**Lab File ID: expa013-0**		**Analyzed: 08/24/09 18:48**			
4-Nitroaniline	8.44	8.86	-0.42	+/-1.0	93	57 - 139	
77SB4B (0908185-09)		**Lab File ID: expa014-0**		**Analyzed: 08/24/09 19:30**			
4-Nitroaniline	8.42	8.86	-0.44	+/-1.0	90	57 - 139	
Calibration Check (9H25035-CCV3)		**Lab File ID: expa016-0**		**Analyzed: 08/24/09 20:56**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	84	85 - 115	*

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa002-0
Sequence: 9H25035
Lab Sample ID: 9H25035-CCV1

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/24/09
Injection Time: 10:19

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	722	21.60856	19.50334		-9.7	20
1,3-Dinitrobenzene	A	800	727	23.2766	21.147		-9.1	20
2,4,6-Trinitrotoluene	A	800	747	14.05836	13.12885		-6.6	20
2,4-Dinitrotoluene	A	800	748	15.58131	14.57551		-6.5	20
2,6-Dinitrotoluene	A	800	729	8.967104	8.169738		-8.9	20
2-Amino-4,6-dinitrotoluene	A	800	760	7.924614	7.523938		-5.1	20
2-Nitrotoluene	A	800	740	6.897007	6.3812		-7.5	20
3-Nitrotoluene	A	800	703	6.600428	5.799313		-12.1	20
4-Amino-2,6-dinitrotoluene	A	800	671	6.172953	5.174913		-16.2	20
4-Nitrotoluene	A	800	716	5.405638	4.834725		-10.6	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	694	7.391476	6.408513		-13.3	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	691	9.42282	8.1353		-13.7	20
Nitrobenzene	A	800	728	14.12719	12.86205		-9.0	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	676	8.330255	7.04325		-15.4	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa010-0
Sequence: 9H25035
Lab Sample ID: 9H25035-CCV2

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/24/09
Injection Time: 16:40

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	732	21.60856	19.78375		-8.4	20
1,3-Dinitrobenzene	A	800	731	23.2766	21.2675		-8.6	20
2,4,6-Trinitrotoluene	A	800	739	14.05836	12.98125		-7.7	20
2,4-Dinitrotoluene	A	800	736	15.58131	14.34125		-8.0	20
2,6-Dinitrotoluene	A	800	701	8.967104	7.85625		-12.4	20
2-Amino-4,6-dinitrotoluene	A	800	710	7.924614	7.03375		-11.2	20
2-Nitrotoluene	A	800	716	6.897007	6.1775		-10.4	20
3-Nitrotoluene	A	800	724	6.600428	5.97375		-9.5	20
4-Amino-2,6-dinitrotoluene	A	800	687	6.172953	5.3		-14.1	20
4-Nitrotoluene	A	800	726	5.405638	4.905		-9.3	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	703	7.391476	6.495		-12.1	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	676	9.42282	7.96		-15.5	20
Nitrobenzene	A	800	731	14.12719	12.90375		-8.7	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	680	8.330255	7.08125		-15.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa016-0
Sequence: 9H25035
Lab Sample ID: 9H25035-CCV3

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/24/09
Injection Time: 20:56

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	711	21.60856	19.20125		-11.1	20
1,3-Dinitrobenzene	A	800	736	23.2766	21.425		-8.0	20
2,4,6-Trinitrotoluene	A	800	739	14.05836	12.97875		-7.7	20
2,4-Dinitrotoluene	A	800	737	15.58131	14.36		-7.8	20
2,6-Dinitrotoluene	A	800	706	8.967104	7.91		-11.8	20
2-Amino-4,6-dinitrotoluene	A	800	711	7.924614	7.04375		-11.1	20
2-Nitrotoluene	A	800	718	6.897007	6.19375		-10.2	20
3-Nitrotoluene	A	800	710	6.600428	5.855		-11.3	20
4-Amino-2,6-dinitrotoluene	A	800	682	6.172953	5.265		-14.7	20
4-Nitrotoluene	A	800	720	5.405638	4.86625		-10.0	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	696	7.391476	6.43125		-13.0	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	677	9.42282	7.9775		-15.3	20
Nitrobenzene	A	800	750	14.12719	13.2525		-6.2	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	682	8.330255	7.09625		-14.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25052

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H25052-CCV1	expa002-0	08/25/09 10:17
Blank	0909645-BLK1	expa003-0	08/25/09 11:01
LCS	0909645-BS1	expa004-0	08/25/09 11:43
LCS Dup	0909645-BSD1	expa005-0	08/25/09 12:25
EQBK-1	0908185-10	expa006-0	08/25/09 13:07
Calibration Check	9H25052-CCV2	expa009-0	08/25/09 15:14

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25052
Matrix: Water

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H25052-CCV1)		**Lab File ID: expa002-0**		**Analyzed: 08/25/09 10:17**			
4-Nitroaniline	8.36	8.86	-0.50	+/-1.0	81	85 - 115	*
Blank (0909645-BLK1)		**Lab File ID: expa003-0**		**Analyzed: 08/25/09 11:01**			
4-Nitroaniline	8.37	8.86	-0.49	+/-1.0	86	29 - 138	
LCS (0909645-BS1)		**Lab File ID: expa004-0**		**Analyzed: 08/25/09 11:43**			
4-Nitroaniline	8.38	8.86	-0.48	+/-1.0	90	29 - 138	
LCS Dup (0909645-BSD1)		**Lab File ID: expa005-0**		**Analyzed: 08/25/09 12:25**			
4-Nitroaniline	8.40	8.86	-0.46	+/-1.0	81	29 - 138	
EQBK-1 (0908185-10)		**Lab File ID: expa006-0**		**Analyzed: 08/25/09 13:07**			
4-Nitroaniline	8.40	8.86	-0.46	+/-1.0	119	29 - 138	
Calibration Check (9H25052-CCV2)		**Lab File ID: expa009-0**		**Analyzed: 08/25/09 15:14**			
4-Nitroaniline	8.29	8.86	-0.57	+/-1.0	82	85 - 115	*

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa002-0
Calibration Date: 06/22/09 14:47
Sequence: 9H25052
Injection Date: 08/25/09
Lab Sample ID: 9H25052-CCV1
Injection Time: 10:17

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	734	21.60856	19.83125		-8.2	20
1,3-Dinitrobenzene	A	800	735	23.2766	21.39309		-8.1	20
2,4,6-Trinitrotoluene	A	800	748	14.05836	13.1488		-6.5	20
2,4-Dinitrotoluene	A	800	745	15.58131	14.50565		-6.9	20
2,6-Dinitrotoluene	A	800	718	8.967104	8.044175		-10.3	20
2-Amino-4,6-dinitrotoluene	A	800	704	7.924614	6.973425		-12.0	20
2-Nitrotoluene	A	800	707	6.897007	6.095213		-11.6	20
3-Nitrotoluene	A	800	714	6.600428	5.887		-10.8	20
4-Amino-2,6-dinitrotoluene	A	800	675	6.172953	5.208163		-15.6	20
4-Nitrotoluene	A	800	721	5.405638	4.874138		-9.8	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	696	7.391476	6.43285		-13.0	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	691	9.42282	8.133713		-13.7	20
Nitrobenzene	A	800	733	14.12719	12.9502		-8.3	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	689	8.330255	7.17535		-13.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa009-0
Sequence: 9H25052
Lab Sample ID: 9H25052-CCV2

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/25/09
Injection Time: 15:14

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	749	21.60856	20.22		-6.4	20
1,3-Dinitrobenzene	A	800	754	23.2766	21.94		-5.7	20
2,4,6-Trinitrotoluene	A	800	774	14.05836	13.5975		-3.3	20
2,4-Dinitrotoluene	A	800	777	15.58131	15.13875		-2.8	20
2,6-Dinitrotoluene	A	800	751	8.967104	8.41625		-6.1	20
2-Amino-4,6-dinitrotoluene	A	800	719	7.924614	7.12375		-10.1	20
2-Nitrotoluene	A	800	784	6.897007	6.7625		-2.0	20
3-Nitrotoluene	A	800	754	6.600428	6.22		-5.8	20
4-Amino-2,6-dinitrotoluene	A	800	700	6.172953	5.40375		-12.5	20
4-Nitrotoluene	A	800	780	5.405638	5.27125		-2.5	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	710	7.391476	6.56		-11.2	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	709	9.42282	8.35625		-11.3	20
Nitrobenzene	A	800	759	14.12719	13.4075		-5.1	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	679	8.330255	7.07125		-15.1	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

77SB1A

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 8330 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0909626-MS1

QC Batch: 0909626

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	ND	1.69	84	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	ND	1.81	90	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	ND	1.68	84	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	2.00	ND	1.84	92	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	ND	1.77	88	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	ND	3.43	86	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	ND	1.80	90	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	ND	1.84	92	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	ND	1.84	92	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	ND	1.80	90	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	2.00	ND	1.67	84	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	ND	1.55	78	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	ND	1.86	93	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	2.00	ND	1.65	83	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8330

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 8330 Extraction
Initial/Final: 2 g / 20 mL

Laboratory ID: 0909626-MSD1
QC Batch: 0909626

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	1.72	86	2	30	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	1.84	92	2	30	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	1.70	85	1	30	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	2.00	1.87	93	2	30	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	1.74	87	1	30	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	3.40	85	0.9	30	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	1.81	90	0.4	30	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	1.79	90	3	30	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	1.75	87	5	30	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	1.79	89	1	30	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	2.00	1.72	86	3	30	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	1.52	76	2	30	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	1.92	96	3	30	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	2.00	1.68	84	2	30	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

TriMatrix Laboratories, Inc.

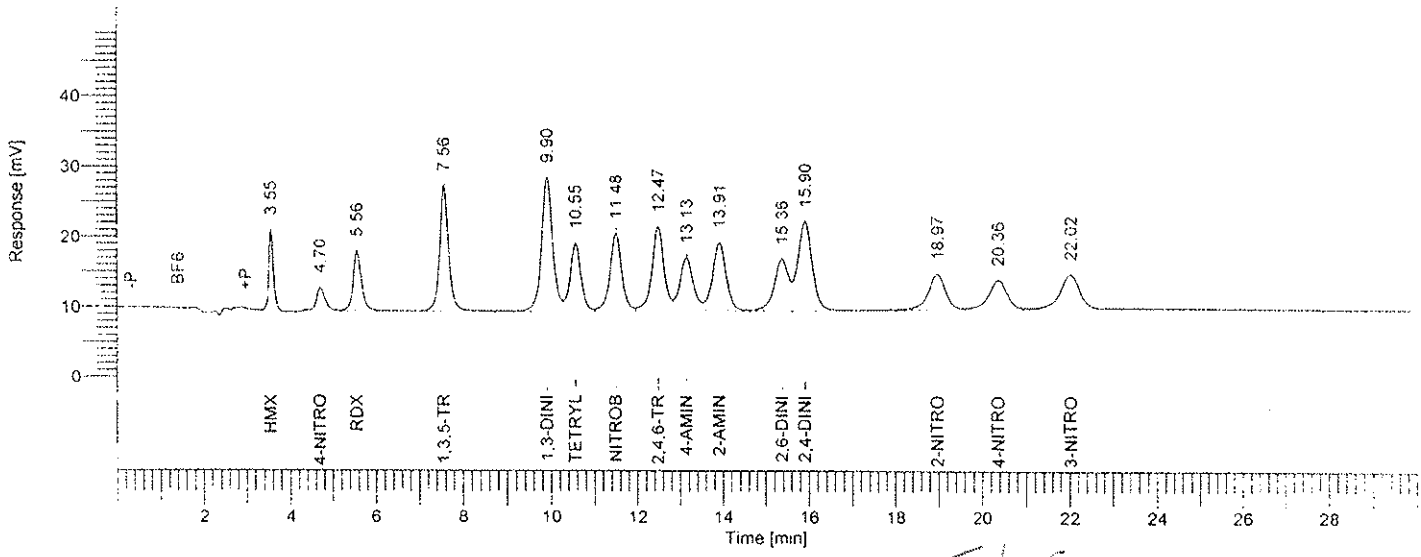
Instrument ID: Perkin Elmer LC235 221	Date: 8/28/09	Sequence #:	Date Archived, Disk ID

Instrument Settings/Injection Vol.	Quantitation Information	Pump Programs	
Column: Synergi Hydro	Curve Date: 6/25/09	(Programs listed in front of book)	Notes:
Column Heater Temp: 28°C	Curve Type: Regression or Avg. CF	8315 Acrylamide	
Injection Volume: 100 µL	Quantitated By: Curve	8310 Phenytoin	
Initial Pressure: 3400	ICV/CCV Std: 9090392	8330 X Other	
UV Detector Wavelength:			

Analyst	Run ID	File ID	Inj. Time	Method	Client	Matrix	Dilution	ICV/CCV Check (85-115)	Sample Notes, Std. Numbers, Anal. Batch Info, etc.
FJA	IBL	exp. 001	1624	8330 hydro 062509					
↓	CCV1	002	1659	↓				Pass	9031145 8x (9090392)
	0909645-BLK1	003	1732			wtr			
	0903185-10	004	1804			↓			
	0903228-17	005	1836						
	0903257-15	006	1908						
	CCV2	007	1940					Pass	9090392
	0908176-06	008	2012			Sed			
	0903228-03	009	2044			↓			
	↓ -06	010	2116						
	0903257-04	011	2148						
	↓ -10	012	2220						
	↓ -05	013	2252						
	↓ -13	014	2324						
	0903275-04	015	2357			↓			
↓	CCV3	016	0029	↓				Pass	9090392
					F				

Software Version	: 6.3.1.0504	Date	: 8/31/2009 9:11:38
Operator	: manager	Sample Name	: CCV3
Sample Number	: 16	Study	: 8330 HYDRO
AutoSampler	: SER200	Rack/Vial	: 0/76
Instrument Name	: 221	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 0.00 min	End Time	: 29.99 min
Sampling Rate	: 2.2727 pts/s		
Sample Volume	: 1.000000 UL		
Sample Amount	: 1.0000	Area Reject	: 0.000000
Data Acquisition Time	: 8/29/2009 0:29:05	Dilution Factor	: 1.00
		Cycle	: 1

Raw Data File : C:\Data\LC200\082809\expa016.raw
Inst Method : c:\data\lc200\8330 methods\8330_hydro_062509 from C:\Data\LC200\082809\expa016.raw
Proc Method : c:\data\lc200\8330 methods\8330_hydro_062509.mth from
Calib Method : c:\data\lc200\8330 methods\8330_hydro_062509.mth from
Report Format File: c:\data\lc200\reports\8330soil.rpt
Sequence File : C:\Data\LC200\082809\8330_HYDRO_082809.seq



TV = 800

Trimatrix Labs. LC221 8330 Quant. Report - Soil

Time [min]	Component Name	Amount (ng/mL)	Area [µV·s]	Height [µV]	Initial (g)	Final (mL)	Conc. (ug/kg)
3.55	HMX	725.8163	89466	11566	1.00	1	725.8163
4.70	4-NITROANILINE	752.4384	54300	3399	1.00	1	752.4384
5.56	RDX	764.2958	118249	8543	1.00	1	764.2958
7.56	1,3,5-TRINITROBENZEN	752.7580	254742	17906	1.00	1	752.7580
9.90	1,3-DINITROBENZENE	779.1359	337771	19119	1.00	1	779.1359
10.55	TETRYL	752.3284	167408	9626	1.00	1	752.3284
11.48	NITROBENZENE	777.0667	212076	11066	1.00	1	777.0667
12.47	2,4,6-TRINITROTOLUEN	801.8359	238389	11996	1.00	1	801.8359
13.13	4-AMINO-2,6-DINITROT	776.9656	165312	7578	1.00	1	776.9656
13.91	2-AMINO-4,6-DINITROT	786.7419	222218	9717	1.00	1	786.7419

-15 → 680
+15 → 920

8/31/2009 9:11:38 Result:

Time [min]	Component Name	Amount (ng/mL)	Area [µV·s]	Height [µV]	Initial (g)	Final (mL)	Conc. (ug/kg)
15.36	2,6-DINITROTOLUENE	791.7448	170942	7373	1.00	1	791.7448
15.90	2,4-DINITROTOLUENE	795.9626	299379	12666	1.00	1	795.9626
18.97	2-NITROTOLUENE	792.9666	138768	4989	1.00	1	792.9666
20.36	4-NITROTOLUENE	793.6999	119269	4107	1.00	1	793.6999
22.02	3-NITROTOLUENE	775.9206	149526	4809	1.00	1	775.9206

Timed Event Table

Time	Event	Value
0.322	Disable Peak Detection	
1.396	Set Bunching Factor	6.00
2.967	Enable Peak Detection	

Report stored in ASCII file: C:\Data\LC200\082809\expa016.TX0

DATA VALIDATION WORKSHEET

Nitroglycerin/PETN

Reviewer: Andrea Sansom
Date: October 19, 2009
DV Level: II III IV
Review Document:
_X__ Region III Modified for National Functional Guidelines
____ NFG for organic Data review (February 1994)
____ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP0809
Test Name: Nitroglycerin/PETN
Method No.: 8332-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%	X		
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are any target compounds detected in the field samples? If Yes, is all positive identifications were confirmed in second column? Apply J flag if RPD >40% between first and second columns.		X	
9.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	DQOs		

Notes:

10.0 Data Completeness			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	17			
	Number of target compounds in each analysis:	2			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8332

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE2	0908176-07
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1B	0908185-04
77SB3A	0908185-05
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09
EQBK-1	0908185-10

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8332

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL

Laboratory ID: 0909627-MS1
QC Batch: 0909627

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Nitroglycerin	10.0	ND	9.96	100	70 - 120	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	ND	9.74	97	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8332

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 8332 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0909627-MSD1

QC Batch: 0909627

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Nitroglycerin	10.0	9.98	100	0.3	20	70 - 120	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	10.1	101	4	20	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET
INORGANIC - ICP, CVAA, AND CYANIDE
REGION III - NATIONAL FUNCTIONAL GUIDELINES

Project Name: Radford SSP
SDG No.: 36440-19
Reviewer: Andrea Sansom
Project No.: 11657490.40000
Date: October 19, 2009

1.0 Chain of Custody/Sample Condition/Raw Data		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X			X			X			X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X			X			X			X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X			X			X			X	
1.4	Does sample preservation, collection and storage meet method requirement? (For metal: water samples: with Nitric Acid to pH < 2, and soil/sediment samples: 4 $^{O}C \pm 2\ ^{O}C$)	X			X			X			X		
1.5	Are the digestion logs present and complete with pH values, sample weights, dilutions, final volumes. % solids (for soil samples), and preparation dates? For any missing or incomplete documentation, contact the laboratory for explanation/resubmittal.	X			X			X			X		

Note:

2.0 Holding Time		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
2.1	Have any technical holding times, determined from date of collection to date of analysis, been exceeded? (Hg: 28days, CN: 14 days, other metals: 6 months) Action:L(+)/UL(-). If the holding time is grossly exceeded (twice the holding time criteria), L(+)/R(-).		X			X			X			X	

Note:

3.0 Instrument Calibration		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
3.1	Are sufficient standards included in the calibration curve? (ICP& ICPMS: blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL; CVAA: blank + five standards with one standard at the RL). If not, qualify with "R".	6+BLK			4+BLK			5+BLK			6+BLK		
3.2	Are the correlation coefficients > 0.99? Action: J(+)/UJ(-).	X			X			X			X		
3.3	Once per calibration, did a high and low distilled standard recovery within 85-115%? If no, follow 3.6.										X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X			X			X			X		
3.5	Was continuing calibration verification (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during an analytical run and at the end of the analytical run? If not, document and flag based on professional judgement.	X			X			X			X		
3.6	Are all calibration standard percent recoveries (ICV and CCV) within the control limits? For ICP 90% 110%; Hg 80-120%; CN 85-115%.	X			X			X			X		
	ICV and CCV: Action: L(+)/R(-) L(+)/UL(-) K(+) Mercury < 65% 65% - 79% > 120% Cyanide < 65% 65% - 84% > 115% Other Metals < 75% 75% - 89% > 110%												
3.7	For ICP & ICPMS, did the CRDL standard recover between 80-120%?			X			X				X		
	<50% 50%-79% >120% 2xCRDL>[sample]>IDL L(+)/R(-) L(+)/UL(-) K												

Note: _____

4.0 Blanks		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
4.1	Were method blank (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X			X			X			X		
4.2	Were calibration blanks (ICB and CCBs) analyzed immediately after each and every ICV and CCVs? Action: If no ICB was run, all associated data are rejected. If the frequency of the CCBs does not follow requirement, all associated data are qualified "J".	X			X			X			X		
4.3	Are there reported MB or ICB/CCBs values > MDL?	X			X				X			X	
	Sample Results > MDL												
	< 5X Blank Contamination B												
4.4	Are there negative blank results with the absolute value > MDL?	X			X				X			X	
	Sample Results Non-detects > MDL												
	< 5X absolute Blank Contamination UL L												
4.5	Are there reported field blank > ± MDL?	X			X				X			X	
	Sample Results > MDL												
	< 5X Blank Contamination B												

Note: _____

5.0 ICP Interference Check Sample (ICS)		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
5.1	Was ICS analyzed at beginning of each ICP run?	X			X								
5.2	Are the ICS AB recoveries within 80% - 120%?	X			X								
5.3	Are the results for unspiked analytes (in ICS A) < ± RL?		X		X								
5.4	If not, are the associated sample Al, Ca, Fe, and Mg concentrations less than the level in the ICS?	X					X						
	If not...												
	Action: Not Spiked Analytes Spiked analytes (ICS AB analytes)												
	< -MDL > MDL < 50% 50% - 79% >120%												
	L(+)/UL(-) K(+) L(+)/R(-) L(+)/UL(-) K(+)												

Note: _____

6.0 Laboratory Control Sample (LCS)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
6.1	Was an LCS prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+) any sample not associated with LCS results.	X			X			X			X		
6.2	Is any LCS recovery outside the control limits? (Aqueous limits: 80% - 120% - except Ag and Sb; Solid limits: as per EPA-EMSL/LV)		X			X			X			X	
	Action: Solid: < LCL L(+)/UL(-); > UCL K(+). Aqueous: < 50% L(+)/R(-); 50% - 79% L(+)/UL(-); > 120% K(+)												

Note: _____

7.0 Laboratory Duplicates (MSD)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
7.1	Were Laboratory duplicates prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+), using professional judgement, analytes not associated with duplicate results.	X			X			X			X		
	For aqueous 6010B and Hg - RPD< 25%, aqueous CN - RPD < 20%, aqueous 6020 - RPD < 20%, and for soil - use laboratory generated limits for MS/MSD.												
7.2	Are all analyte duplicate results within control limits? If no, qualify all associated field samples J(+)/UJ(-) for the analyte with results that fall outside criteria.	X				X		X			X		

Note: _____

8.0 Spike Sample Analysis -Pre-Digestion/Post-Digestion		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
8.1	Was a spiked sample prepared and analyzed at the correct frequency (one per 20 samples, batch, matrix and level)? If not, J(+) with professional judgement.	X			X			X			X		
8.2	For all analytes with sample concentration > 4 x spike concentration, are spike recoveries within the control limit of 75-125%?		X			X			X		X		
	%R > 125% 30%< %R < 74% < 30%												
	Positive K L L												
	Non-detect None UL R												
8.3	Where pre-digestion matrix spike analytes were outside the acceptable recovery limits(except Ag), was a post-digestion spike performed? Note any failures in DV report, but no data qualifying action is required.	X			X			X			X		

Note: _____

9.0 Instrument Detection Limits (IDL)		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
9.1	Are all IDLs/RLs equal to or less than the reporting limits specified?	X			X			X			X		

Note: _____

10.0 ICP/AA Serial Dilutions (Not for Mercury Analysis)		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
10.1	Were serial dilutions performed?	X			X								
10.2	Was a five-fold dilution performed?	X			X								
10.3	Did the serial dilution results agree within 10% for ICP analyte concentration > 5 X the RL for 6010 or > 20 X the RL for 6020 in the original sample? If no, J(+).	X			X								

Note: _____

11.0 Field Duplicate Samples		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
11.1	Were any field duplicates submitted for metal analysis?	X			X			X			X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.												
11.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report		Cu		X			X			X		

Note: _____

12.0 Result Verification/ Internal Standards/ Tune		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
12.1	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?												
12.2	Were all dilution reflected in the positive results and detection limits?	X			X			X			X		
12.3	Were the Internal Standard recoveries within 30-120%	X			X								
12.4	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution?	X											
12.5	Were the tune mass calibrations < 0.1 amu from the true value?	X											
12.6	Was the resolution check peak width < 0.9 amu at 10% peak height?	X											

Note: _____

13.0 Completeness Calculation		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
13.1	Is % completeness within the control limits? (Control limit 90%)	X			X			X			X		
13.1.1	Number of samples: _____												
13.1.2	Number of target compounds in each analysis: _____												
13.1.3	Number of results rejected and not reported: _____												
	% Completeness = (13.1.1 x 13.1.2 - 13.1.3) x 100/(13.1.1 x 13.1.2)												
	% Completeness = _____	100%			100%			100%			100%		

Note: _____

SAMPLE ID SUMMARY

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE2	0908176-07
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1B	0908185-04
77SB3A	0908185-05
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09
EQBK-1	0908185-10

ANALYSIS BATCH (SEQUENCE) SUMMARY

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H17031

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Instrument: 114

Calibration: 9H18008

A, Cu, Pb, Ni, Se, Ag, Tl, V

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Cal Standard	9H17031-CAL1	9h17031-001	08/17/09 09:48	
Cal Standard	9H17031-CAL2	9h17031-002	08/17/09 09:51	
Cal Standard	9H17031-CAL3	9h17031-003	08/17/09 09:54	
Cal Standard	9H17031-CAL4	9h17031-004	08/17/09 09:57	
Cal Standard	9H17031-CAL5	9h17031-005	08/17/09 10:00	
Cal Standard	9H17031-CAL6	9h17031-006	08/17/09 10:03	
Cal Standard	9H17031-CAL7	9h17031-007	08/17/09 10:06	
Cal Standard	9H17031-CAL8	9h17031-008	08/17/09 10:08	
Secondary Cal Check	9H17031-SCV1	9h17031-009	08/17/09 10:11	✓
Calibration Check	9H17031-CCV1	9h17031-009	08/17/09 10:11	✓
Calibration Blank	9H17031-CCB1	9h17031-010	08/17/09 10:14	X
Interference Check A	9H17031-IFA1	9h17031-011	08/17/09 10:17	
Interference Check B	9H17031-IFB1	9h17031-012	08/17/09 10:20	
Calibration Check	9H17031-CCV2	9h17031-013	08/17/09 10:23	✓
Calibration Blank	9H17031-CCB2	9h17031-014	08/17/09 10:26	X
Blank	0909449-BLK1	9h17031-015	08/17/09 10:29	
LCS	0909449-BS1	9h17031-016	08/17/09 10:32	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS1	0908176-01	9h17031-017	08/17/09 10:35	
60SS2	0908176-02	9h17031-018	08/17/09 10:38	
60SS2	0908176-02	9h17031-018	08/17/09 10:38	
60SS2	0908176-02	9h17031-018	08/17/09 10:38	
60SS2	0908176-02	9h17031-018	08/17/09 10:38	
60SS2	0908176-02	9h17031-018	08/17/09 10:38	
60SS2	0908176-02	9h17031-018	08/17/09 10:38	
60SS2	0908176-02	9h17031-018	08/17/09 10:38	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory:	TriMatrix Laboratories, Inc.	SDG:	SSP0809
Client:	URS Corporation	Project:	RFAAP SSP at Six Sites
Sequence:	9H17031	Instrument:	114
		Calibration:	9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
60SS2	0908176-02	9h17031-018	08/17/09 10:38
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS3	0908176-03	9h17031-019	08/17/09 10:40
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS4	0908176-04	9h17031-020	08/17/09 10:43
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SS5	0908176-05	9h17031-021	08/17/09 10:46
60SE1	0908176-06	9h17031-022	08/17/09 10:49
60SE1	0908176-06	9h17031-022	08/17/09 10:49
60SE1	0908176-06	9h17031-022	08/17/09 10:49
60SE1	0908176-06	9h17031-022	08/17/09 10:49
60SE1	0908176-06	9h17031-022	08/17/09 10:49
60SE1	0908176-06	9h17031-022	08/17/09 10:49
60SE1	0908176-06	9h17031-022	08/17/09 10:49

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
60SE2	0908176-07	9h17031-023	08/17/09 10:52
60SE2	0908176-07	9h17031-023	08/17/09 10:52
60SE2	0908176-07	9h17031-023	08/17/09 10:52
60SE2	0908176-07	9h17031-023	08/17/09 10:52
60SE2	0908176-07	9h17031-023	08/17/09 10:52
60SE2	0908176-07	9h17031-023	08/17/09 10:52
60SE2	0908176-07	9h17031-023	08/17/09 10:52
DUP-1	0908176-08	9h17031-024	08/17/09 10:55
DUP-1	0908176-08	9h17031-024	08/17/09 10:55
DUP-1	0908176-08	9h17031-024	08/17/09 10:55
DUP-1	0908176-08	9h17031-024	08/17/09 10:55
DUP-1	0908176-08	9h17031-024	08/17/09 10:55
DUP-1	0908176-08	9h17031-024	08/17/09 10:55
DUP-1	0908176-08	9h17031-024	08/17/09 10:55
Calibration Check	9H17031-CCV3	9h17031-025	08/17/09 10:58
Calibration Blank	9H17031-CCB3	9h17031-027	08/17/09 11:04
60TP1	0908185-02	9h17031-028	08/17/09 11:07
60TP1	0908185-02	9h17031-028	08/17/09 11:07
60TP1	0908185-02	9h17031-028	08/17/09 11:07
60TP1	0908185-02	9h17031-028	08/17/09 11:07
60TP1	0908185-02	9h17031-028	08/17/09 11:07
60TP1	0908185-02	9h17031-028	08/17/09 11:07
60TP1	0908185-02	9h17031-028	08/17/09 11:07
77SB1A	0908185-03	9h17031-029	08/17/09 11:10
77SB1A	0908185-03	9h17031-029	08/17/09 11:10
77SB1A	0908185-03	9h17031-029	08/17/09 11:10
77SB1A	0908185-03	9h17031-029	08/17/09 11:10
77SB1A	0908185-03	9h17031-029	08/17/09 11:10
77SB1A	0909449-MS1	9h17031-030	08/17/09 11:13
77SB1A	0909449-MSD1	9h17031-031	08/17/09 11:16
77SB1A	9H17031-SRD1	9h17031-032	08/17/09 11:19
77SB1A	0909449-PS1	9h17031-033	08/17/09 11:22

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
77SB1B	0908185-04	9h17031-034	08/17/09 11:24
77SB1B	0908185-04	9h17031-034	08/17/09 11:24
77SB1B	0908185-04	9h17031-034	08/17/09 11:24
77SB1B	0908185-04	9h17031-034	08/17/09 11:24
77SB1B	0908185-04	9h17031-034	08/17/09 11:24
77SB1B	0908185-04	9h17031-034	08/17/09 11:24
77SB1B	0908185-04	9h17031-034	08/17/09 11:24
77SB3A	0908185-05	9h17031-035	08/17/09 11:27
77SB3A	0908185-05	9h17031-035	08/17/09 11:27
77SB3A	0908185-05	9h17031-035	08/17/09 11:27
77SB3A	0908185-05	9h17031-035	08/17/09 11:27
77SB3A	0908185-05	9h17031-035	08/17/09 11:27
77SB3B	0908185-06	9h17031-036	08/17/09 11:30
77SB3B	0908185-06	9h17031-036	08/17/09 11:30
77SB3B	0908185-06	9h17031-036	08/17/09 11:30
77SB3B	0908185-06	9h17031-036	08/17/09 11:30
77SB3B	0908185-06	9h17031-036	08/17/09 11:30
77SB3B	0908185-06	9h17031-036	08/17/09 11:30
77SB2A	0908185-07	9h17031-037	08/17/09 11:33
77SB2A	0908185-07	9h17031-037	08/17/09 11:33
77SB2A	0908185-07	9h17031-037	08/17/09 11:33
77SB2A	0908185-07	9h17031-037	08/17/09 11:33
77SB2A	0908185-07	9h17031-037	08/17/09 11:33
77SB2A	0908185-07	9h17031-037	08/17/09 11:33
77SB2A	0908185-07	9h17031-037	08/17/09 11:33
Calibration Check	9H17031-CCV4	9h17031-038	08/17/09 11:36
Calibration Blank	9H17031-CCB4	9h17031-040	08/17/09 11:42
77SB2B	0908185-08	9h17031-041	08/17/09 11:45
77SB2B	0908185-08	9h17031-041	08/17/09 11:45
77SB2B	0908185-08	9h17031-041	08/17/09 11:45
77SB2B	0908185-08	9h17031-041	08/17/09 11:45

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
77SB2B	0908185-08	9h17031-041	08/17/09 11:45	
77SB2B	0908185-08	9h17031-041	08/17/09 11:45	
77SB2B	0908185-08	9h17031-041	08/17/09 11:45	
77SB4B	0908185-09	9h17031-042	08/17/09 11:48	
77SB4B	0908185-09	9h17031-042	08/17/09 11:48	
77SB4B	0908185-09	9h17031-042	08/17/09 11:48	
77SB4B	0908185-09	9h17031-042	08/17/09 11:48	
77SB4B	0908185-09	9h17031-042	08/17/09 11:48	
77SB4B	0908185-09	9h17031-042	08/17/09 11:48	
77SB4B	0908185-09	9h17031-042	08/17/09 11:48	
Calibration Check	9H17031-CCV5	9h17031-051	08/17/09 12:15	✓
Calibration Blank	9H17031-CCB5	9h17031-052	08/17/09 12:17	✓
Serial Dilution	9H17031-SRD2	9h17031-053	08/17/09 12:22	
Calibration Check	9H17031-CCV6	9h17031-063	08/17/09 12:51	✓
Calibration Blank	9H17031-CCB6	9h17031-064	08/17/09 12:54	✓
Blank	0909449-BLK1	9h17031-068	08/17/09 13:06	Se
60SE1	0908176-06	9h17031-069	08/17/09 13:09	Pb DF5
60SE2	0908176-07	9h17031-070	08/17/09 13:12	Pb DF5
DUP-1	0908176-08	9h17031-071	08/17/09 13:15	Cu DF2
60TP1	0908185-02	9h17031-072	08/17/09 13:18	V DF2
77SB1A	0908185-03	9h17031-073	08/17/09 13:21	Cu DF5
77SB1A	0908185-03	9h17031-073	08/17/09 13:21	Pb DF5
77SB1A	0909449-MS1	9h17031-074	08/17/09 13:23	
Calibration Check	9H17031-CCV7	9h17031-075	08/17/09 13:26	✓
Calibration Blank	9H17031-CCB7	9h17031-076	08/17/09 13:29	
77SB1A	0909449-MSD1	9h17031-077	08/17/09 13:32	
77SB1A	9H17031-SRD3	9h17031-078	08/17/09 13:35	
77SB1A	0909449-PS2	9h17031-079	08/17/09 13:38	
77SB1A	0908185-03	9h17031-080	08/17/09 13:41	V DF2
77SB1A	0909449-MS1	9h17031-081	08/17/09 13:44	
77SB1A	0909449-MSD1	9h17031-082	08/17/09 13:47	
77SB1A	9H17031-SRD4	9h17031-083	08/17/09 13:50	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
77SB1A	0909449-PS3	9h17031-084	08/17/09 13:53	
77SB1B	0908185-04	9h17031-085	08/17/09 13:56	V DF2
77SB3A	0908185-05	9h17031-086	08/17/09 13:59	Cu DF2
77SB3A	0908185-05	9h17031-086	08/17/09 13:59	Pb DF2
77SB3A	0908185-05	9h17031-086	08/17/09 13:59	V DF2
Calibration Check	9H17031-CCV8	9h17031-087	08/17/09 14:02	✓
Calibration Blank	9H17031-CCB8	9h17031-088	08/17/09 14:04	
77SB3B	0908185-06	9h17031-089	08/17/09 14:07	V DF2
77SB2A	0908185-07	9h17031-090	08/17/09 14:10	V DF2
77SB2B	0908185-08	9h17031-091	08/17/09 14:13	V DF2
77SB4B	0908185-09	9h17031-092	08/17/09 14:16	V DF2
Calibration Check	9H17031-CCV9	9h17031-099	08/17/09 14:37	✓
Calibration Blank	9H17031-CCB9	9h17031-100	08/17/09 14:40	
Serial Dilution	9H17031-SRD5	9h17031-101	08/17/09 14:43	
Calibration Check	9H17031-CCVA	9h17031-111	08/17/09 15:13	✓
Calibration Blank	9H17031-CCBA	9h17031-112	08/17/09 15:16	

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H18008

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H17031-CCB1	Arsenic	-0.000059	0.00020	0.000060	mg/L	U	08/17/09 10:14
	Copper	0.0000030	0.00040	0.000086	mg/L	U	08/17/09 10:14
	Lead	0.0000080	0.00040	0.000099	mg/L	U	08/17/09 10:14
	Nickel	0.0000050	0.00020	0.000050	mg/L	U	08/17/09 10:14
	Selenium	0.000059	0.00040	0.000099	mg/L	U	08/17/09 10:14
	Silver	0.000034	0.00020	0.000022	mg/L	J	08/17/09 10:14
	Thallium	0.0000060	0.00020	0.000012	mg/L	U	08/17/09 10:14
	Vanadium	0.0000040	0.00020	0.000065	mg/L	U	08/17/09 10:14
9H17031-CCB2	Arsenic	-0.000031	0.00020	0.000060	mg/L	U	08/17/09 10:26
	Copper	-0.0000020	0.00040	0.000086	mg/L	U	08/17/09 10:26
	Lead	0.0000060	0.00040	0.000099	mg/L	U	08/17/09 10:26
	Nickel	0.0000030	0.00020	0.000050	mg/L	U	08/17/09 10:26
	Selenium	0.000041	0.00040	0.000099	mg/L	U	08/17/09 10:26
	Silver	0.000028	0.00020	0.000022	mg/L	J	08/17/09 10:26
	Thallium	0.000013	0.00020	0.000012	mg/L	J	08/17/09 10:26
	Vanadium	-0.000020	0.00020	0.000065	mg/L	U	08/17/09 10:26
0909449-BLK1	Arsenic, Total	0.10	0.10	0.030	mg/kg dry wt.	U	08/17/09 10:29
	Copper, Total	0.20	0.20	0.043	mg/kg dry wt.	U	08/17/09 10:29
	Lead, Total	0.20	0.20	0.049	mg/kg dry wt.	U	08/17/09 10:29
	Nickel, Total	0.10	0.10	0.025	mg/kg dry wt.	U	08/17/09 10:29
	Silver, Total	0.10	0.10	0.011	mg/kg dry wt.	U	08/17/09 10:29
	Thallium, Total	0.10	0.10	0.0061	mg/kg dry wt.	U	08/17/09 10:29
	Vanadium, Total	0.10	0.10	0.032	mg/kg dry wt.	U	08/17/09 10:29
9H17031-CCB3	Arsenic	-0.000051	0.00020	0.000060	mg/L	U	08/17/09 11:04
	Copper	0.0	0.00040	0.000086	mg/L	U	08/17/09 11:04
	Lead	0.0000080	0.00040	0.000099	mg/L	U	08/17/09 11:04
	Nickel	0.0000010	0.00020	0.000050	mg/L	U	08/17/09 11:04
	Selenium	0.00011	0.00040	0.000099	mg/L	J	08/17/09 11:04
	Silver	0.0000050	0.00020	0.000022	mg/L	U	08/17/09 11:04
	Thallium	0.0000010	0.00020	0.000012	mg/L	U	08/17/09 11:04
	Vanadium	-0.000024	0.00020	0.000065	mg/L	U	08/17/09 11:04
9H17031-CCB4	Arsenic	-0.000017	0.00020	0.000060	mg/L	U	08/17/09 11:42
	Copper	0.0000020	0.00040	0.000086	mg/L	U	08/17/09 11:42

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H17031
Instrument ID: 114
Calibration: 9H18008

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H17031-CCB4	Lead	0.000017	0.00040	0.000099	mg/L	U	08/17/09 11:42
	Nickel	0.0000070	0.00020	0.000050	mg/L	U	08/17/09 11:42
	Selenium	-0.00013	0.00040	0.000099	mg/L	J	08/17/09 11:42
	Silver	0.0000060	0.00020	0.000022	mg/L	U	08/17/09 11:42
	Thallium	-0.0000020	0.00020	0.000012	mg/L	U	08/17/09 11:42
	Vanadium	-0.000034	0.00020	0.000065	mg/L	U	08/17/09 11:42
9H17031-CCB5	Arsenic	-0.000028	0.00020	0.000060	mg/L	U	08/17/09 12:17
	Copper	0.0000010	0.00040	0.000086	mg/L	U	08/17/09 12:17
	Lead	0.000021	0.00040	0.000099	mg/L	U	08/17/09 12:17
	Nickel	0.0000040	0.00020	0.000050	mg/L	U	08/17/09 12:17
	Selenium	-0.000085	0.00040	0.000099	mg/L	U	08/17/09 12:17
	Silver	0.000035	0.00020	0.000022	mg/L	J	08/17/09 12:17
	Thallium	0.0	0.00020	0.000012	mg/L	U	08/17/09 12:17
	Vanadium	-0.000037	0.00020	0.000065	mg/L	U	08/17/09 12:17
9H17031-CCB6	Arsenic N/A	-0.000087	0.00020	0.000060	mg/L	J	08/17/09 12:54
	Copper	0.0000040	0.00040	0.000086	mg/L	U	08/17/09 12:54
	Lead	0.000020	0.00040	0.000099	mg/L	U	08/17/09 12:54
	Nickel	0.0000060	0.00020	0.000050	mg/L	U	08/17/09 12:54
	Selenium	-0.000091	0.00040	0.000099	mg/L	U	08/17/09 12:54
	Silver N/A	0.000024	0.00020	0.000022	mg/L	J	08/17/09 12:54
	Thallium	0.0000060	0.00020	0.000012	mg/L	U	08/17/09 12:54
	Vanadium	-0.000044	0.00020	0.000065	mg/L	U	08/17/09 12:54
0909449-BLK1	Selenium, Total	0.20	0.20	0.049	mg/kg dry wt.	U	08/17/09 13:06
9H17031-CCB7	Arsenic N/A	-0.000078	0.00020	0.000060	mg/L	J	08/17/09 13:29
	Copper	0.0000040	0.00040	0.000086	mg/L	U	08/17/09 13:29
	Lead	0.000020	0.00040	0.000099	mg/L	U	08/17/09 13:29
	Nickel	0.0000060	0.00020	0.000050	mg/L	U	08/17/09 13:29
	Selenium	0.000095	0.00040	0.000099	mg/L	U	08/17/09 13:29
	Silver N/A	0.000029	0.00020	0.000022	mg/L	J	08/17/09 13:29
	Thallium	0.0000020	0.00020	0.000012	mg/L	U	08/17/09 13:29
	Vanadium	-0.000018	0.00020	0.000065	mg/L	U	08/17/09 13:29
9H17031-CCB8	Arsenic N/A	-0.00010	0.00020	0.000060	mg/L	J	08/17/09 14:04
	Copper	0.0000060	0.00040	0.000086	mg/L	U	08/17/09 14:04

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H18008

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H17031-CCB8	Lead	0.000023	0.00040	0.000099	mg/L	U	08/17/09 14:04
	Nickel	0.0000080	0.00020	0.000050	mg/L	U	08/17/09 14:04
	Selenium	0.000027	0.00040	0.000099	mg/L	U	08/17/09 14:04
	Silver N/A	0.000027	0.00020	0.000022	mg/L	J	08/17/09 14:04
	Thallium	0.0	0.00020	0.000012	mg/L	U	08/17/09 14:04
	Vanadium	-0.0000030	0.00020	0.000065	mg/L	U	08/17/09 14:04
9H17031-CCB9	Arsenic	-0.000046	0.00020	0.000060	mg/L	U	08/17/09 14:40
	Copper	0.0000020	0.00040	0.000086	mg/L	U	08/17/09 14:40
	Lead	0.000021	0.00040	0.000099	mg/L	U	08/17/09 14:40
	Nickel	0.0000040	0.00020	0.000050	mg/L	U	08/17/09 14:40
	Selenium	0.000043	0.00040	0.000099	mg/L	U	08/17/09 14:40
	Silver N/A	0.000036	0.00020	0.000022	mg/L	J	08/17/09 14:40
	Thallium	0.0000030	0.00020	0.000012	mg/L	U	08/17/09 14:40
	Vanadium	-0.000039	0.00020	0.000065	mg/L	U	08/17/09 14:40
9H17031-CCBA	Arsenic N/A	-0.000085	0.00020	0.000060	mg/L	J	08/17/09 15:16
	Copper	0.0000030	0.00040	0.000086	mg/L	U	08/17/09 15:16
	Lead	0.000019	0.00040	0.000099	mg/L	U	08/17/09 15:16
	Nickel	0.0000060	0.00020	0.000050	mg/L	U	08/17/09 15:16
	Selenium	0.000054	0.00040	0.000099	mg/L	U	08/17/09 15:16
	Silver N/A	0.000026	0.00020	0.000022	mg/L	J	08/17/09 15:16
	Thallium	0.0000020	0.00020	0.000012	mg/L	U	08/17/09 15:16
	Vanadium	-0.000038	0.00020	0.000065	mg/L	U	08/17/09 15:16

* Values outside of QC limits

ICP INTERFERENCE CHECK SAMPLE

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H17031

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Instrument ID: 114

Calibration: 9H18008

Lab Sample ID	Analyte	True	Found	%R	Units
9H17031-IFA1	Arsenic 0.00020	0.00	-0.0000690		mg/L
	Copper 0.00040	0.00	0.000358		mg/L
	Lead 0.00040	0.00	0.0000180		mg/L
	Nickel 0.00020	0.00	0.000310		mg/L
	Selenium 0.00040	0.00	0.000177		mg/L
	Silver 0.00020	0.00	0.0000270		mg/L
	Thallium 0.00020	0.00	0.0000610		mg/L
	Vanadium 0.00020	0.00	-0.0000390		mg/L
9H17031-IFB1	Arsenic	0.0200	0.0204	102	mg/L
	Copper	0.0200	0.0200	100	mg/L
	Lead	0.0200	0.0202	101	mg/L
	Nickel	0.0200	0.0193	97	mg/L
	Selenium	0.0200	0.0201	100	mg/L
	Silver	0.0200	0.0202	101	mg/L
	Thallium	0.0200	0.0206	103	mg/L
	Vanadium	0.0200	0.0192	96	mg/L

* Values outside of QC limits

SAMP_ID	SAMP_DATE	PREPARED	TESTED	TEST_TIME	QAQC_ID	METHOD_ID	EXTRACTION	LSAMP_ID	LAB_CAS_ID	LAB_CHEM	CONC	LIMIT1	DL_FLAG	UNITS	LIMIT2	DILUTION
		8/13/2009	8/18/2009	09:49	0909448	6010B	3050B	0909448-BLK1	7439-89-6	Iron		0.47	<	mg/kg	10	1.00000
		8/13/2009	8/18/2009	09:53	0909448	6010B	3050B	0909448-BS1	7439-89-6	Iron	25	0.47		mg/kg	10	1.00000
		8/18/2009	8/20/2009	09:00	0909623	6010B	3010A	0909623-BLK1	7439-89-6	Iron		8	<	ug/L	25	1.00000
		8/18/2009	8/20/2009	09:03	0909623	6010B	3010A	0909623-BS1	7439-89-6	Iron	400	8		ug/L	25	1.00000
		8/18/2009	8/20/2009	09:07	0909623	6010B	3010A	0909623-BSD1	7439-89-6	Iron	400	8		ug/L	25	1.00000
60SE1	8/10/2009	8/13/2009	8/18/2009	10:15	0909448	6010B	3050B	0908176-06	7439-89-6	Iron	28000	0.47		mg/kg	10	1.00000
60SE2	8/10/2009	8/13/2009	8/18/2009	10:19	0909448	6010B	3050B	0908176-07	7439-89-6	Iron	30000	0.47		mg/kg	10	1.00000
60SS1	8/10/2009	8/13/2009	8/18/2009	09:56	0909448	6010B	3050B	0908176-01	7439-89-6	Iron	24000	0.47		mg/kg	10	1.00000
60SS2	8/10/2009	8/13/2009	8/18/2009	10:00	0909448	6010B	3050B	0908176-02	7439-89-6	Iron	21000	0.47		mg/kg	10	1.00000
60SS3	8/10/2009	8/13/2009	8/18/2009	10:04	0909448	6010B	3050B	0908176-03	7439-89-6	Iron	18000	0.47		mg/kg	10	1.00000
60SS4	8/10/2009	8/13/2009	8/18/2009	10:08	0909448	6010B	3050B	0908176-04	7439-89-6	Iron	29000	0.47		mg/kg	10	1.00000
60SS5	8/10/2009	8/13/2009	8/18/2009	10:11	0909448	6010B	3050B	0908176-05	7439-89-6	Iron	25000	0.47		mg/kg	10	1.00000
60TP1	8/11/2009	8/13/2009	8/18/2009	10:40	0909448	6010B	3050B	0908185-02	7439-89-6	Iron	39000	0.47		mg/kg	10	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	15:29	0909448	6010B	3050B	0908185-03	7439-89-6	Iron	33000	230		mg/kg	5000	500.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:47	0909448	6010B	3050B	0909448-MS1	7439-89-6	Iron	24.3	0.47		mg/kg	10	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:51	0909448	6010B	3050B	0909448-MSD1	7439-89-6	Iron	24	0.47		mg/kg	10	1.00000
77SB1B	8/11/2009	8/13/2009	8/18/2009	11:02	0909448	6010B	3050B	0908185-04	7439-89-6	Iron	33000	0.47		mg/kg	10	1.00000
77SB2A	8/11/2009	8/13/2009	8/18/2009	11:13	0909448	6010B	3050B	0908185-07	7439-89-6	Iron	39000	0.47		mg/kg	10	1.00000
77SB2B	8/11/2009	8/13/2009	8/18/2009	11:29	0909448	6010B	3050B	0908185-08	7439-89-6	Iron	41000	0.47		mg/kg	10	1.00000
77SB3A	8/11/2009	8/13/2009	8/18/2009	11:05	0909448	6010B	3050B	0908185-05	7439-89-6	Iron	30000	0.47		mg/kg	10	1.00000
77SB3B	8/11/2009	8/13/2009	8/18/2009	11:09	0909448	6010B	3050B	0908185-06	7439-89-6	Iron	32000	0.47		mg/kg	10	1.00000
77SB4B	8/11/2009	8/13/2009	8/18/2009	11:33	0909448	6010B	3050B	0908185-09	7439-89-6	Iron	38000	0.47		mg/kg	10	1.00000
DUP-1	8/10/2009	8/13/2009	8/18/2009	10:22	0909448	6010B	3050B	0908176-08	7439-89-6	Iron	29000	0.47		mg/kg	10	1.00000
EQBK-1	8/11/2009	8/18/2009	8/20/2009	09:10	0909623	6010B	3010A	0908185-10	7439-89-6	Iron	13	8		ug/L	25	1.00000

IFA Fe = 40 mg/L

0908176-02 Fe 22.0072 analyzed at DF1c = 220 mg/L

0908185-08 Fe 40.268 analyzed at DF1 = 410 mg/L

0908156-09 Fe 382.967 DF1 = 382.9 mg/L

all soil samples > [ICS]

SAMP_ID	SAMP_DATE	PREPARED	TESTED	TEST_TIME	QAQC_ID	METHOD_ID	EXTRACTION	LSAMP_ID	LAB_CAS_ID	LAB_CHEM	CONC	LIMIT1	DL_FLAG	UNITS	LIMIT2	DILUTION
		8/13/2009	8/18/2009	09:49	0909448	6010B	3050B	0909448-BLK1	7429-90-5	Aluminum		1.8	<	mg/kg	10	1.00000
		8/13/2009	8/18/2009	09:53	0909448	6010B	3050B	0909448-BS1	7429-90-5	Aluminum	125	1.8		mg/kg	10	1.00000
		8/18/2009	8/20/2009	09:00	0909623	6010B	3010A	0909623-BLK1	7429-90-5	Aluminum		24	<	ug/L	50	1.00000
		8/18/2009	8/20/2009	09:03	0909623	6010B	3010A	0909623-BS1	7429-90-5	Aluminum	2000	24		ug/L	50	1.00000
		8/18/2009	8/20/2009	09:07	0909623	6010B	3010A	0909623-BSD1	7429-90-5	Aluminum	2000	24		ug/L	50	1.00000
60SE1	8/10/2009	8/13/2009	8/18/2009	10:15	0909448	6010B	3050B	0908176-06	7429-90-5	Aluminum	25000	1.8		mg/kg	10	1.00000
60SE2	8/10/2009	8/13/2009	8/18/2009	10:19	0909448	6010B	3050B	0908176-07	7429-90-5	Aluminum	22000	1.8		mg/kg	10	1.00000
60SS1	8/10/2009	8/13/2009	8/18/2009	09:56	0909448	6010B	3050B	0908176-01	7429-90-5	Aluminum	15000	1.8		mg/kg	10	1.00000
60SS2	8/10/2009	8/13/2009	8/18/2009	10:00	0909448	6010B	3050B	0908176-02	7429-90-5	Aluminum	11000	1.8		mg/kg	10	1.00000
60SS3	8/10/2009	8/13/2009	8/18/2009	10:04	0909448	6010B	3050B	0908176-03	7429-90-5	Aluminum	14000	1.8		mg/kg	10	1.00000
60SS4	8/10/2009	8/13/2009	8/18/2009	10:08	0909448	6010B	3050B	0908176-04	7429-90-5	Aluminum	21000	1.8		mg/kg	10	1.00000
60SS5	8/10/2009	8/13/2009	8/18/2009	10:11	0909448	6010B	3050B	0908176-05	7429-90-5	Aluminum	21000	1.8		mg/kg	10	1.00000
60TP1	8/11/2009	8/13/2009	8/18/2009	10:40	0909448	6010B	3050B	0908185-02	7429-90-5	Aluminum	33000	1.8		mg/kg	10	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	15:46	0909448	6010B	3050B	0908185-03	7429-90-5	Aluminum	27000	180		mg/kg	1000	100.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:47	0909448	6010B	3050B	0909448-MS1	7429-90-5	Aluminum	122	1.8		mg/kg	10	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:51	0909448	6010B	3050B	0909448-MSD1	7429-90-5	Aluminum	120	1.8		mg/kg	10	1.00000
77SB1B	8/11/2009	8/13/2009	8/18/2009	11:02	0909448	6010B	3050B	0908185-04	7429-90-5	Aluminum	31000	1.8		mg/kg	10	1.00000
77SB2A	8/11/2009	8/13/2009	8/18/2009	11:13	0909448	6010B	3050B	0908185-07	7429-90-5	Aluminum	37000	1.8		mg/kg	10	1.00000
77SB2B	8/11/2009	8/13/2009	8/18/2009	11:29	0909448	6010B	3050B	0908185-08	7429-90-5	Aluminum	34000	1.8		mg/kg	10	1.00000
77SB3A	8/11/2009	8/13/2009	8/18/2009	11:05	0909448	6010B	3050B	0908185-05	7429-90-5	Aluminum	26000	1.8		mg/kg	10	1.00000
77SB3B	8/11/2009	8/13/2009	8/18/2009	11:09	0909448	6010B	3050B	0908185-06	7429-90-5	Aluminum	27000	1.8		mg/kg	10	1.00000
77SB4B	8/11/2009	8/13/2009	8/18/2009	11:33	0909448	6010B	3050B	0908185-09	7429-90-5	Aluminum	40000	1.8		mg/kg	10	1.00000
DUP-1	8/10/2009	8/13/2009	8/18/2009	10:22	0909448	6010B	3050B	0908176-08	7429-90-5	Aluminum	22000	1.8		mg/kg	10	1.00000
EQBK-1	8/11/2009	8/18/2009	8/20/2009	09:10	0909623	6010B	3010A	0908185-10	7429-90-5	Aluminum		24	<	ug/L	50	1.00000

IFA Al 100 mg/L

0908176-02 Al DF 10 108 mg/L

0908185-08 Al DF 1 339 mg/L

0908185-07 Al DF 1 400 mg/L

all soils > [ICS]

SAMP_ID	SAMP_DATE	PREPARED	TESTED	TEST_TIME	QAQC_ID	METHOD_ID	EXTRACTION	LSAMP_ID	LAB_CAS_ID	LAB_CHEM	CONC	LIMIT1	DL_FLAG	UNITS	LIMIT2	DILUTION
		8/13/2009	8/18/2009	09:49	0909448	6010B	3050B	0909448-BLK1	7440-70-2	Calcium	15	8.7		mg/kg	50	1.00000
		8/13/2009	8/18/2009	09:53	0909448	6010B	3050B	0909448-BS1	7440-70-2	Calcium	1250	8.7		mg/kg	50	1.00000
		8/18/2009	8/20/2009	09:00	0909623	6010B	3010A	0909623-BLK1	7440-70-2	Calcium		58	<	ug/L	500	1.00000
		8/18/2009	8/20/2009	09:03	0909623	6010B	3010A	0909623-BS1	7440-70-2	Calcium	20000	58		ug/L	500	1.00000
		8/18/2009	8/20/2009	09:07	0909623	6010B	3010A	0909623-BSD1	7440-70-2	Calcium	20000	58		ug/L	500	1.00000
60SE1	8/10/2009	8/13/2009	8/18/2009	10:15	0909448	6010B	3050B	0908176-06	7440-70-2	Calcium	31000	8.7		mg/kg	50	1.00000
60SE2	8/10/2009	8/13/2009	8/18/2009	15:22	0909448	6010B	3050B	0908176-07	7440-70-2	Calcium	51000	87		mg/kg	500	10.00000
60SS1	8/10/2009	8/13/2009	8/18/2009	09:56	0909448	6010B	3050B	0908176-01	7440-70-2	Calcium	33000	8.7		mg/kg	50	1.00000
60SS2	8/10/2009	8/13/2009	8/18/2009	15:09	0909448	6010B	3050B	0908176-02	7440-70-2	Calcium	150000	87		mg/kg	500	10.00000
60SS3	8/10/2009	8/13/2009	8/18/2009	15:12	0909448	6010B	3050B	0908176-03	7440-70-2	Calcium	100000	87		mg/kg	500	10.00000
60SS4	8/10/2009	8/13/2009	8/18/2009	10:08	0909448	6010B	3050B	0908176-04	7440-70-2	Calcium	26000	8.7		mg/kg	50	1.00000
60SS5	8/10/2009	8/13/2009	8/18/2009	15:15	0909448	6010B	3050B	0908176-05	7440-70-2	Calcium	64000	87		mg/kg	500	10.00000
60TP1	8/11/2009	8/13/2009	8/18/2009	15:25	0909448	6010B	3050B	0908185-02	7440-70-2	Calcium	65000	87		mg/kg	500	10.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:43	0909448	6010B	3050B	0908185-03	7440-70-2	Calcium	4000	8.7		mg/kg	50	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:47	0909448	6010B	3050B	0909448-MS1	7440-70-2	Calcium	1220	8.7		mg/kg	50	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:51	0909448	6010B	3050B	0909448-MSD1	7440-70-2	Calcium	1200	8.7		mg/kg	50	1.00000
77SB1B	8/11/2009	8/13/2009	8/18/2009	11:02	0909448	6010B	3050B	0908185-04	7440-70-2	Calcium	1500	8.7		mg/kg	50	1.00000
77SB2A	8/11/2009	8/13/2009	8/18/2009	11:13	0909448	6010B	3050B	0908185-07	7440-70-2	Calcium	5200	8.7		mg/kg	50	1.00000
77SB2B	8/11/2009	8/13/2009	8/18/2009	11:29	0909448	6010B	3050B	0908185-08	7440-70-2	Calcium	4100	8.7		mg/kg	50	1.00000
77SB3A	8/11/2009	8/13/2009	8/18/2009	11:05	0909448	6010B	3050B	0908185-05	7440-70-2	Calcium	36000	8.7		mg/kg	50	1.00000
77SB3B	8/11/2009	8/13/2009	8/18/2009	16:06	0909448	6010B	3050B	0908185-06	7440-70-2	Calcium	59000	87		mg/kg	500	10.00000
77SB4B	8/11/2009	8/13/2009	8/18/2009	11:33	0909448	6010B	3050B	0908185-09	7440-70-2	Calcium	2400	8.7		mg/kg	50	1.00000
DUP-1	8/10/2009	8/13/2009	8/18/2009	10:22	0909448	6010B	3050B	0908176-08	7440-70-2	Calcium	28000	8.7		mg/kg	50	1.00000
EQBK-1	8/11/2009	8/18/2009	8/20/2009	09:10	0909623	6010B	3010A	0908185-10	7440-70-2	Calcium		58	<	ug/L	500	1.00000

Calcium ICS 100 mg/L

0908176-02 Ca DF10 1558 mg/L
0908185-08 Ca DF1 45 mg/L
0908185-09 Ca DF1 24 mg/L

> [ICS]

0908176-01
0908176-02
0908176-03
0908176-04
0908176-05
0908176-06
0908176-07
0908176-08
0908185-02
0908185-05
0908185-06

< [ICS]

0908185-03
0908185-04
0908185-07
0908185-08
0908185-09

SAMP_ID	SAMP_DATE	PREPARED	TESTED	TEST_TIME	QAQC_ID	METHOD_ID	EXTRACTION	LSAMP_ID	LAB_CAS_ID	LAB_CHEM	CONC	LIMIT1	DL_FLAG	UNITS	LIMIT2	DILUTION
		8/13/2009	8/18/2009	09:49	0909448	6010B	3050B	0909448-BLK1	7439-95-4	Magnesium		4.4	<	mg/kg	50	1.00000
		8/13/2009	8/18/2009	09:53	0909448	6010B	3050B	0909448-BS1	7439-95-4	Magnesium	1250	4.4		mg/kg	50	1.00000
		8/18/2009	8/20/2009	09:00	0909623	6010B	3010A	0909623-BLK1	7439-95-4	Magnesium		44	<	ug/L	500	1.00000
		8/18/2009	8/20/2009	09:03	0909623	6010B	3010A	0909623-BS1	7439-95-4	Magnesium	20000	44		ug/L	500	1.00000
		8/18/2009	8/20/2009	09:07	0909623	6010B	3010A	0909623-BSD1	7439-95-4	Magnesium	20000	44		ug/L	500	1.00000
60SE1	8/10/2009	8/13/2009	8/18/2009	10:15	0909448	6010B	3050B	0908176-06	7439-95-4	Magnesium	24000	4.4		mg/kg	50	1.00000
60SE2	8/10/2009	8/13/2009	8/18/2009	10:19	0909448	6010B	3050B	0908176-07	7439-95-4	Magnesium	29000	4.4		mg/kg	50	1.00000
60SS1	8/10/2009	8/13/2009	8/18/2009	09:56	0909448	6010B	3050B	0908176-01	7439-95-4	Magnesium	17000	4.4		mg/kg	50	1.00000
60SS2	8/10/2009	8/13/2009	8/18/2009	15:09	0909448	6010B	3050B	0908176-02	7439-95-4	Magnesium	71000	44		mg/kg	500	10.00000
60SS3	8/10/2009	8/13/2009	8/18/2009	15:12	0909448	6010B	3050B	0908176-03	7439-95-4	Magnesium	63000	44		mg/kg	500	10.00000
60SS4	8/10/2009	8/13/2009	8/18/2009	10:08	0909448	6010B	3050B	0908176-04	7439-95-4	Magnesium	20000	4.4		mg/kg	50	1.00000
60SS5	8/10/2009	8/13/2009	8/18/2009	10:11	0909448	6010B	3050B	0908176-05	7439-95-4	Magnesium	42000	4.4		mg/kg	50	1.00000
60TP1	8/11/2009	8/13/2009	8/18/2009	10:40	0909448	6010B	3050B	0908185-02	7439-95-4	Magnesium	39000	4.4		mg/kg	50	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	15:56	0909448	6010B	3050B	0908185-03	7439-95-4	Magnesium	11000	44		mg/kg	500	10.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:47	0909448	6010B	3050B	0909448-MS1	7439-95-4	Magnesium	1220	4.4		mg/kg	50	1.00000
77SB1A	8/11/2009	8/13/2009	8/18/2009	10:51	0909448	6010B	3050B	0909448-MSD1	7439-95-4	Magnesium	1200	4.4		mg/kg	50	1.00000
77SB1B	8/11/2009	8/13/2009	8/18/2009	11:02	0909448	6010B	3050B	0908185-04	7439-95-4	Magnesium	12000	4.4		mg/kg	50	1.00000
77SB2A	8/11/2009	8/13/2009	8/18/2009	11:13	0909448	6010B	3050B	0908185-07	7439-95-4	Magnesium	38000	4.4		mg/kg	50	1.00000
77SB2B	8/11/2009	8/13/2009	8/18/2009	16:09	0909448	6010B	3050B	0908185-08	7439-95-4	Magnesium	56000	44		mg/kg	500	10.00000
77SB3A	8/11/2009	8/13/2009	8/18/2009	11:05	0909448	6010B	3050B	0908185-05	7439-95-4	Magnesium	40000	4.4		mg/kg	50	1.00000
77SB3B	8/11/2009	8/13/2009	8/18/2009	16:06	0909448	6010B	3050B	0908185-06	7439-95-4	Magnesium	61000	44		mg/kg	500	10.00000
77SB4B	8/11/2009	8/13/2009	8/18/2009	11:33	0909448	6010B	3050B	0908185-09	7439-95-4	Magnesium	34000	4.4		mg/kg	50	1.00000
DUP-1	8/10/2009	8/13/2009	8/18/2009	10:22	0909448	6010B	3050B	0908176-08	7439-95-4	Magnesium	21000	4.4		mg/kg	50	1.00000
EQBK-1	8/11/2009	8/18/2009	8/20/2009	09:10	0909623	6010B	3010A	0908185-10	7439-95-4	Magnesium		44	<	ug/L	500	1.00000

IFA Mg 100 mg/L

0908176-02 Mg DF10 712 mg/L
0908195-08 Mg DF1 556 mg/L
0908185-09 Mg DF1 340 mg/L

all soils > [ICS]

2 Na 589.594	1417.7	1423.8	0.0130394	mg/L
2 Ni 231.603	-132.5	-133.1	0.0010660	mg/L
2 Pb 220.353	-34.3	-34.4	-0.0552397	mg/L
2 Sb 206.831	-48.0	-48.3	-0.0936020	mg/L
2 Se 196.026	65.9	66.2	-0.0135951	mg/L
2 Si 251.611	3909.5	3926.4	0.0891240	mg/L
2 Sn 189.933	487.7	489.8	0.413554	mg/L
2 Sr 407.771	5468.5	5492.2	0.0021567	mg/L
2 Ti 334.941	1903.5	1911.7	-0.0001991	mg/L
2 Tl 190.800	14.9	15.0	-0.0371869	mg/L
2 V 292.402	-358.7	-360.3	0.0028987	mg/L
2 Zn 206.200	9.6	9.6	0.0008047	mg/L

Mean Data

ID: 9H18017-IFA1
Sample Qty: 1.0000 g

Seq. No.: 1
Prep. Vol.:
Data: Original

Sample No.: 4
1.0 L

A/S Pos: 11
Dilution: 1.0: 1.0
Date: 8/18/09 9:28:44 AM

Element	Mean Corr. Intensity	Mean Conc.	Calib Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	515845.4	99.8	0.34	mg/L				0.35%
Y 360.064	319381.1	98.2	0.35	mg/L				0.36%
Ag 328.068	-444.6	0.0116525	0.00048054	mg/L				4.12%
Al 396.140	887784.1	101.365	0.8605	mg/L				0.85%
As 188.979	13.3	0.0320056	0.00614857	mg/L				19.21%
B 249.773	2275.4	0.0378894	0.00003336	mg/L				0.09%
Ba 455.403	7415.3	-0.0010294	0.00008249	mg/L				8.01%
Be 234.861	309.4	0.0005802	0.00006192	mg/L				10.67%
Ca 315.887	1335924.5	99.7352	0.75654	mg/L				0.76%
Cd 214.438	251.1	0.0070114	0.00130360	mg/L				18.59%
Ce 413.765	925.5	0.0092141	0.01018910	mg/L				110.58%
Co 228.616	88.9	0.0027009	0.00227791	mg/L				84.34%
Cr 205.560	48.2	0.0086669	0.00201460	mg/L				23.24%
Cu 327.394	47.2	0.0030726	0.00224191	mg/L				72.96%
Fe 238.204	542797.7	40.6390	0.32764	mg/L				0.81%
K 766.514	1516.4	0.0326969	0.00661829	mg/L				20.24%
Li 670.781	-143.0	-0.0012479	0.00038685	mg/L				31.00%
Mg 279.074	165922.8	101.867	0.7181	mg/L				0.70%
Mn 257.610	258.9	0.0018037	0.00003059	mg/L				1.70%
Mo 202.031	6.3	-0.0038975	0.00077960	mg/L				20.00%
Na 589.594	1531.4	0.0190568	0.00850988	mg/L				44.66%
Ni 231.603	-136.7	-0.0002840	0.00190930	mg/L				672.21%
Pb 220.353	-36.4	-0.0595860	0.00614653	mg/L				10.32%
Sb 206.831	-40.2	-0.0669392	0.03770687	mg/L				56.33%
Se 196.026	66.7	-0.0113753	0.00313924	mg/L				27.60%
Si 251.611	3915.1	0.0891055	0.00002616	mg/L				0.03%
Sn 189.933	489.5	0.415214	0.0023480	mg/L				0.57%
Sr 407.771	5476.8	0.0021476	0.00001284	mg/L				0.60%
Ti 334.941	1890.7	-0.0003860	0.00026435	mg/L				68.49%
Tl 190.800	18.0	-0.0237117	0.01905679	mg/L				80.37%
V 292.402	-374.2	0.0021950	0.00099512	mg/L				45.34%
Zn 206.200	7.8	0.0002704	0.00075569	mg/L				279.48%

Replicate Data

Date: 8/18/09 9:32:10 AM

ID: 9H18017-IFA2

Repl# Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1 Sc 357.253	527927.5	527927.5	102.1	mg/L		
1 Y 360.064	329051.6	329051.6	101.1	mg/L		
1 Ag 328.068	-1640.7	-1606.2	0.0018774	mg/L		
1 Al 396.140	363.6	355.9	0.0439467	mg/L		
1 As 188.979	59.6	58.4	0.0699032	mg/L		
1 B 249.773	691.7	677.2	0.0317406	mg/L		
1 Ba 455.403	7295.7	7142.1	-0.0013752	mg/L		
1 Be 234.861	-245.7	-240.5	0.0001944	mg/L		
1 Ca 315.887	-535.3	-524.0	0.0542328	mg/L		
1 Cd 214.438	210.1	205.7	0.0005427	mg/L		
1 Ce 413.765	865.3	847.1	-0.0003207	mg/L		
1 Co 228.616	141.1	138.1	-0.0037396	mg/L		
1 Cr 205.560	36151.2	35390.3	20.5360	mg/L		

Date: 8/18/09 11:32:53 AM

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2 V 292.402	15356.4	15335.9	0.742202 mg/L	0.742202 mg/L
2 Zn 206.200	2160.5	2157.6	0.600392 mg/L	0.600392 mg/L

an Data
: 0908185-08
ample Qty: 1.0000 mL

Seq. No.: 31
Prep. Vol.:
Data: Original

Sample No.: 21
1.0 mL

A/S Pos: 37
Dilution: 1.0: 1.0
Date: 8/18/09 11:29:16 AM

lement	Mean Corr. Intensity	Mean Conc.	Calib Std.Dev.	Calib Units	Sample Mean Conc.	Sample Std.Dev.	Sample Units	RSD
c 357.253	517605.4	100.2	0.03	mg/L				0.03%
360.064	359967.1	110.6	0.61	mg/L				0.55%
g 328.068	-664.0	0.121436	0.0005816	mg/L	0.121436	0.0005816	mg/L	0.48%
l 396.140	2954569.7	337.337	0.4468	mg/L	337.337	0.4468	mg/L	0.13%
s 188.979	43.4	0.141861	0.0025465	mg/L	0.141861	0.0025465	mg/L	1.80%
3 249.773	16194.0	0.0480812	0.00557019	mg/L	0.0480812	0.00557019	mg/L	11.58%
Ba 455.403	786668.7	0.985605	0.0008476	mg/L	0.985605	0.0008476	mg/L	0.09%
Be 234.861	7890.1	0.0215563	0.00008172	mg/L	0.0215563	0.00008172	mg/L	0.38%
Ca 315.887	545344.0	40.7336	0.07385	mg/L	40.7336	0.07385	mg/L	0.18%
Cd 214.438	955.0	0.0063568	0.00034142	mg/L	0.0063568	0.00034142	mg/L	5.37%
Ce 413.765	6103.5	0.638275	0.0131683	mg/L	0.638275	0.0131683	mg/L	2.06%
Co 228.616	1361.9	0.0927750	0.00310607	mg/L	0.0927750	0.00310607	mg/L	3.35%
Cr 205.560	953.3	0.496187	0.0021156	mg/L	0.496187	0.0021156	mg/L	0.43%
Cu 327.394	3312.3	0.181602	0.0012799	mg/L	0.181602	0.0012799	mg/L	0.70%
Fe 238.204	5476875.6	410.268	0.5206	mg/L	410.268	0.5206	mg/L	0.13%
K 766.514	355257.9	86.6977	0.12712	mg/L	86.6977	0.12712	mg/L	0.15%
Li 670.781	743172.8	4.29504	0.006204	mg/L	4.29504	0.006204	mg/L	0.14%
Mg 279.074	907629.2	556.869	1.2315	mg/L	556.869	1.2315	mg/L	0.22%
Mn 257.610	379371.2	3.74168	0.008437	mg/L	3.74168	0.008437	mg/L	0.23%
Mo 202.031	-7.6	-0.0157488	0.00028725	mg/L	-0.0157488	0.00028725	mg/L	1.82%
Na 589.594	9991.6	0.492274	0.0132569	mg/L	0.492274	0.0132569	mg/L	2.69%
Ni 231.603	756.4	0.304505	0.0141042	mg/L	0.304505	0.0141042	mg/L	4.63%
Pb 220.353	-110.6	0.0695120	0.01350956	mg/L	0.0695120	0.01350956	mg/L	19.43%
Sb 206.831	-150.7	-0.172866	0.0367416	mg/L	-0.172866	0.0367416	mg/L	21.25%
Se 196.026	38.9	0.0650725	0.02893732	mg/L	0.0650725	0.02893732	mg/L	44.47%
Si 251.611	165011.2	24.7170	0.04314	mg/L	24.7170	0.04314	mg/L	0.17%
Sn 189.933	1573.0	0.743111	0.0101933	mg/L	0.743111	0.0101933	mg/L	1.37%
Sr 407.771	146028.0	0.0853373	0.00017207	mg/L	0.0853373	0.00017207	mg/L	0.20%
Ti 334.941	449445.7	3.98631	0.005836	mg/L	3.98631	0.005836	mg/L	0.15%
Tl 190.800	-4.4	-0.122302	0.0440593	mg/L	-0.122302	0.0440593	mg/L	36.03%
V 292.402	15355.4	0.743138	0.0013230	mg/L	0.743138	0.0013230	mg/L	0.18%
Zn 206.200	2159.0	0.600780	0.0005486	mg/L	0.600780	0.0005486	mg/L	0.09%

Date: 8/18/09 11:32:53 AM

Replicate Data
ID: 0908185-09

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	527340.4	527340.4	102.0	mg/L		
1	Y 360.064	326139.5	326139.5	100.2	mg/L		
1	Ag 328.068	-633.6	-621.0	0.113917	mg/L	0.113917	mg/L
1	Al 396.140	3574863.7	3503524.7	400.013	mg/L	400.013	mg/L
1	As 188.979	41.5	40.7	0.132052	mg/L	0.132052	mg/L
1	B 249.773	15553.2	15242.8	0.0552384	mg/L	0.0552384	mg/L
1	Ba 455.403	500268.0	490284.8	0.610345	mg/L	0.610345	mg/L
1	Be 234.861	7602.1	7450.3	0.0212143	mg/L	0.0212143	mg/L
1	Ca 315.887	328627.0	322069.1	24.0820	mg/L	24.0820	mg/L
1	Cd 214.438	954.3	935.2	0.0078027	mg/L	0.0078027	mg/L
1	Ce 413.765	8411.2	8243.4	0.898240	mg/L	0.898240	mg/L
1	Co 228.616	1282.1	1256.5	0.0915697	mg/L	0.0915697	mg/L
1	Cr 205.560	931.7	913.1	0.475479	mg/L	0.475479	mg/L
1	Cu 327.394	5235.4	5130.9	0.286858	mg/L	0.286858	mg/L
1	Fe 238.204	5205512.6	5101632.7	382.154	mg/L	382.154	mg/L
1	K 766.514	202816.5	198769.1	48.3587	mg/L	48.3587	mg/L
1	Li 670.781	616369.4	604069.3	3.49104	mg/L	3.49104	mg/L
1	Mg 279.074	564995.4	553720.5	339.721	mg/L	339.721	mg/L
1	Mn 257.610	320268.8	313877.6	3.09931	mg/L	3.09931	mg/L
1	Mo 202.031	-9.0	-8.8	-0.0167299	mg/L	-0.0167299	mg/L
1	Na 589.594	9551.3	9360.7	0.456984	mg/L	0.456984	mg/L
1	Ni 231.603	728.1	713.6	0.290562	mg/L	0.290562	mg/L
1	Pb 220.353	-83.0	-81.3	0.115262	mg/L	0.115262	mg/L

1 Sb 206.831	-114.9	-112.6	-0.0644672 mg/L	-0.0644672 mg/L
1 Se 196.026	50.4	49.4	0.0336759 mg/L	0.0336759 mg/L
1 Si 251.611	168492.9	165130.5	25.6421 mg/L	25.6421 mg/L
1 Sn 189.933	1275.3	1249.9	0.952468 mg/L	0.952468 mg/L
1 Sr 407.771	169613.9	166229.1	0.0972939 mg/L	0.0972939 mg/L
1 Ti 334.941	311543.0	305325.9	2.70253 mg/L	2.70253 mg/L
1 Tl 190.800	3.5	3.5	-0.0876250 mg/L	-0.0876250 mg/L
1 V 292.402	15247.1	14942.8	0.725904 mg/L	0.725904 mg/L
1 Zn 206.200	1852.5	1815.6	0.503147 mg/L	0.503147 mg/L
2 Sc 357.253	525432.9	525432.9	101.7 mg/L	
2 Y 360.064	327644.3	327644.3	100.7 mg/L	
2 Ag 328.068	-705.9	-694.4	0.112115 mg/L	0.112115 mg/L
2 Al 396.140	3575967.6	3517329.5	401.589 mg/L	401.589 mg/L
2 As 188.979	35.3	34.7	0.110232 mg/L	0.110232 mg/L
2 B 249.773	15525.9	15271.3	0.0528665 mg/L	0.0528665 mg/L
2 Ba 455.403	500586.4	492377.9	0.612995 mg/L	0.612995 mg/L
2 Be 234.861	7502.0	7379.0	0.0204179 mg/L	0.0204179 mg/L
2 Ca 315.887	328902.2	323508.9	24.1893 mg/L	24.1893 mg/L
2 Cd 214.438	963.5	947.7	0.0087189 mg/L	0.0087189 mg/L
2 Ce 413.765	8241.9	8106.7	0.881642 mg/L	0.881642 mg/L
2 Co 228.616	1284.0	1262.9	0.0921780 mg/L	0.0921780 mg/L
2 Cr 205.560	909.6	894.6	0.464598 mg/L	0.464598 mg/L
2 Cu 327.394	5276.0	5189.5	0.290251 mg/L	0.290251 mg/L
2 Fe 238.204	5208744.1	5123332.0	383.780 mg/L	383.780 mg/L
2 K 766.514	203188.8	199856.9	48.6252 mg/L	48.6252 mg/L
2 Li 670.781	615617.7	605522.9	3.49944 mg/L	3.49944 mg/L
2 Mg 279.074	564815.5	555553.7	340.845 mg/L	340.845 mg/L
2 Mn 257.610	320528.1	315272.1	3.11309 mg/L	3.11309 mg/L
2 Mo 202.031	-12.9	-12.7	-0.0200429 mg/L	-0.0200429 mg/L
2 Na 589.594	9459.3	9304.2	0.453822 mg/L	0.453822 mg/L
2 Ni 231.603	708.9	697.3	0.284277 mg/L	0.284277 mg/L
2 Pb 220.353	-98.9	-97.3	0.0816711 mg/L	0.0816711 mg/L
2 Sb 206.831	-132.8	-130.7	-0.123228 mg/L	-0.123228 mg/L
2 Se 196.026	45.7	45.0	0.0142289 mg/L	0.0142289 mg/L
2 Si 251.611	168555.0	165791.1	25.7462 mg/L	25.7462 mg/L
2 Sn 189.933	1273.1	1252.2	0.951774 mg/L	0.951774 mg/L
2 Sr 407.771	169767.8	166984.0	0.0977407 mg/L	0.0977407 mg/L
2 Ti 334.941	312191.1	307071.8	2.71808 mg/L	2.71808 mg/L
2 Tl 190.800	-0.8	-0.8	-0.106471 mg/L	-0.106471 mg/L
2 V 292.402	15254.0	15003.9	0.728774 mg/L	0.728774 mg/L
2 Zn 206.200	1864.5	1833.9	0.508360 mg/L	0.508360 mg/L

Mean Data ID: 0908185-09 Sample Qty: 1.0000 mL
Seq. No.: 32 Prep. Vol.: Data: Original
Sample No.: 22 1.0 mL
A/S Pos: 38 Dilution: 1.0: 1.0 Date: 8/18/09 11:32:53 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	526386.7	101.9	0.26	mg/L				0.26%
Y 360.064	326891.9	100.5	0.33	mg/L				0.33%
Ag 328.068	-657.7	0.113016	0.0012743	mg/L	0.113016	0.0012743	mg/L	1.13%
Al 396.140	3510427.1	400.801	1.1145	mg/L	400.801	1.1145	mg/L	0.28%
As 188.979	37.7	0.121142	0.0154287	mg/L	0.121142	0.0154287	mg/L	12.74%
B 249.773	15257.1	0.0540525	0.00167720	mg/L	0.0540525	0.00167720	mg/L	3.10%
Ba 455.403	491331.3	0.611670	0.0018739	mg/L	0.611670	0.0018739	mg/L	0.31%
Be 234.861	7414.7	0.0208161	0.00056316	mg/L	0.0208161	0.00056316	mg/L	2.71%
Ca 315.887	322789.0	24.1356	0.07584	mg/L	24.1356	0.07584	mg/L	0.31%
Cd 214.438	941.4	0.0082608	0.00064785	mg/L	0.0082608	0.00064785	mg/L	7.84%
Ce 413.765	8175.1	0.889941	0.0117362	mg/L	0.889941	0.0117362	mg/L	1.32%
Co 228.616	1259.7	0.0918739	0.00043014	mg/L	0.0918739	0.00043014	mg/L	0.47%
Cr 205.560	903.9	0.470039	0.0076936	mg/L	0.470039	0.0076936	mg/L	1.64%
Cu 327.394	5160.2	0.288555	0.0023989	mg/L	0.288555	0.0023989	mg/L	0.83%
Fe 238.204	5112482.4	382.967	1.1494	mg/L	382.967	1.1494	mg/L	0.30%
K 766.514	199313.0	48.4919	0.18845	mg/L	48.4919	0.18845	mg/L	0.39%
Li 670.781	604796.1	3.49524	0.005941	mg/L	3.49524	0.005941	mg/L	0.17%
Mg 279.074	554637.1	340.283	0.7951	mg/L	340.283	0.7951	mg/L	0.23%
Mn 257.610	314574.9	3.10620	0.009747	mg/L	3.10620	0.009747	mg/L	0.31%
Mo 202.031	-10.7	-0.0183864	0.00234266	mg/L	-0.0183864	0.00234266	mg/L	12.74%
Na 589.594	9332.4	0.455403	0.0022361	mg/L	0.455403	0.0022361	mg/L	0.49%
Ni 231.603	705.4	0.287420	0.0044444	mg/L	0.287420	0.0044444	mg/L	1.55%

2 Na 589.594	763.7	765.1	-0.0238059 mg/L	-0.0238059 mg/L
2 Ni 231.603	-137.9	-138.2	-0.0008485 mg/L	-0.0008485 mg/L
2 Pb 220.353	-12.3	-12.3	-0.0072897 mg/L	-0.0072897 mg/L
2 Sb 206.831	-28.0	-28.0	-0.0265853 mg/L	-0.0265853 mg/L
2 Se 196.026	74.1	74.3	0.0228133 mg/L	0.0228133 mg/L
2 Si 251.611	878.6	880.3	-0.0401854 mg/L	-0.0401854 mg/L
2 Sn 189.933	142.9	143.2	-0.0073159 mg/L	-0.0073159 mg/L
2 Sr 407.771	-190.3	-190.6	-0.0012068 mg/L	-0.0012068 mg/L
2 Ti 334.941	1669.9	1673.0	-0.0023253 mg/L	-0.0023253 mg/L
2 Tl 190.800	17.9	17.9	-0.0241336 mg/L	-0.0241336 mg/L
2 V 292.402	-409.0	-409.8	0.0004026 mg/L	0.0004026 mg/L
2 Zn 206.200	44.0	44.1	0.0107378 mg/L	0.0107378 mg/L

Mean Data

ID: 0909502-BLK1 Seq. No.: 2 Sample No.: 1 A/S Pos: 79
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 3:05:04 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	512025.1	99.1	1.04	mg/L				1.05%
Y 360.064	319868.5	98.3	1.08	mg/L				1.10%
Ag 328.068	-399.0	0.0002613	0.00158945	mg/L	0.0002613	0.00158945	mg/L	608.30%
Al 396.140	-310.9	-0.0321859	0.01013323	mg/L	-0.0321859	0.01013323	mg/L	31.48%
As 188.979	6.9	0.0083956	0.02019874	mg/L	0.0083956	0.02019874	mg/L	240.59%
B 249.773	81.7	-0.0122616	0.00016243	mg/L	-0.0122616	0.00016243	mg/L	1.32%
Ba 455.403	7474.6	-0.0009543	0.00008708	mg/L	-0.0009543	0.00008708	mg/L	9.12%
Be 234.861	-252.6	0.0000913	0.00004643	mg/L	0.0000913	0.00004643	mg/L	50.83%
Ca 315.887	771.3	0.156953	0.0074344	mg/L	0.156953	0.0074344	mg/L	4.74%
Cd 214.438	86.7	0.0000706	0.00154278	mg/L	0.0000706	0.00154278	mg/L	>999.9%
Ce 413.765	817.3	-0.0039369	0.00434003	mg/L	-0.0039369	0.00434003	mg/L	110.24%
Co 228.616	1.9	0.0007727	0.00008284	mg/L	0.0007727	0.00008284	mg/L	10.72%
Cr 205.560	33.5	0.0001291	0.00152991	mg/L	0.0001291	0.00152991	mg/L	>999.9%
Cu 327.394	156.1	-0.0010748	0.00093397	mg/L	-0.0010748	0.00093397	mg/L	86.89%
Fe 238.204	433.2	0.0071068	0.00035227	mg/L	0.0071068	0.00035227	mg/L	4.96%
K 766.514	1397.8	0.0036243	0.00528496	mg/L	0.0036243	0.00528496	mg/L	145.82%
Li 670.781	-234.8	-0.0017786	0.00001327	mg/L	-0.0017786	0.00001327	mg/L	0.75%
Mg 279.074	-107.3	-0.0123320	0.02483608	mg/L	-0.0123320	0.02483608	mg/L	201.40%
Mn 257.610	-33.9	-0.0010977	0.00004016	mg/L	-0.0010977	0.00004016	mg/L	3.66%
Mo 202.031	10.6	-0.0002589	0.00458133	mg/L	-0.0002589	0.00458133	mg/L	>999.9%
Na 589.594	672.4	-0.0289903	0.00733175	mg/L	-0.0289903	0.00733175	mg/L	25.29%
Ni 231.603	-129.9	0.0022805	0.00442514	mg/L	0.0022805	0.00442514	mg/L	194.04%
Pb 220.353	-10.5	-0.0033481	0.00557431	mg/L	-0.0033481	0.00557431	mg/L	166.49%
Sb 206.831	-23.3	-0.0108181	0.02229825	mg/L	-0.0108181	0.02229825	mg/L	206.12%
Se 196.026	68.5	-0.0031548	0.03672443	mg/L	-0.0031548	0.03672443	mg/L	>999.9%
Si 251.611	902.0	-0.0366220	0.00503951	mg/L	-0.0366220	0.00503951	mg/L	13.76%
Sn 189.933	144.4	-0.0041585	0.00446522	mg/L	-0.0041585	0.00446522	mg/L	107.38%
Sr 407.771	-143.4	-0.0011789	0.00003955	mg/L	-0.0011789	0.00003955	mg/L	3.35%
Ti 334.941	1755.8	-0.0015879	0.00104274	mg/L	-0.0015879	0.00104274	mg/L	65.67%
Tl 190.800	19.2	-0.0186696	0.00772733	mg/L	-0.0186696	0.00772733	mg/L	41.39%
V 292.402	-376.5	0.0020795	0.00237154	mg/L	0.0020795	0.00237154	mg/L	114.04%
Zn 206.200	42.7	0.0103444	0.00055630	mg/L	0.0103444	0.00055630	mg/L	5.38%

Replicate Data

ID: 0908176-02 Date: 8/18/09 3:08:25 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	503858.9	503858.9	97.5	mg/L		
1	Y 360.064	312609.1	312609.1	96.1	mg/L		
1	Ag 328.068	-386.7	-396.7	0.0072696	mg/L	0.0726962	mg/L
1	Al 396.140	92047.2	94414.4	10.7829	mg/L	107.829	mg/L
1	As 188.979	17.5	17.9	0.0487588	mg/L	0.487588	mg/L
1	B 249.773	1058.2	1085.4	0.0014068	mg/L	0.0140682	mg/L
1	Ba 455.403	71106.6	72935.3	0.0819274	mg/L	0.819274	mg/L
1	Be 234.861	47.4	48.7	0.0003347	mg/L	0.0033472	mg/L
1	Ca 315.887	2026568.7	2078687.5	155.141	mg/L	1551.41	mg/L
1	Cd 214.438	151.6	155.5	0.0067660	mg/L	0.0676598	mg/L
1	Ce 413.765	1064.1	1091.5	0.0293715	mg/L	0.293715	mg/L
1	Co 228.616	90.0	92.3	0.0187659	mg/L	0.187659	mg/L
1	Cr 205.560	55.3	56.7	0.0136127	mg/L	0.136127	mg/L

1	Cu 327.394	172.6	177.0	0.0163885 mg/L	0.163885 mg/L
1	Fe 238.204	286142.1	293501.1	21.9626 mg/L	219.626 mg/L
1	K 766.514	3288.4	3372.9	0.487536 mg/L	4.87536 mg/L
1	Li 670.781	7127.8	7311.1	0.0418357 mg/L	0.418357 mg/L
1	Mg 279.074	112351.9	115241.4	70.7722 mg/L	707.722 mg/L
1	Mn 257.610	68585.3	70349.2	0.696391 mg/L	6.96391 mg/L
1	Mo 202.031	6.8	7.0	-0.0033140 mg/L	-0.0331396 mg/L
1	Na 589.594	3313.3	3398.5	0.123493 mg/L	1.23493 mg/L
1	Ni 231.603	-113.6	-116.5	0.0073368 mg/L	0.0733682 mg/L
1	Pb 220.353	-2.4	-2.4	0.0140784 mg/L	0.140784 mg/L
1	Sb 206.831	-44.5	-45.6	-0.0849550 mg/L	-0.849550 mg/L
1	Se 196.026	48.1	49.3	-0.0898026 mg/L	-0.898026 mg/L
1	Si 251.611	16043.0	16455.6	2.25597 mg/L	22.5597 mg/L
1	Sn 189.933	330.0	338.5	0.270619 mg/L	2.70619 mg/L
1	Sr 407.771	166072.5	170343.5	0.0997292 mg/L	0.997292 mg/L
1	Ti 334.941	6162.6	6321.1	0.0390785 mg/L	0.390785 mg/L
1	Tl 190.800	15.9	16.3	-0.0312215 mg/L	-0.312215 mg/L
1	V 292.402	96.2	98.6	0.0260338 mg/L	0.260338 mg/L
1	Zn 206.200	210.4	215.9	0.0602320 mg/L	0.602320 mg/L
2	Sc 357.253	503053.8	503053.8	97.3 mg/L	
2	Y 360.064	311962.6	311962.6	95.9 mg/L	
2	Ag 328.068	-383.3	-393.8	0.0074254 mg/L	0.0742543 mg/L
2	Al 396.140	92804.7	95343.8	10.8890 mg/L	108.890 mg/L
2	As 188.979	15.1	15.5	0.0398195 mg/L	0.398195 mg/L
2	B 249.773	1048.9	1077.6	0.0002546 mg/L	0.0025465 mg/L
2	Ba 455.403	71120.9	73066.7	0.0820938 mg/L	0.820938 mg/L
2	Be 234.861	77.5	79.6	0.0005766 mg/L	0.0057656 mg/L
2	Ca 315.887	2040864.8	2096701.5	156.485 mg/L	1564.85 mg/L
2	Cd 214.438	163.1	167.6	0.0079380 mg/L	0.0793798 mg/L
2	Ce 413.765	975.1	1001.8	0.0184784 mg/L	0.184784 mg/L
2	Co 228.616	76.6	78.6	0.0160450 mg/L	0.160450 mg/L
2	Cr 205.560	58.3	59.9	0.0154662 mg/L	0.154662 mg/L
2	Cu 327.394	101.1	103.8	0.0122913 mg/L	0.122913 mg/L
2	Fe 238.204	288401.7	296292.1	22.1717 mg/L	221.717 mg/L
2	K 766.514	3108.2	3193.3	0.443514 mg/L	4.43514 mg/L
2	Li 670.781	7214.6	7412.0	0.0424187 mg/L	0.424187 mg/L
2	Mg 279.074	113604.3	116712.4	71.6749 mg/L	716.749 mg/L
2	Mn 257.610	69322.6	71219.2	0.705013 mg/L	7.05013 mg/L
2	Mo 202.031	-2.2	-2.2	-0.0111673 mg/L	-0.111673 mg/L
2	Na 589.594	3409.7	3503.0	0.129336 mg/L	1.29336 mg/L
2	Ni 231.603	-105.8	-108.7	0.0102876 mg/L	0.102876 mg/L
2	Pb 220.353	6.4	6.6	0.0335934 mg/L	0.335934 mg/L
2	Sb 206.831	-33.9	-34.9	-0.0493024 mg/L	-0.493024 mg/L
2	Se 196.026	46.6	47.9	-0.0962580 mg/L	-0.962580 mg/L
2	Si 251.611	16176.5	16619.0	2.27949 mg/L	22.7949 mg/L
2	Sn 189.933	334.3	343.4	0.280417 mg/L	2.80417 mg/L
2	Sr 407.771	167022.6	171592.2	0.100468 mg/L	1.00468 mg/L
2	Ti 334.941	6185.7	6354.9	0.0393797 mg/L	0.393797 mg/L
2	Tl 190.800	22.3	22.9	-0.0024962 mg/L	-0.0249618 mg/L
2	V 292.402	91.6	94.1	0.0258068 mg/L	0.258068 mg/L
2	Zn 206.200	220.2	226.3	0.0632303 mg/L	0.632303 mg/L

Mean Data ----------

ID: 0908176-02 Seq. No.: 3 Sample No.: 2 A/S Pos: 80
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 10.0
Data: Original Date: 8/18/09 3:08:25 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	503456.3	97.4	0.11	mg/L				0.11%
Y 360.064	312285.8	96.0	0.14	mg/L				0.15%
Ag 328.068	-395.3	0.0073475	0.00011017	mg/L	0.0734753	0.00110169	mg/L	1.50%
Al 396.140	94879.1	10.8360	0.07503	mg/L	108.360	0.7503	mg/L	0.69%
As 188.979	16.7	0.0442892	0.00632103	mg/L	0.442892	0.0632103	mg/L	14.27%
B 249.773	1081.5	0.0008307	0.00081471	mg/L	0.0083073	0.00814707	mg/L	98.07%
Ba 455.403	73001.0	0.0820106	0.00011767	mg/L	0.820106	0.0011767	mg/L	0.14%
Be 234.861	64.1	0.0004556	0.00017101	mg/L	0.0045564	0.00171009	mg/L	37.53%
Ca 315.887	2087694.5	155.813	0.9501	mg/L	1558.13	9.501	mg/L	0.61%
Cd 214.438	161.6	0.0073520	0.00082873	mg/L	0.0735198	0.00828725	mg/L	11.27%
Ce 413.765	1046.6	0.0239250	0.00770258	mg/L	0.239250	0.0770258	mg/L	32.19%
Co 228.616	85.5	0.0174054	0.00192397	mg/L	0.174054	0.0192397	mg/L	11.05%

Cr 205.560	58.3	0.0145394	0.00131061	mg/L	0.145394	0.0131061 mg/L	9.01%
Cu 327.394	140.4	0.0143399	0.00289719	mg/L	0.143399	0.0289719 mg/L	20.20%
Fe 238.204	294896.6	22.0672	0.14785	mg/L	220.672	1.4785 mg/L	0.67%
K 766.514	3283.1	0.465525	0.0311280	mg/L	4.65525	0.311280 mg/L	6.69%
Li 670.781	7361.5	0.0421272	0.00041225	mg/L	0.421272	0.0041225 mg/L	0.98%
Mg 279.074	115976.9	71.2235	0.63830	mg/L	712.235	6.3830 mg/L	0.90%
Mn 257.610	70784.2	0.700702	0.0060969	mg/L	7.00702	0.060969 mg/L	0.87%
Mo 202.031	2.4	-0.0072406	0.00555317	mg/L	-0.0724065	0.05553173 mg/L	76.69%
Na 589.594	3450.8	0.126414	0.0041313	mg/L	1.26414	0.041313 mg/L	3.27%
Ni 231.603	-112.6	0.0088122	0.00208654	mg/L	0.0881223	0.02086545 mg/L	23.68%
Pb 220.353	2.1	0.0238359	0.01379923	mg/L	0.238359	0.1379923 mg/L	57.89%
Sb 206.831	-40.3	-0.0671287	0.02521017	mg/L	-0.671287	0.2521017 mg/L	37.55%
Se 196.026	48.6	-0.0930303	0.00456467	mg/L	-0.930303	0.0456467 mg/L	4.91%
Si 251.611	16537.3	2.26773	0.016633	mg/L	22.6773	0.16633 mg/L	0.73%
Sn 189.933	341.0	0.275518	0.0069282	mg/L	2.75518	0.069282 mg/L	2.51%
Sr 407.771	170967.9	0.100099	0.0005226	mg/L	1.00099	0.005226 mg/L	0.52%
Ti 334.941	6338.0	0.0392291	0.00021298	mg/L	0.392291	0.0021298 mg/L	0.54%
Tl 190.800	19.6	-0.0168589	0.02031190	mg/L	-0.168589	0.2031190 mg/L	120.48%
V 292.402	96.4	0.0259203	0.00016053	mg/L	0.259203	0.0016053 mg/L	0.62%
Zn 206.200	221.1	0.0617311	0.00212014	mg/L	0.617311	0.0212014 mg/L	3.43%

Replicate Data ----------

ID: 0908176-03 Date: 8/18/09 3:11:48 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	507149.3	507149.3	98.1	mg/L		
1	Y 360.064	315053.9	315053.9	96.8	mg/L		
1	Ag 328.068	-433.4	-441.6	0.0051229	mg/L	0.0512294	mg/L
1	Al 396.140	116339.7	118557.5	13.5394	mg/L	135.394	mg/L
1	As 188.979	16.6	16.9	0.0450033	mg/L	0.450033	mg/L
1	B 249.773	1029.5	1049.2	0.0050856	mg/L	0.0508557	mg/L
1	Ba 455.403	107238.3	109282.6	0.127948	mg/L	1.27948	mg/L
1	Be 234.861	24.4	24.9	0.0003766	mg/L	0.0037663	mg/L
1	Ca 315.887	1360985.1	1386929.4	103.544	mg/L	1035.44	mg/L
1	Cd 214.438	153.6	156.5	0.0068614	mg/L	0.0686138	mg/L
1	Ce 413.765	1226.4	1249.8	0.0486072	mg/L	0.486072	mg/L
1	Co 228.616	99.6	101.5	0.0205970	mg/L	0.205970	mg/L
1	Cr 205.560	73.8	75.3	0.0244065	mg/L	0.244065	mg/L
1	Cu 327.394	342.2	348.7	0.0209199	mg/L	0.209199	mg/L
1	Fe 238.204	257775.2	262689.2	19.6543	mg/L	196.543	mg/L
1	K 766.514	10060.5	10252.3	2.17294	mg/L	21.7294	mg/L
1	Li 670.781	20851.7	21249.2	0.122396	mg/L	1.22396	mg/L
1	Mg 279.074	100185.2	102095.0	62.7029	mg/L	627.029	mg/L
1	Mn 257.610	31380.3	31978.5	0.316141	mg/L	3.16141	mg/L
1	Mo 202.031	4.2	4.3	-0.0056137	mg/L	-0.0561366	mg/L
1	Na 589.594	6647.3	6774.1	0.312302	mg/L	3.12302	mg/L
1	Ni 231.603	-98.0	-99.8	0.0136171	mg/L	0.136171	mg/L
1	Pb 220.353	-9.4	-9.6	-0.0014734	mg/L	-0.0147341	mg/L
1	Sb 206.831	-27.6	-28.1	-0.0268594	mg/L	-0.268594	mg/L
1	Se 196.026	66.7	68.0	-0.0057116	mg/L	-0.0571158	mg/L
1	Si 251.611	16129.2	16436.7	2.28201	mg/L	22.8201	mg/L
1	Sn 189.933	326.1	332.3	0.187740	mg/L	1.87740	mg/L
1	Sr 407.771	135982.7	138574.9	0.0809259	mg/L	0.809259	mg/L
1	Ti 334.941	11031.6	11241.9	0.0829119	mg/L	0.829119	mg/L
1	Tl 190.800	19.4	19.8	-0.0158434	mg/L	-0.158434	mg/L
1	V 292.402	130.8	133.3	0.0277827	mg/L	0.277827	mg/L
1	Zn 206.200	134.7	137.2	0.0375740	mg/L	0.375740	mg/L
2	Sc 357.253	504421.4	504421.4	97.6	mg/L		
2	Y 360.064	313293.6	313293.6	96.3	mg/L		
2	Ag 328.068	-391.7	-401.3	0.0064825	mg/L	0.0648247	mg/L
2	Al 396.140	117456.7	120343.1	13.7433	mg/L	137.433	mg/L
2	As 188.979	11.4	11.7	0.0259039	mg/L	0.259039	mg/L
2	B 249.773	1037.7	1063.2	0.0053609	mg/L	0.0536094	mg/L
2	Ba 455.403	107987.9	110641.6	0.129668	mg/L	1.29668	mg/L
2	Be 234.861	46.5	47.6	0.0005412	mg/L	0.0054122	mg/L
2	Ca 315.887	1371923.2	1405636.5	104.940	mg/L	1049.40	mg/L
2	Cd 214.438	155.5	159.4	0.0071388	mg/L	0.0713875	mg/L
2	Ce 413.765	1047.5	1073.2	0.0271528	mg/L	0.271528	mg/L
2	Co 228.616	91.8	94.1	0.0191210	mg/L	0.191210	mg/L

Sample Information

Sample ID: 9H17031-IFA1
Autosampler Position: 10
Sample Date/Time: Monday, August 17, 2009 10:17:42
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-IFA1.011
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	2416.891	-0.001	-0.000039	0.000	76.843	mg/L
|	Ni	60	566.695	0.002	0.000310	0.000	6.066	mg/L
|	Ni	62	381.347	0.001	0.001455	0.000	4.305	mg/L
|	Cu	63	1487.837	0.005	0.000358	0.000	7.058	mg/L
|	Cu	65	580.363	0.002	0.000277	0.000	7.359	mg/L
|>	Ge	72	258775.613	258775.613				mg/L
|	As	75	367.332	-0.000	-0.000069	0.000	76.478	mg/L
|	Se	77	302.676	0.001	0.001384	0.000	7.297	mg/L
⌊	Se	82	15.035	0.000	0.000177	0.000	104.280	mg/L
⌈>	Rh	103	275219.840	275219.840				mg/L
⌊	Ag	107	208.005	0.001	0.000027	0.000	3.559	mg/L
⌈	Tl	203	346.012	0.001	0.000061	0.000	7.042	mg/L
|	Tl	205	846.059	0.003	0.000062	0.000	1.380	mg/L
|	Pb	208	518.012	0.001	0.000018	0.000	9.678	mg/L
⌊>	Bi	209	229198.520	229198.520				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
|>	Ge	71.922	99.381
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈>	Rh	102.905	93.947
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊>	Bi	208.980	97.680

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2464.611	0.000	-0.000006	mg/L
Ni	60	569.028	0.002	0.000309	mg/L
Ni	62	402.015	0.001	0.001527	mg/L
Cu	63	1491.164	0.005	0.000346	mg/L
Cu	65	610.032	0.002	0.000291	mg/L

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 10:26:27
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.014
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2467.344	-0.001	-0.000020	0.000	72.744	mg/L
	Ni	60	50.667	0.000	0.000003	0.000	87.589	mg/L
	Ni	62	21.667	0.000	0.000015	0.000	65.230	mg/L
	Cu	63	128.669	-0.000	-0.000002	0.000	135.761	mg/L
	Cu	65	83.001	0.000	0.000004	0.000	53.093	mg/L
>	Ge	72	250874.193	250874.193				mg/L
	As	75	406.513	-0.000	-0.000031	0.000	59.693	mg/L
	Se	77	186.004	0.000	0.000252	0.000	26.269	mg/L
	Se	82	-2.469	0.000	0.000041	0.000	731.803	mg/L
>	Rh	103	272844.484	272844.484				mg/L
	Ag	107	213.339	0.001	0.000028	0.000	20.188	mg/L
	Tl	203	120.669	0.000	0.000013	0.000	6.373	mg/L
	Tl	205	274.008	0.001	0.000012	0.000	23.739	mg/L
	Pb	208	343.340	0.000	0.000006	0.000	53.708	mg/L
>	Bi	209	229760.846	229760.846				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	96.346
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	93.136
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	97.920

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
9H17031-CCB	Se	77	

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2385.065	0.001	-0.000026	mg/L
Ni	60	45.001	0.000	0.000000	mg/L
Ni	62	24.000	0.000	0.000027	mg/L

23785

Sample Information

Sample ID: 0909449-BLK1
Autosampler Position: 17
Sample Date/Time: Monday, August 17, 2009 10:29:21
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0909449-BLK1.015
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2694.577	-0.000	-0.000003	0.000	312.410	mg/L
	Ni	60	56.001	0.000	0.000005	0.000	15.334	mg/L
	Ni	62	21.000	0.000	0.000009	0.000	158.810	mg/L
	Cu	63	185.004	0.000	0.000011	0.000	37.508	mg/L
	Cu	65	114.335	0.000	0.000019	0.000	30.389	mg/L
>	Ge	72	261787.272	261787.272				mg/L
	As	75	333.220	-0.001	-0.000097	0.000	43.525	mg/L
	Se	77	187.004	0.000	0.000180	0.000	45.311	mg/L
	Se	82	28.628	0.000	0.000274	0.000	101.241	mg/L
>	Rh	103	284407.909	284407.909				mg/L
	Ag	107	95.335	0.000	0.000010	0.000	20.962	mg/L
	Tl	203	64.334	0.000	0.000001	0.000	58.501	mg/L
	Tl	205	133.669	-0.000	-0.000000	0.000	203.050	mg/L
	Pb	208	751.689	0.002	0.000030	0.000	12.796	mg/L
>	Bi	209	242403.723	242403.723				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	100.537
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	97.083
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	103.308

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2722.505	0.000	0.000006	mg/L
Ni	60	56.001	0.000	0.000005	mg/L
Ni	62	23.000	0.000	0.000018	mg/L
Cu	63	182.004	0.000	0.000011	mg/L
Cu	65	113.002	0.000	0.000019	mg/L

Sample ID: 0909449-BLK1
Report Date/Time: Monday, August 17, 2009 10:30:34

Sample Information

Sample ID: 0908176-01
Autosampler Position: 19
Sample Date/Time: Monday, August 17, 2009 10:35:09
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-01.017
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	615245.122	2.295	0.086571	0.003	3.436	mg/L
	Ni	60	34204.378	0.128	0.019763	0.000	2.082	mg/L
	Ni	62	5243.643	0.020	0.020322	0.000	1.865	mg/L
	Cu	63	116704.569	0.437	0.030014	0.001	2.303	mg/L
	Cu	65	57156.376	0.214	0.030472	0.001	2.752	mg/L
>	Ge	72	266934.179	266934.179				mg/L
	As	75	21999.362	0.081	0.015402	0.000	1.391	mg/L
	Se	77	409.349	0.001	0.002345	0.000	1.802	mg/L
	Se	82	174.006	0.001	0.001323	0.000	18.404	mg/L
>	Rh	103	267469.203	267469.203				mg/L
	Ag	107	1582.191	0.006	0.000239	0.000	3.739	mg/L
	Tl	203	1795.910	0.007	0.000353	0.000	2.037	mg/L
	Tl	205	4365.044	0.018	0.000358	0.000	1.575	mg/L
	Pb	208	1146229.220	4.839	0.071463	0.001	1.738	mg/L
>	Bi	209	236889.837	236889.837				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	102.514
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.301
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.958

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	604340.527	2.225	0.083922	mg/L
Ni	60	33911.681	0.125	0.019346	mg/L
Ni	62	5197.943	0.019	0.019868	mg/L
Cu	63	115248.457	0.426	0.029258	mg/L
Cu	65	56115.120	0.207	0.029530	mg/L

Sample ID: 0908176-01
Report Date/Time: Monday, August 17, 2009 10:36:22

Sample Information

Sample ID: 0908176-02
Autosampler Position: 20
Sample Date/Time: Monday, August 17, 2009 10:38:04
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-02.018
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	391763.981	1.496	0.056412	0.001	2.514	mg/L
	Ni	60	47660.366	0.183	0.028267	0.001	4.032	mg/L
	Ni	62	5352.394	0.020	0.021280	0.001	4.018	mg/L
	Cu	63	67615.553	0.259	0.017822	0.000	0.917	mg/L
	Cu	65	34314.236	0.132	0.018748	0.000	0.920	mg/L
>	Ge	72	260199.360	260199.360				mg/L
	As	75	34396.183	0.130	0.024912	0.001	2.998	mg/L
	Se	77	318.344	0.001	0.001526	0.000	7.623	mg/L
	Se	82	97.611	0.000	0.000790	0.000	3.436	mg/L
>	Rh	103	254188.737	254188.737				mg/L
	Ag	107	1125.433	0.004	0.000178	0.000	4.900	mg/L
	Tl	203	652.036	0.003	0.000131	0.000	7.521	mg/L
	Tl	205	1522.511	0.006	0.000128	0.000	2.548	mg/L
	Pb	208	1092327.156	4.992	0.073729	0.002	2.557	mg/L
>	Bi	209	218850.385	218850.385				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	99.927
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	86.768
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	93.270

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	389986.554	1.491	0.056234	mg/L
Ni	60	46760.022	0.180	0.027769	mg/L
Ni	62	5356.869	0.020	0.020295	mg/L
Cu	63	67041.820	0.256	0.017698	mg/L
Cu	65	34257.285	0.132	0.018746	mg/L

Sample Information

Sample ID: 0908176-03
Autosampler Position: 21
Sample Date/Time: Monday, August 17, 2009 10:40:59
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-03.019
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	356046.224	1.339	0.050487	0.001	1.103	mg/L
|	Ni	60	58517.388	0.222	0.034208	0.001	2.703	mg/L
|	Ni	62	7543.056	0.029	0.029592	0.000	0.116	mg/L
|	Cu	63	79619.078	0.301	0.020692	0.000	0.805	mg/L
|	Cu	65	40238.766	0.152	0.021678	0.000	1.615	mg/L
|>	Ge	72	263960.107	263960.107				mg/L
|	As	75	12857.526	0.047	0.008963	0.000	0.250	mg/L
|	Se	77	333.344	0.001	0.001629	0.000	11.884	mg/L
⌊	Se	82	82.805	0.000	0.000670	0.000	25.799	mg/L
⌈>	Rh	103	258099.365	258099.365				mg/L
⌊	Ag	107	1106.764	0.004	0.000172	0.000	6.033	mg/L
⌈	Tl	203	918.735	0.004	0.000186	0.000	0.982	mg/L
|	Tl	205	2144.677	0.009	0.000181	0.000	1.753	mg/L
|	Pb	208	361099.420	1.617	0.023877	0.000	1.261	mg/L
⌊>	Bi	209	223244.255	223244.255				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
|>	Ge	71.922	101.372
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈>	Rh	102.905	88.103
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊>	Bi	208.980	95.142

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	354888.925	1.326	0.050013	mg/L
Ni	60	57451.696	0.216	0.033379	mg/L
Ni	62	7579.095	0.028	0.029554	mg/L
Cu	63	79363.250	0.298	0.020500	mg/L
Cu	65	39760.754	0.149	0.021269	mg/L

Sample Information

Sample ID: 0908176-04
Autosampler Position: 22
Sample Date/Time: Monday, August 17, 2009 10:43:55
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-04.020
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	596954.587	2.156	0.081308	0.001	0.995	mg/L
	Ni	60	75924.825	0.275	0.042513	0.000	0.339	mg/L
	Ni	62	11844.932	0.043	0.044549	0.001	2.247	mg/L
	Cu	63	301023.627	1.092	0.075025	0.001	0.727	mg/L
	Cu	65	144716.708	0.525	0.074776	0.002	2.317	mg/L
>	Ge	72	275611.097	275611.097				mg/L
	As	75	25860.974	0.092	0.017579	0.000	0.953	mg/L
	Se	77	462.686	0.001	0.002730	0.000	5.967	mg/L
	Se	82	141.646	0.001	0.001058	0.000	14.281	mg/L
>	Rh	103	269077.498	269077.498				mg/L
	Ag	107	1448.828	0.005	0.000217	0.000	6.127	mg/L
	Tl	203	2165.683	0.009	0.000432	0.000	4.529	mg/L
	Tl	205	5041.496	0.021	0.000418	0.000	2.189	mg/L
	Pb	208	908964.814	3.869	0.057138	0.001	2.006	mg/L
>	Bi	209	234961.937	234961.937				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	105.846
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.850
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.136

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	596407.312	2.133	0.080391	mg/L
Ni	60	76457.788	0.275	0.042442	mg/L
Ni	62	11772.812	0.042	0.043690	mg/L
Cu	63	300352.626	1.091	0.074952	mg/L
Cu	65	143085.673	0.511	0.072777	mg/L

Sample Information

Sample ID: 0908176-05
Autosampler Position: 23
Sample Date/Time: Monday, August 17, 2009 10:46:51
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-05.021
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	478043.489	1.784	0.067272	0.002	2.462	mg/L
	Ni	60	66795.201	0.250	0.038674	0.000	0.927	mg/L
	Ni	62	9493.067	0.036	0.036903	0.001	1.756	mg/L
	Cu	63	216064.464	0.810	0.055677	0.001	1.194	mg/L
	Cu	65	106281.790	0.399	0.056788	0.002	3.375	mg/L
>	Ge	72	266536.852	266536.852				mg/L
	As	75	19946.442	0.073	0.013956	0.000	2.987	mg/L
	Se	77	410.683	0.001	0.002365	0.000	3.166	mg/L
	Se	82	117.037	0.000	0.000913	0.000	31.215	mg/L
>	Rh	103	258289.154	258289.154				mg/L
	Ag	107	1285.795	0.005	0.000200	0.000	4.253	mg/L
	Tl	203	1997.299	0.009	0.000411	0.000	1.663	mg/L
	Tl	205	4624.878	0.020	0.000396	0.000	3.822	mg/L
	Pb	208	898832.557	3.953	0.058389	0.001	1.196	mg/L
>	Bi	209	227305.505	227305.505				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	102.361
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	88.168
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	96.873

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	478036.359	1.742	0.065714	mg/L
Ni	60	67238.659	0.250	0.038621	mg/L
Ni	62	9378.240	0.035	0.036167	mg/L
Cu	63	216171.959	0.812	0.055773	mg/L
Cu	65	106495.067	0.398	0.056437	mg/L

Sample ID: 0908176-05
Report Date/Time: Monday, August 17, 2009 10:48:05

Sample Information

Sample ID: 0908176-06
Autosampler Position: 24
Sample Date/Time: Monday, August 17, 2009 10:49:47
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-06.022
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	611013.441	2.248	0.084772	0.001	1.624	mg/L
	Ni	60	79546.611	0.294	0.045363	0.000	1.073	mg/L
	Ni	62	11948.776	0.044	0.045758	0.001	1.605	mg/L
	Cu	63	221106.589	0.817	0.056113	0.001	1.394	mg/L
	Cu	65	107811.002	0.398	0.056716	0.000	0.869	mg/L
>	Ge	72	270632.532	270632.532				mg/L
	As	75	21905.474	0.079	0.015119	0.000	0.798	mg/L
	Se	77	444.685	0.001	0.002636	0.000	9.286	mg/L
	Se	82	118.662	0.000	0.000914	0.000	44.246	mg/L
>	Rh	103	266870.846	266870.846				mg/L
	Ag	107	1527.512	0.006	0.000231	0.000	2.244	mg/L
	Tl	203	2184.022	0.009	0.000432	0.000	1.559	mg/L
	Tl	205	5144.570	0.021	0.000423	0.000	1.345	mg/L
	Pb	208	4187203.349	17.661	0.260849	0.001	0.482	mg/L
>	Bi	209	237067.244	237067.244				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	103.934
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.097
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.033

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	617602.683	2.274	0.085757	mg/L
Ni	60	79032.440	0.295	0.045548	mg/L
Ni	62	12037.254	0.044	0.046125	mg/L
Cu	63	220315.283	0.814	0.055937	mg/L
Cu	65	106704.155	0.394	0.056162	mg/L

09721

Sample Information

Sample ID: 0908176-07
Autosampler Position: 25
Sample Date/Time: Monday, August 17, 2009 10:52:44
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-07.023
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[	V	51	502498.234	1.887	0.071162	0.001	2.075	mg/L
|	Ni	60	83110.240	0.314	0.048425	0.001	2.447	mg/L
|	Ni	62	12507.065	0.047	0.048946	0.001	2.213	mg/L
|	Cu	63	334403.448	1.262	0.086716	0.001	1.433	mg/L
|	Cu	65	163239.681	0.616	0.087747	0.002	1.733	mg/L
| >	Ge	72	264941.227	264941.227				mg/L
|	As	75	21435.746	0.079	0.015115	0.000	1.893	mg/L
|	Se	77	397.348	0.001	0.002256	0.000	2.277	mg/L
|	Se	82	73.069	0.000	0.000602	0.000	68.716	mg/L
[>	Rh	103	262479.251	262479.251				mg/L
|	Ag	107	1403.819	0.005	0.000215	0.000	1.541	mg/L
[	Tl	203	1542.849	0.006	0.000310	0.000	3.683	mg/L
|	Tl	205	3776.369	0.016	0.000316	0.000	1.153	mg/L
|	Pb	208	3036263.912	13.160	0.194370	0.004	2.256	mg/L
\>	Bi	209	230731.919	230731.919				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
| >	Ge	71.922	101.748
|	As	74.922	
|	Se	76.920	
|	Se	81.917	
[>	Rh	102.905	89.598
|	Ag	106.905	
[	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
\>	Bi	208.980	98.333

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	501389.216	1.864	0.070290	mg/L
Ni	60	83440.360	0.312	0.048129	mg/L
Ni	62	12494.042	0.047	0.048403	mg/L
Cu	63	335080.040	1.256	0.086284	mg/L
Cu	65	167069.378	0.624	0.088933	mg/L

Sample ID: 0908176-07
Report Date/Time: Monday, August 17, 2009 10:53:59

Sample Information

Sample ID: 0908176-08
Autosampler Position: 26
Sample Date/Time: Monday, August 17, 2009 10:55:40
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908176-08.024
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	596254.570	2.199	0.082953	0.002	1.901	mg/L
	Ni	60	83761.802	0.310	0.047902	0.001	1.152	mg/L
	Ni	62	12988.930	0.048	0.049893	0.001	1.039	mg/L
	Cu	63	491303.972	1.820	0.125086	0.002	1.711	mg/L
	Cu	65	238536.252	0.884	0.125909	0.003	2.203	mg/L
>	Ge	72	269871.967	269871.967				mg/L
	As	75	27070.981	0.099	0.018819	0.000	1.027	mg/L
	Se	77	424.017	0.001	0.002445	0.000	7.359	mg/L
	Se	82	99.350	0.000	0.000776	0.000	42.463	mg/L
>	Rh	103	266629.598	266629.598				mg/L
	Ag	107	1455.496	0.005	0.000220	0.000	2.535	mg/L
	Tl	203	1833.920	0.008	0.000363	0.000	4.101	mg/L
	Tl	205	4308.009	0.018	0.000355	0.000	3.693	mg/L
	Pb	208	801482.595	3.405	0.050284	0.001	2.675	mg/L
>	Bi	209	235407.734	235407.734				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	103.642
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.015
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.326

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	590921.837	2.154	0.081258	mg/L
Ni	60	83959.394	0.307	0.047467	mg/L
Ni	62	13053.065	0.048	0.049605	mg/L
Cu	63	487252.629	1.764	0.122620	mg/L
Cu	65	235666.948	0.863	0.122960	mg/L

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 11:01:29
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.026
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2534.445	-0.000	-0.000008	0.000	74.562	mg/L
	Ni	60	50.667	0.000	0.000003	0.000	107.743	mg/L
	Ni	62	22.667	0.000	0.000020	0.000	71.033	mg/L
	Cu	63	154.670	0.000	0.000005	0.000	35.713	mg/L
	Cu	65	77.668	0.000	0.000002	0.000	332.913	mg/L
>	Ge	72	249276.038	249276.038				mg/L
	As	75	391.053	-0.000	-0.000041	0.000	173.770	mg/L
	Se	77	184.671	0.000	0.000249	0.000	78.222	mg/L
	Se	82	21.908	0.000	0.000233	0.000	98.543	mg/L
>	Rh	103	270456.558	270456.558				mg/L
	Ag	107	171.671	0.001	0.000022	0.000	24.447	mg/L
	Tl	203	71.334	0.000	0.000003	0.000	35.553	mg/L
	Tl	205	154.337	0.000	0.000002	0.000	104.343	mg/L
	Pb	208	438.676	0.001	0.000013	0.000	11.915	mg/L
>	Bi	209	227033.895	227033.895				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	95.732
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	92.321
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	96.757

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
9H17031-CCB	Se	77	
9H17031-CCB	Se	82	

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2557.663	0.000	0.000004	mg/L
Ni	60	55.001	0.000	0.000006	mg/L

Sample ID: 9H17031-CCB
Report Date/Time: Monday, August 17, 2009 11:02:41

83729

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 11:04:34
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.027
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2494.788	-0.001	-0.000024	0.000	81.331	mg/L
	Ni	60	48.667	0.000	0.000001	0.000	293.026	mg/L
	Ni	62	25.000	0.000	0.000027	0.000	85.108	mg/L
	Cu	63	141.669	0.000	0.000000	0.000	778.558	mg/L
	Cu	65	85.668	0.000	0.000005	0.000	95.916	mg/L
>	Ge	72	256391.626	256391.626				mg/L
	As	75	388.528	-0.000	-0.000051	0.000	31.933	mg/L
	Se	77	173.337	0.000	0.000080	0.000	191.256	mg/L
	Se	82	5.722	0.000	0.000111	0.000	223.824	mg/L
>	Rh	103	274786.043	274786.043				mg/L
	Ag	107	59.334	0.000	0.000005	0.000	22.345	mg/L
	Tl	203	61.334	0.000	0.000001	0.000	121.642	mg/L
	Tl	205	110.002	-0.000	-0.000002	0.000	24.493	mg/L
	Pb	208	375.341	0.001	0.000008	0.000	17.718	mg/L
>	Bi	209	228934.251	228934.251				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	98.465
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	93.799
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	97.567

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2567.768	0.000	0.000009	mg/L
Ni	60	43.001	0.000	0.000002	mg/L
Ni	62	27.000	0.000	0.000036	mg/L
Cu	63	148.003	0.000	0.000002	mg/L
Cu	65	91.001	0.000	0.000008	mg/L

Sample Information

Sample ID: 0908185-02
Autosampler Position: 27
Sample Date/Time: Monday, August 17, 2009 11:07:28
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-02.028
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	797416.610	2.890	0.109000	0.002	1.480	mg/L
	Ni	60	100377.723	0.365	0.056352	0.001	1.065	mg/L
	Ni	62	14784.434	0.054	0.055753	0.001	1.610	mg/L
	Cu	63	269064.146	0.978	0.067217	0.000	0.582	mg/L
	Cu	65	131028.813	0.476	0.067856	0.001	1.571	mg/L
>	Ge	72	274936.167	274936.167				mg/L
	As	75	46618.656	0.168	0.032044	0.000	1.427	mg/L
	Se	77	556.027	0.001	0.003638	0.000	3.938	mg/L
	Se	82	121.831	0.000	0.000922	0.000	16.332	mg/L
>	Rh	103	255608.147	255608.147				mg/L
	Ag	107	1885.601	0.007	0.000298	0.000	2.449	mg/L
	Tl	203	2785.238	0.012	0.000575	0.000	2.460	mg/L
	Tl	205	6759.265	0.029	0.000581	0.000	2.194	mg/L
	Pb	208	665995.001	2.912	0.043004	0.001	1.223	mg/L
>	Bi	209	228658.243	228658.243				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	105.587
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	87.253
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	97.450

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	797728.323	2.842	0.107196	mg/L
Ni	60	101030.487	0.369	0.057045	mg/L
Ni	62	14820.507	0.054	0.056211	mg/L
Cu	63	268179.274	0.969	0.067384	mg/L
Cu	65	128173.027	0.459	0.066762	mg/L

Sample ID: 0908185-02
Report Date/Time: Monday, August 17, 2009 11:08:41

Sample Information

Sample ID: 0908185-03
Autosampler Position: 28
Sample Date/Time: Monday, August 17, 2009 11:10:22
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-03.029
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	850250.546	3.132	0.118119	0.002	1.447	mg/L
	Ni	60	88727.075	0.328	0.050597	0.001	1.686	mg/L
	Ni	62	14145.809	0.052	0.054203	0.002	3.818	mg/L
	Cu	63	652071.791	2.409	0.165550	0.001	0.553	mg/L
	Cu	65	313287.468	1.157	0.164902	0.002	1.183	mg/L
>	Ge	72	270632.279	270632.279				mg/L
	As	75	14043.048	0.050	0.009570	0.000	1.827	mg/L
	Se	77	452.352	0.001	0.002711	0.000	7.319	mg/L
	Se	82	129.587	0.001	0.000991	0.000	15.568	mg/L
>	Rh	103	269066.745	269066.745				mg/L
	Ag	107	8330.273	0.031	0.001264	0.000	3.085	mg/L
	Tl	203	2675.194	0.011	0.000523	0.000	2.347	mg/L
	Tl	205	6401.934	0.026	0.000520	0.000	3.356	mg/L
	Pb	208	3431932.730	14.236	0.210255	0.002	0.779	mg/L
>	Bi	209	241061.274	241061.274				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	103.934
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.847
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	102.736

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	849101.345	3.098	0.116833	mg/L
Ni	60	91043.454	0.333	0.051432	mg/L
Ni	62	13695.253	0.050	0.051908	mg/L
Cu	63	657711.423	2.407	0.165405	mg/L
Cu	65	313990.971	1.149	0.163704	mg/L

Sample ID: 0908185-03
Report Date/Time: Monday, August 17, 2009 11:11:35

Sample Information

Sample ID: 0908185-04
Autosampler Position: 33
Sample Date/Time: Monday, August 17, 2009 11:24:55
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-04.034
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	859317.018	3.115	0.117485	0.002	1.525	mg/L
	Ni	60	61441.424	0.223	0.034477	0.001	1.606	mg/L
	Ni	62	9869.580	0.036	0.037187	0.001	1.590	mg/L
	Cu	63	110834.137	0.403	0.027662	0.000	1.258	mg/L
	Cu	65	55476.503	0.201	0.028703	0.000	1.736	mg/L
>	Ge	72	274985.117	274985.117				mg/L
	As	75	7329.230	0.025	0.004751	0.000	3.180	mg/L
	Se	77	359.679	0.001	0.001749	0.000	1.269	mg/L
	Se	82	23.739	0.000	0.000232	0.000	90.670	mg/L
>	Rh	103	266962.950	266962.950				mg/L
	Ag	107	1165.774	0.004	0.000175	0.000	5.174	mg/L
	Tl	203	2227.370	0.009	0.000441	0.000	3.224	mg/L
	Tl	205	5332.378	0.022	0.000440	0.000	4.181	mg/L
	Pb	208	387244.317	1.634	0.024139	0.000	1.728	mg/L
>	Bi	209	236806.673	236806.673				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	105.606
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.129
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.922

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	859349.206	3.069	0.115754	mg/L
Ni	60	61834.104	0.223	0.034484	mg/L
Ni	62	9279.788	0.035	0.036623	mg/L
Cu	63	110087.960	0.397	0.027307	mg/L
Cu	65	55401.609	0.200	0.028503	mg/L

Sample Information

Sample ID: 0908185-05
Autosampler Position: 34
Sample Date/Time: Monday, August 17, 2009 11:27:50
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-05.035
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	806321.754	3.002	0.113224	0.002	1.978	mg/L
|	Ni	60	128579.070	0.480	0.074152	0.002	2.617	mg/L
|	Ni	62	19654.868	0.073	0.076172	0.002	3.197	mg/L
|	Cu	63	662985.321	2.476	0.170165	0.004	2.341	mg/L
|	Cu	65	321833.799	1.202	0.171295	0.005	3.181	mg/L
|>	Ge	72	267791.844	267791.844				mg/L
|	As	75	10585.137	0.038	0.007214	0.000	3.328	mg/L
|	Se	77	569.028	0.001	0.003906	0.000	3.673	mg/L
⌊	Se	82	128.900	0.001	0.000996	0.000	4.126	mg/L
⌈>	Rh	103	260885.440	260885.440				mg/L
⌊	Ag	107	8690.371	0.033	0.001360	0.000	1.301	mg/L
⌈	Tl	203	2814.583	0.012	0.000574	0.000	2.021	mg/L
|	Tl	205	6705.880	0.028	0.000569	0.000	2.583	mg/L
|	Pb	208	2825798.165	12.212	0.180372	0.005	2.539	mg/L
⌊>	Bi	209	231447.934	231447.934				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
|>	Ge	71.922	102.843
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈>	Rh	102.905	89.054
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊>	Bi	208.980	98.639

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	811440.057	2.973	0.112128	mg/L
Ni	60	127454.330	0.468	0.072330	mg/L
Ni	62	19566.232	0.072	0.074985	mg/L
Cu	63	657002.409	2.415	0.165955	mg/L
Cu	65	319129.200	1.173	0.167116	mg/L

8374?

Sample Information

Sample ID: 0908185-06
Autosampler Position: 35
Sample Date/Time: Monday, August 17, 2009 11:30:46
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-06.036
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	858039.893	3.190	0.120325	0.002	1.734	mg/L
	Ni	60	111208.351	0.415	0.064029	0.002	2.422	mg/L
	Ni	62	17199.860	0.064	0.066537	0.002	2.859	mg/L
	Cu	63	185139.153	0.690	0.047420	0.001	1.078	mg/L
	Cu	65	91735.932	0.342	0.048706	0.000	0.271	mg/L
>	Ge	72	268116.009	268116.009				mg/L
	As	75	5909.797	0.020	0.003869	0.000	1.044	mg/L
	Se	77	411.683	0.001	0.002351	0.000	5.483	mg/L
	Se	82	47.272	0.000	0.000406	0.000	40.737	mg/L
>	Rh	103	260515.147	260515.147				mg/L
	Ag	107	1337.139	0.005	0.000207	0.000	3.431	mg/L
	Tl	203	1970.625	0.009	0.000413	0.000	5.677	mg/L
	Tl	205	4703.262	0.021	0.000411	0.000	3.644	mg/L
	Pb	208	95752.481	0.428	0.006323	0.000	1.555	mg/L
>	Bi	209	223113.033	223113.033				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	102.968
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	88.928
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	95.086

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	849959.913	3.192	0.120410	mg/L
Ni	60	110071.712	0.415	0.064020	mg/L
Ni	62	17304.166	0.065	0.067617	mg/L
Cu	63	185156.990	0.697	0.047910	mg/L
Cu	65	90924.958	0.342	0.048772	mg/L

Sample Information

Sample ID: 0908185-07
Autosampler Position: 36
Sample Date/Time: Monday, August 17, 2009 11:33:43
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-07.037
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	973251.074	3.511	0.132436	0.002	1.323	mg/L
	Ni	60	131851.452	0.477	0.073646	0.001	1.455	mg/L
	Ni	62	20666.397	0.075	0.077557	0.001	1.842	mg/L
	Cu	63	194085.214	0.702	0.048231	0.001	2.899	mg/L
	Cu	65	95769.457	0.346	0.049331	0.001	2.201	mg/L
>	Ge	72	276403.248	276403.248				mg/L
	As	75	3590.704	0.011	0.002142	0.000	9.615	mg/L
	Se	77	565.695	0.001	0.003704	0.000	7.451	mg/L
	Se	82	89.351	0.000	0.000690	0.000	25.363	mg/L
>	Rh	103	266634.864	266634.864				mg/L
	Ag	107	1625.868	0.006	0.000246	0.000	1.955	mg/L
	Tl	203	3096.702	0.013	0.000632	0.000	2.538	mg/L
	Tl	205	7353.523	0.031	0.000625	0.000	0.614	mg/L
	Pb	208	542820.104	2.344	0.034620	0.001	1.687	mg/L
>	Bi	209	231485.523	231485.523				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	106.150
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.017
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	98.655

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Mean Intensity	Net Intensity	Concentration	Report Unit
V	51	975572.116	3.458	0.130414	mg/L
Ni	60	131965.166	0.469	0.072413	mg/L
Ni	62	20756.321	0.074	0.076626	mg/L
Cu	63	191911.829	0.682	0.046846	mg/L
Cu	65	95527.491	0.339	0.048340	mg/L

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 11:39:32
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.039
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[	V	51	2486.022	-0.001	-0.000023	0.000	57.033	mg/L
|	Ni	60	49.001	0.000	0.000001	0.000	120.121	mg/L
|	Ni	62	18.000	-0.000	-0.000001	0.000	1157.471	mg/L
|	Cu	63	135.669	-0.000	-0.000001	0.000	153.125	mg/L
|	Cu	65	75.334	-0.000	-0.000001	0.000	801.465	mg/L
|								mg/L
| >	Ge	72	254924.189	254924.189				mg/L
|	As	75	498.141	0.000	0.000033	0.000	90.833	mg/L
|	Se	77	148.336	-0.000	-0.000171	0.000	4.369	mg/L
|	Se	82	48.858	0.000	0.000434	0.000	40.052	mg/L
[>	Rh	103	281016.078	281016.078				mg/L
|	Ag	107	195.005	0.001	0.000025	0.000	37.461	mg/L
[	Tl	203	56.334	-0.000	-0.000000	0.000	273.680	mg/L
|	Tl	205	133.336	0.000	0.000000	0.000	720.639	mg/L
|	Pb	208	441.343	0.001	0.000012	0.000	22.683	mg/L
| >	Bi	209	230590.884	230590.884				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
| >	Ge	71.922	97.901
|	As	74.922	
|	Se	76.920	
|	Se	81.917	
[>	Rh	102.905	95.926
|	Ag	106.905	
[	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
| >	Bi	208.980	98.273

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
9H17031-CCB	Se	82	

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2556.638	0.000	-0.000011	mg/L
Ni	60	49.001	0.000	0.000000	mg/L
Ni	62	21.000	0.000	0.000012	mg/L

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 11:42:53
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.040
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2390.099	-0.001	-0.000034	0.000	28.986	mg/L
	Ni	60	58.001	0.000	0.000007	0.000	2.438	mg/L
	Ni	62	25.334	0.000	0.000030	0.000	54.669	mg/L
	Cu	63	145.003	0.000	0.000002	0.000	264.005	mg/L
	Cu	65	85.001	0.000	0.000005	0.000	205.298	mg/L
>	Ge	72	252621.690	252621.690				mg/L
	As	75	428.000	-0.000	-0.000017	0.000	270.814	mg/L
	Se	77	137.336	-0.000	-0.000272	0.000	39.242	mg/L
	Se	82	-26.041	-0.000	-0.000132	0.000	246.144	mg/L
>	Rh	103	277114.459	277114.459				mg/L
	Ag	107	65.668	0.000	0.000006	0.000	25.374	mg/L
	Tl	203	46.334	-0.000	-0.000002	0.000	76.427	mg/L
	Tl	205	116.669	-0.000	-0.000001	0.000	62.855	mg/L
	Pb	208	511.012	0.001	0.000017	0.000	16.026	mg/L
>	Bi	209	228112.588	228112.588				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	97.017
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	94.594
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	97.217

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
9H17031-CCB	Se	77	

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2390.486	0.001	0.000043	mg/L
Ni	60	57.001	0.000	0.000007	mg/L
Ni	62	21.000	0.000	0.000013	mg/L

Sample Information

Sample ID: 0908185-08
Autosampler Position: 37
Sample Date/Time: Monday, August 17, 2009 11:45:48
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-08.041
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	1046778.001	3.760	0.141803	0.002	1.675	mg/L
	Ni	60	117534.014	0.423	0.065348	0.002	2.779	mg/L
	Ni	62	19000.097	0.068	0.070963	0.001	1.813	mg/L
	Cu	63	147082.525	0.529	0.036362	0.000	0.799	mg/L
	Cu	65	73617.179	0.265	0.037730	0.000	1.010	mg/L
>	Ge	72	277720.200	277720.200				mg/L
	As	75	1821.501	0.005	0.000913	0.000	8.901	mg/L
	Se	77	770.383	0.002	0.005629	0.000	6.396	mg/L
	Se	82	109.204	0.000	0.000825	0.000	28.831	mg/L
>	Rh	103	266243.242	266243.242				mg/L
	Ag	107	1467.832	0.005	0.000222	0.000	5.913	mg/L
	Tl	203	2831.256	0.012	0.000578	0.000	2.231	mg/L
	Tl	205	6753.259	0.029	0.000574	0.000	0.806	mg/L
	Pb	208	43616.704	0.188	0.002772	0.000	2.334	mg/L
>	Bi	209	231077.441	231077.441				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	106.656
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	90.883
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	98.481

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	1054047.765	3.810	0.143695	mg/L
Ni	60	118586.635	0.422	0.065178	mg/L
Ni	62	19685.595	0.068	0.070230	mg/L
Cu	63	146039.265	0.532	0.036558	mg/L
Cu	65	73412.055	0.266	0.037865	mg/L

Sample Information

Sample ID: 0908185-09
Autosampler Position: 38
Sample Date/Time: Monday, August 17, 2009 11:48:44
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908185-09.042
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	993824.579	3.614	0.136328	0.003	2.207	mg/L
	Ni	60	101230.686	0.369	0.056986	0.001	2.057	mg/L
	Ni	62	16144.387	0.059	0.061054	0.001	2.052	mg/L
	Cu	63	199315.618	0.726	0.049919	0.001	1.519	mg/L
	Cu	65	97033.709	0.354	0.050383	0.001	2.642	mg/L
>	Ge	72	274219.717	274219.717				mg/L
	As	75	5329.637	0.018	0.003373	0.000	3.374	mg/L
	Se	77	414.350	0.001	0.002286	0.000	6.496	mg/L
	Se	82	23.059	0.000	0.000227	0.000	60.108	mg/L
>	Rh	103	269446.493	269446.493				mg/L
	Ag	107	1478.501	0.005	0.000221	0.000	2.980	mg/L
	Tl	203	2827.254	0.012	0.000565	0.000	0.728	mg/L
	Tl	205	6672.182	0.028	0.000555	0.000	2.668	mg/L
	Pb	208	204584.858	0.866	0.012795	0.000	1.624	mg/L
>	Bi	209	235899.103	235899.103				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	105.312
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.976
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.536

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	988116.718	3.548	0.133818	mg/L
Ni	60	99945.370	0.360	0.055660	mg/L
Ni	62	16104.295	0.058	0.060251	mg/L
Cu	63	199142.849	0.718	0.049343	mg/L
Cu	65	95991.656	0.346	0.049305	mg/L

Sample ID: 0908185-09
Report Date/Time: Monday, August 17, 2009 11:49:57

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 12:17:54
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.052
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2380.235	-0.001	-0.000037	0.000	35.528	mg/L
	Ni	60	52.334	0.000	0.000004	0.000	66.579	mg/L
	Ni	62	22.334	0.000	0.000017	0.000	75.852	mg/L
	Cu	63	143.003	0.000	0.000001	0.000	101.506	mg/L
	Cu	65	80.335	0.000	0.000002	0.000	182.776	mg/L
>	Ge	72	253791.651	253791.651				mg/L
	As	75	415.197	-0.000	-0.000028	0.000	70.297	mg/L
	Se	77	149.003	-0.000	-0.000157	0.000	10.250	mg/L
	Se	82	-19.751	-0.000	-0.000085	0.000	124.200	mg/L
>	Rh	103	282145.525	282145.525				mg/L
	Ag	107	266.674	0.001	0.000035	0.000	20.980	mg/L
	Tl	203	61.001	0.000	0.000000	0.000	512.659	mg/L
	Tl	205	176.671	0.000	0.000004	0.000	41.522	mg/L
	Pb	208	578.682	0.001	0.000021	0.000	4.423	mg/L
>	Bi	209	231988.859	231988.859				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	97.466
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	96.311
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	98.869

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2420.127	0.001	0.000028	mg/L
Ni	60	52.001	0.000	0.000004	mg/L
Ni	62	25.000	0.000	0.000029	mg/L
Cu	63	139.003	0.000	0.000001	mg/L
Cu	65	80.001	0.000	0.000003	mg/L

83784

ANALYSIS BATCH (SEQUENCE) SUMMARY

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H18065

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Instrument: 201

Calibration: 9H19004

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H18065-CAL1	9h18065-001	08/18/09 14:22
Cal Standard	9H18065-CAL2	9h18065-002	08/18/09 14:24
Cal Standard	9H18065-CAL3	9h18065-003	08/18/09 14:26
Cal Standard	9H18065-CAL4	9h18065-004	08/18/09 14:28
Cal Standard	9H18065-CAL5	9h18065-005	08/18/09 14:30
Cal Standard	9H18065-CAL6	9h18065-006	08/18/09 14:32
Cal Standard	9H18065-CAL7	9h18065-007	08/18/09 14:35
Secondary Cal Check	9H18065-SCV1	9h18065-008	08/18/09 14:37
Calibration Check	9H18065-CCV1	9h18065-008	08/18/09 14:37
Calibration Blank	9H18065-CCB1	9h18065-009	08/18/09 14:40
Interference Check A	9H18065-IFA1	9h18065-010	08/18/09 14:42
Interference Check B	9H18065-IFB1	9h18065-011	08/18/09 14:44
Calibration Check	9H18065-CCV2	9h18065-012	08/18/09 14:46
Calibration Blank	9H18065-CCB2	9h18065-013	08/18/09 14:49
Blank	0909513-BLK1	9h18065-014	08/18/09 14:51
LCS	0909513-BS1	9h18065-015	08/18/09 14:53
60SS1	0908176-01	9h18065-016	08/18/09 14:57
60SS2	0908176-02	9h18065-017	08/18/09 14:59
60SS3	0908176-03	9h18065-018	08/18/09 15:01
60SS4	0908176-04	9h18065-019	08/18/09 15:03
60SS5	0908176-05	9h18065-020	08/18/09 15:05
60SE1	0908176-06	9h18065-021	08/18/09 15:07
60SE2	0908176-07	9h18065-022	08/18/09 15:09
DUP-1	0908176-08	9h18065-023	08/18/09 15:11
Calibration Check	9H18065-CCV3	9h18065-024	08/18/09 15:13
Calibration Blank	9H18065-CCB3	9h18065-025	08/18/09 15:17
60TP1	0908185-02	9h18065-026	08/18/09 15:19
77SB1A	0908185-03	9h18065-027	08/18/09 15:21
77SB1A	0909513-MS1	9h18065-028	08/18/09 15:23
77SB1A	0909513-MSD1	9h18065-029	08/18/09 15:25
77SB1A	9H18065-SRD1	9h18065-030	08/18/09 15:28
77SB1A	0909513-PS1	9h18065-031	08/18/09 15:30

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18065

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 201
Calibration: 9H19004

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
77SB1B	0908185-04	9h18065-032	08/18/09 15:33
77SB3A	0908185-05	9h18065-044	08/18/09 15:35
77SB3B	0908185-06	9h18065-034	08/18/09 15:38
77SB2A	0908185-07	9h18065-046	08/18/09 15:40
Calibration Check	9H18065-CCV4	9h18065-036	08/18/09 15:42
Calibration Blank	9H18065-CCB4	9h18065-037	08/18/09 15:45
77SB2B	0908185-08	9h18065-049	08/18/09 15:47
77SB4B	0908185-09	9h18065-050	08/18/09 15:49
Calibration Check	9H18065-CCV5	9h18065-058	08/18/09 16:13
Calibration Blank	9H18065-CCB5	9h18065-059	08/18/09 16:16
Serial Dilution	9H18065-SRD2	9h18065-060	08/18/09 16:18
Calibration Check	9H18065-CCV6	9h18065-070	08/18/09 16:40
Calibration Blank	9H18065-CCB6	9h18065-071	08/18/09 16:43
Calibration Check	9H18065-CCV7	9h18065-082	08/18/09 17:07
Calibration Blank	9H18065-CCB7	9h18065-083	08/18/09 17:10
Serial Dilution	9H18065-SRD3	9h18065-086	08/18/09 17:18
Calibration Check	9H18065-CCV8	9h18065-094	08/18/09 17:35
Calibration Blank	9H18065-CCB8	9h18065-095	08/18/09 17:38
Calibration Check	9H18065-CCV9	9h18065-099	08/18/09 17:47
Calibration Blank	9H18065-CCB9	9h18065-100	08/18/09 17:50

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18065
Instrument ID: 201
Calibration: 9H19004

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18065-CCB1	Antimony	0.00014	0.00040	0.000074	mg/L	J	08/18/09 14:40
9H18065-CCB2	Antimony	0.000084	0.00040	0.000074	mg/L	J	08/18/09 14:49
0909513-BLK1	Antimony, Total	0.20	0.20	0.037	mg/kg dry wt.	U	08/18/09 14:51
9H18065-CCB3	Antimony	0.000065	0.00040	0.000074	mg/L	U	08/18/09 15:17
9H18065-CCB4	Antimony	0.000054	0.00040	0.000074	mg/L	U	08/18/09 15:45
9H18065-CCB5	Antimony	0.000053	0.00040	0.000074	mg/L	U	08/18/09 16:16
9H18065-CCB6	Antimony	0.000046	0.00040	0.000074	mg/L	U	08/18/09 16:43
9H18065-CCB7	Antimony	0.000048	0.00040	0.000074	mg/L	U	08/18/09 17:10
9H18065-CCB8	Antimony	0.000053	0.00040	0.000074	mg/L	U	08/18/09 17:38
9H18065-CCB9	Antimony	0.000047	0.00040	0.000074	mg/L	U	08/18/09 17:50

* Values outside of QC limits

Sample Information

Sample ID: 9H18065-CCB
Autosampler Position: 1
Sample Date/Time: Tuesday, August 18, 2009 14:40:19
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\9H18065-CCB.009
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	272796.950	272796.950				mg/L
Sb	121	1636.537	0.005	0.000139	0.000	3.097	mg/L
Sb	123	1270.744	0.003	0.000139	0.000	8.319	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	98.010
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	270627.399	270627.399		mg/L
Sb	121	1583.191	0.004	0.000135	mg/L
Sb	123	1248.492	0.003	0.000137	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	282782.255	282782.255		mg/L
Sb	121	1702.220	0.005	0.000140	mg/L
Sb	123	1245.240	0.003	0.000128	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	264981.195	264981.195		mg/L
Sb	121	1624.201	0.005	0.000143	mg/L
Sb	123	1318.499	0.004	0.000151	mg/L

Sample Information

Sample ID: 9H18065-CCB 2
Autosampler Position: 1
Sample Date/Time: Tuesday, August 18, 2009 14:49:39
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\9H18065-CCB.013
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	269251.237	269251.237				mg/L
Sb	121	1130.434	0.003	0.000084	0.000	0.912	mg/L
Sb	123	887.969	0.002	0.000084	0.000	6.933	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	96.736
Sb	120.904	
Sb	122.904	

0.00042

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	269564.433	269564.433		mg/L
Sb	121	1038.005	0.003	0.000085	mg/L
Sb	123	876.309	0.002	0.000087	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	272185.868	272185.868		mg/L
Sb	121	1143.103	0.003	0.000084	mg/L
Sb	123	854.920	0.002	0.000078	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	275573.410	275573.410		mg/L
Sb	121	1150.104	0.003	0.000083	mg/L
Sb	123	935.486	0.002	0.000088	mg/L

Sample Information

Sample ID: 0909513-BLK1
Autosampler Position: 17
Sample Date/Time: Tuesday, August 18, 2009 14:51:45
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0909513-BLK1.014
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	274769.791	274769.791				mg/L
Sb	121	1013.082	0.002	0.000068	0.000	1.431	mg/L
Sb	123	808.504	0.002	0.000070	0.000	5.613	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	98.719
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	271704.939	271704.939		mg/L
Sb	121	1013.060	0.002	0.000068	mg/L
Sb	123	808.423	0.002	0.000070	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	283706.060	283706.060		mg/L
Sb	121	1054.068	0.002	0.000069	mg/L
Sb	123	808.669	0.002	0.000065	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	268898.375	268898.375		mg/L
Sb	121	962.077	0.002	0.000067	mg/L
Sb	123	849.439	0.002	0.000074	mg/L

Sample Information

Sample ID: 0908176-01
Autosampler Position: 19
Sample Date/Time: Tuesday, August 18, 2009 14:57:01
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-01.016
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	266626.331	266626.331				mg/L
Sb	121	9208.358	0.033	0.001016	0.000	5.173	mg/L
Sb	123	7026.663	0.025	0.001003	0.000	3.027	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	95.793
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	262632.968	262632.968		mg/L
Sb	121	9360.222	0.034	0.001048	mg/L
Sb	123	7017.318	0.026	0.001018	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	277867.308	277867.308		mg/L
Sb	121	9058.831	0.031	0.000955	mg/L
Sb	123	7036.008	0.024	0.000969	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	259378.626	259378.626		mg/L
Sb	121	9206.023	0.034	0.001044	mg/L
Sb	123	6981.665	0.026	0.001025	mg/L

Sample Information

Sample ID: 0908176-02
Autosampler Position: 20
Sample Date/Time: Tuesday, August 18, 2009 14:59:10
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-02.017
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	258721.312	258721.312				mg/L
Sb	121	5882.814	0.021	0.000653	0.000	3.401	mg/L
Sb	123	4896.600	0.018	0.000707	0.000	5.114	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	92.953
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	258823.644	258823.644		mg/L
Sb	121	5834.490	0.020	0.000628	mg/L
Sb	123	4814.581	0.017	0.000666	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	258987.344	258987.344		mg/L
Sb	121	5789.401	0.022	0.000662	mg/L
Sb	123	4919.427	0.018	0.000733	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	258352.948	258352.948		mg/L
Sb	121	5967.551	0.022	0.000669	mg/L
Sb	123	4955.792	0.018	0.000723	mg/L

Sample Information

Sample ID: 0908176-03
Autosampler Position: 21
Sample Date/Time: Tuesday, August 18, 2009 15:01:20
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-03.018
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	253163.066	253163.066				mg/L
Sb	121	3523.904	0.012	0.000383	0.000	3.135	mg/L
Sb	123	2950.939	0.010	0.000417	0.000	3.089	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	90.956
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	240957.586	240957.586		mg/L
Sb	121	3542.914	0.013	0.000390	mg/L
Sb	123	2698.179	0.010	0.000415	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	265441.130	265441.130		mg/L
Sb	121	3577.932	0.012	0.000369	mg/L
Sb	123	3021.232	0.010	0.000406	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	244090.482	244090.482		mg/L
Sb	121	3450.608	0.013	0.000389	mg/L
Sb	123	2933.425	0.011	0.000431	mg/L

Sample Information

Sample ID: 0908176-04
Autosampler Position: 22
Sample Date/Time: Tuesday, August 18, 2009 15:03:30
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-04.019
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	263500.803	263500.803				mg/L
Sb	121	6398.597	0.023	0.000700	0.000	2.281	mg/L
Sb	123	4884.260	0.017	0.000692	0.000	5.383	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	94.670
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	273635.456	273635.456		mg/L
Sb	121	6565.099	0.023	0.000695	mg/L
Sb	123	4768.749	0.016	0.000654	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	261396.495	261396.495		mg/L
Sb	121	6244.791	0.022	0.000668	mg/L
Sb	123	5005.059	0.018	0.000725	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	255470.469	255470.469		mg/L
Sb	121	6305.860	0.023	0.000718	mg/L
Sb	123	4768.879	0.018	0.000699	mg/L

Sample Information

Sample ID: 0908176-05
Autosampler Position: 23
Sample Date/Time: Tuesday, August 18, 2009 15:05:40
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-05.020
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	260184.705	260184.705				mg/L
Sb	121	5940.195	0.021	0.000656	0.000	1.379	mg/L
Sb	123	4611.143	0.017	0.000659	0.000	6.945	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	93.479
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	260344.946	260344.946		mg/L
Sb	121	5927.607	0.021	0.000647	mg/L
Sb	123	4595.841	0.016	0.000638	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	259835.212	259835.212		mg/L
Sb	121	5949.453	0.022	0.000665	mg/L
Sb	123	4619.484	0.016	0.000712	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	260373.957	260373.957		mg/L
Sb	121	5943.531	0.021	0.000655	mg/L
Sb	123	4618.113	0.016	0.000629	mg/L

Sample Information

Sample ID: 0908176-06
Autosampler Position: 24
Sample Date/Time: Tuesday, August 18, 2009 15:07:47
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-06.021
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	264979.880	264979.880				mg/L
Sb	121	6603.117	0.023	0.000720	0.000	1.779	mg/L
Sb	123	5302.385	0.019	0.000750	0.000	5.185	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	95.201
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	261068.409	261068.409		mg/L
Sb	121	6521.041	0.024	0.000721	mg/L
Sb	123	5387.760	0.019	0.000775	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	266311.767	266311.767		mg/L
Sb	121	6739.245	0.024	0.000732	mg/L
Sb	123	5630.254	0.018	0.000705	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	267559.404	267559.404		mg/L
Sb	121	6549.066	0.023	0.000706	mg/L
Sb	123	5409.113	0.019	0.000770	mg/L

Sample Information

Sample ID: 0908176-07
Autosampler Position: 25
Sample Date/Time: Tuesday, August 18, 2009 15:09:51
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-07.022
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	260466.345	260466.345				mg/L
Sb	121	5843.782	0.021	0.000644	0.000	4.993	mg/L
Sb	123	4526.668	0.016	0.000645	0.000	0.926	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	93.580
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	260390.425	260390.425		mg/L
Sb	121	5710.345	0.020	0.000616	mg/L
Sb	123	4057.752	0.016	0.000652	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	260871.164	260871.164		mg/L
Sb	121	5921.513	0.022	0.000670	mg/L
Sb	123	4338.050	0.016	0.000647	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	265137.444	265137.444		mg/L
Sb	121	5891.408	0.021	0.000637	mg/L
Sb	123	4264.200	0.016	0.000641	mg/L

Sample Information

Sample ID: 0908176-08
Autosampler Position: 26
Sample Date/Time: Tuesday, August 18, 2009 15:11:54
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H18065.sam
Method File: c:\elandata\Method\Dod_solids_SB_201.mth
Dataset File: C:\Elandata\DataSet\9H18065\0908176-08.023
Tuning File: C:\Elandata\Tuning\18AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\18AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
In	115	260795.830	260795.830				mg/L
Sb	121	6770.276	0.025	0.000752	0.000	1.520	mg/L
Sb	123	5341.996	0.019	0.000769	0.000	4.377	mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
In	114.904	93.698
Sb	120.904	
Sb	122.904	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	259205.000	259205.000		mg/L
Sb	121	6646.157	0.024	0.000751	mg/L
Sb	123	5456.345	0.020	0.000801	mg/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	265103.361	265103.361		mg/L
Sb	121	6882.481	0.025	0.000763	mg/L
Sb	123	5109.125	0.019	0.000734	mg/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
In	115	261078.230	261078.230		mg/L
Sb	121	6982.191	0.024	0.000740	mg/L
Sb	123	5370.518	0.019	0.000772	mg/L

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Sb, As, Ba, Cd, Cr, Co, Cu, Pb, Mn, Ni, Ag,
Th, V, Zn

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Cal Standard	9H19009-CAL1	9h19009-001	08/19/09 08:24	
Cal Standard	9H19009-CAL2	9h19009-002	08/19/09 08:28	
Cal Standard	9H19009-CAL3	9h19009-003	08/19/09 08:33	
Cal Standard	9H19009-CAL4	9h19009-004	08/19/09 08:37	
Cal Standard	9H19009-CAL5	9h19009-005	08/19/09 08:42	
Cal Standard	9H19009-CAL6	9h19009-006	08/19/09 08:46	
Cal Standard	9H19009-CAL7	9h19009-007	08/19/09 08:51	
Cal Standard	9H19009-CAL8	9h19009-008	08/19/09 08:55	
Secondary Cal Check	9H19009-SCV1	9h19009-009	08/19/09 08:59	✓
Calibration Check	9H19009-CCV1	9h19009-009	08/19/09 08:59	✓
Calibration Blank	9H19009-CCB1	9h19009-010	08/19/09 09:09	
Interference Check A	9H19009-IFA1	9h19009-011	08/19/09 09:13	
Interference Check B	9H19009-IFB1	9h19009-012	08/19/09 09:18	
Calibration Check	9H19009-CCV2	9h19009-013	08/19/09 09:22	✓
Calibration Blank	9H19009-CCB2	9h19009-014	08/19/09 09:32	
Blank	0909625-BLK1	9h19009-015	08/19/09 09:36	
LCS	0909625-BS1	9h19009-016	08/19/09 09:41	
LCS Dup	0909625-BSD1	9h19009-017	08/19/09 09:47	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	
EQBK-1	0908185-10	9h19009-018	08/19/09 09:57	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H19009-CCV3	9h19009-021	08/19/09 10:10
Calibration Blank	9H19009-CCB3	9h19009-022	08/19/09 10:20

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H19009
Instrument ID: 114
Calibration: 9H19009

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19009-CCB1	Antimony	0.15	0.60	0.080	ug/L	J	08/19/09 09:09
	Arsenic	0.13	0.40	0.077	ug/L	J	08/19/09 09:09
	Barium	-0.0040	0.40	0.063	ug/L	U	08/19/09 09:09
	Cadmium	-0.00044	0.040	0.012	ug/L	U	08/19/09 09:09
	Chromium	0.0028	0.40	0.069	ug/L	U	08/19/09 09:09
	Cobalt	-0.0031	0.20	0.0073	ug/L	U	08/19/09 09:09
	Copper	0.0014	0.20	0.053	ug/L	U	08/19/09 09:09
	Lead	0.0026	0.20	0.052	ug/L	U	08/19/09 09:09
	Manganese	-0.0027	0.60	0.12	ug/L	U	08/19/09 09:09
	Nickel	0.0033	0.40	0.092	ug/L	U	08/19/09 09:09
	Silver	0.0080	0.10	0.011	ug/L	U	08/19/09 09:09
	Thallium	-0.0028	0.040	0.0099	ug/L	U	08/19/09 09:09
	Vanadium	0.0047	0.20	0.059	ug/L	U	08/19/09 09:09
	Zinc	0.0012	1.2	0.40	ug/L	U	08/19/09 09:09
9H19009-CCB2	Antimony	0.10	0.60	0.080	ug/L	J	08/19/09 09:32
	Arsenic	0.014	0.40	0.077	ug/L	U	08/19/09 09:32
	Barium	-0.00053	0.40	0.063	ug/L	U	08/19/09 09:32
	Cadmium	-0.00034	0.040	0.012	ug/L	U	08/19/09 09:32
	Chromium	0.015	0.40	0.069	ug/L	U	08/19/09 09:32
	Cobalt	-0.0054	0.20	0.0073	ug/L	U	08/19/09 09:32
	Copper	-0.00062	0.20	0.053	ug/L	U	08/19/09 09:32
	Lead	0.0011	0.20	0.052	ug/L	U	08/19/09 09:32
	Manganese	-0.0018	0.60	0.12	ug/L	U	08/19/09 09:32
	Nickel	-0.00066	0.40	0.092	ug/L	U	08/19/09 09:32
	Silver	0.0062	0.10	0.011	ug/L	U	08/19/09 09:32
	Thallium	-0.00095	0.040	0.0099	ug/L	U	08/19/09 09:32
	Vanadium	-0.0074	0.20	0.059	ug/L	U	08/19/09 09:32
	Zinc	0.012	1.2	0.40	ug/L	U	08/19/09 09:32
0909625-BLK1	Antimony, Total	3.0	3.0	0.40	ug/L	U	08/19/09 09:36
	Arsenic, Total	2.0	2.0	0.39	ug/L	U	08/19/09 09:36
	Barium, Total	2.0	2.0	0.32	ug/L	U	08/19/09 09:36
	Cadmium, Total	0.20	0.20	0.060	ug/L	U	08/19/09 09:36
	Chromium, Total	2.0	2.0	0.34	ug/L	U	08/19/09 09:36

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H19009
Instrument ID: 114
Calibration: 9H19009

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
0909625-BLK1	Cobalt, Total	1.0	1.0	0.036	ug/L	U	08/19/09 09:36
	Copper, Total	1.0	1.0	0.26	ug/L	U	08/19/09 09:36
	Lead, Total	1.0	1.0	0.26	ug/L	U	08/19/09 09:36
	Manganese, Total	3.0	3.0	0.58	ug/L	U	08/19/09 09:36
	Nickel, Total	2.0	2.0	0.46	ug/L	U	08/19/09 09:36
	Silver, Total	0.50	0.50	0.053	ug/L	U	08/19/09 09:36
	Thallium, Total	0.20	0.20	0.050	ug/L	U	08/19/09 09:36
	Vanadium, Total	1.0	1.0	0.30	ug/L	U	08/19/09 09:36
	Zinc, Total	2.1	6.0	2.0	ug/L	J	08/19/09 09:36
9H19009-CCB3	Antimony	0.086	0.60	0.080	ug/L	J	08/19/09 10:20
	Arsenic	0.016	0.40	0.077	ug/L	U	08/19/09 10:20
	Barium	0.00018	0.40	0.063	ug/L	U	08/19/09 10:20
	Cadmium	0.00012	0.040	0.012	ug/L	U	08/19/09 10:20
	Chromium	0.053	0.40	0.069	ug/L	U	08/19/09 10:20
	Cobalt	-0.0081	0.20	0.0073	ug/L	J	08/19/09 10:20
	Copper	-0.00064	0.20	0.053	ug/L	U	08/19/09 10:20
	Lead	0.0016	0.20	0.052	ug/L	U	08/19/09 10:20
	Manganese	-0.00062	0.60	0.12	ug/L	U	08/19/09 10:20
	Nickel	0.0034	0.40	0.092	ug/L	U	08/19/09 10:20
	Silver	0.0047	0.10	0.011	ug/L	U	08/19/09 10:20
	Thallium	-0.0080	0.040	0.0099	ug/L	U	08/19/09 10:20
	Vanadium	0.0083	0.20	0.059	ug/L	U	08/19/09 10:20
	Zinc	0.0070	1.2	0.40	ug/L	U	08/19/09 10:20

* Values outside of QC limits

Sample Information

Sample ID: 9H19009-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 09:09:30
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\9H19009-CCB.010
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	150819.806	150819.806				ug/L
	B	11	116.335	0.000	0.413797	0.075	18.015	ug/L
	Be	9	2.667	0.000	0.005709	0.012	218.213	ug/L
	V	51	3045.620	0.000	0.004670	0.016	346.282	ug/L
	Cr	52	9197.010	0.000	0.002777	0.018	650.133	ug/L
	Cr	53	281.675	0.000	0.033409	0.017	51.739	ug/L
	Mn	55	464.686	-0.000	-0.002745	0.003	99.826	ug/L
	Co	59	141.003	-0.000	-0.003082	0.000	1.464	ug/L
	Ni	60	59.668	0.000	0.003254	0.003	79.421	ug/L
	Ni	62	20.334	0.000	0.017184	0.007	40.393	ug/L
	Cu	63	170.004	0.000	0.001408	0.003	202.303	ug/L
	Cu	65	92.335	0.000	0.001741	0.006	358.379	ug/L
	Zn	66	166.670	0.000	0.001167	0.024	2035.546	ug/L
	Zn	68	406.682	0.000	0.012816	0.011	85.888	ug/L
>	Ge	72	296437.137	296437.137				ug/L
	As	75	438.671	0.001	0.133472	0.029	21.863	ug/L
	Se	77	221.672	0.000	0.239374	0.077	32.084	ug/L
	Se	82	-14.730	0.000	0.046435	0.340	733.243	ug/L
>	Rh	103	365439.068	365439.068				ug/L
	Ag	107	85.001	0.000	0.008004	0.000	3.876	ug/L
	Cd	111	5.775	-0.000	-0.000437	0.001	291.922	ug/L
	Cd	114	23.506	0.000	0.000524	0.001	130.341	ug/L
>	In	115	293540.831	293540.831				ug/L
	Sb	121	975.743	0.003	0.145230	0.012	8.504	ug/L
	Sb	123	737.668	0.002	0.145458	0.009	6.005	ug/L
	Ba	135	31.667	0.000	0.004906	0.001	24.590	ug/L
	Ba	137	32.667	-0.000	-0.003996	0.001	28.882	ug/L
>	Tb	159	351787.819	351787.819				ug/L
	Tl	203	95.335	-0.000	-0.002753	0.004	139.609	ug/L
	Tl	205	236.340	-0.000	-0.001325	0.000	35.156	ug/L
	Pb	208	403.675	0.000	0.002634	0.001	48.537	ug/L
>	Bi	209	286616.755	286616.755				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	106.716
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

Sample Information

Sample ID: 9H19009-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 09:32:28
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\9H19009-CCB.014
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	122324.427	122324.427				ug/L
	B	11	109.002	0.000	0.621658	0.104	16.795	ug/L
	Be	9	2.667	0.000	0.012366	0.028	222.565	ug/L
	V	51	3084.704	-0.000	-0.007388	0.005	69.254	ug/L
	Cr	52	9704.687	0.000	0.014739	0.020	133.424	ug/L
	Cr	53	392.348	0.000	0.147208	0.016	10.716	ug/L
	Mn	55	496.022	-0.000	-0.001806	0.001	74.723	ug/L
	Co	59	125.669	-0.000	-0.005408	0.001	19.895	ug/L
	Ni	60	54.334	-0.000	-0.000658	0.006	951.711	ug/L
	Ni	62	22.000	0.000	0.019502	0.008	40.472	ug/L
	Cu	63	168.337	-0.000	-0.000616	0.004	712.859	ug/L
	Cu	65	85.001	-0.000	-0.003467	0.007	202.666	ug/L
	Zn	66	188.004	0.000	0.012499	0.010	82.812	ug/L
	Zn	68	402.015	-0.000	-0.014215	0.025	175.792	ug/L
>	Ge	72	310023.544	310023.544				ug/L
	As	75	272.810	0.000	0.014354	0.038	265.470	ug/L
	Se	77	237.340	0.000	0.285403	0.092	32.105	ug/L
	Se	82	0.101	0.000	0.140509	0.109	77.584	ug/L
>	Rh	103	356325.147	356325.147				ug/L
	Ag	107	67.334	0.000	0.006200	0.001	20.929	ug/L
	Cd	111	5.801	-0.000	-0.000340	0.001	414.262	ug/L
	Cd	114	23.021	0.000	0.000541	0.001	95.471	ug/L
>	In	115	270807.961	270807.961				ug/L
	Sb	121	655.703	0.002	0.104475	0.009	8.658	ug/L
	Sb	123	496.269	0.002	0.104640	0.008	7.570	ug/L
	Ba	135	24.334	0.000	0.001151	0.003	285.853	ug/L
	Ba	137	42.001	-0.000	-0.000533	0.001	265.540	ug/L
>	Tb	159	341368.749	341368.749				ug/L
	Tl	203	107.335	-0.000	-0.000946	0.003	358.030	ug/L
	Tl	205	275.008	0.000	0.001184	0.001	48.587	ug/L
	Pb	208	378.008	0.000	0.001094	0.000	33.296	ug/L
>	Bi	209	289738.909	289738.909				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	86.553
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

Sample Information

Sample ID: 0909625-BLK1
Autosampler Position: 17
Sample Date/Time: Wednesday, August 19, 2009 09:36:54
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\0909625-BLK1.015
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[>	Li	6	120423.867	120423.867				ug/L
[	B	11	75.001	0.000	0.155435	0.244	157.294	ug/L
[	Be	9	1.000	-0.000	-0.009400	0.000	0.867	ug/L
[	V	51	3304.172	0.000	0.016049	0.021	131.130	ug/L
[	Cr	52	10096.234	0.001	0.058927	0.063	106.337	ug/L
[	Cr	53	374.014	0.000	0.122235	0.028	22.971	ug/L
[	Mn	55	541.693	0.000	0.002083	0.004	174.248	ug/L
[	Co	59	99.002	-0.000	-0.008318	0.001	17.717	ug/L
[	Ni	60	62.334	0.000	0.002973	0.003	89.692	ug/L
[	Ni	62	23.334	0.000	0.023097	0.011	46.604	ug/L
[	Cu	63	273.675	0.000	0.021575	0.005	21.425	ug/L
[	Cu	65	146.670	0.000	0.023711	0.005	20.617	ug/L
[	Zn	66	674.039	0.002	0.410949	0.029	6.965	ug/L
[	Zn	68	724.044	0.001	0.351939	0.031	8.847	ug/L
[>	Ge	72	312537.041	312537.041				ug/L
[	As	75	187.519	-0.000	-0.041065	0.013	31.659	ug/L
[	Se	77	245.673	0.000	0.338334	0.181	53.594	ug/L
[	Se	82	-8.076	0.000	0.090362	0.247	273.448	ug/L
[>	Rh	103	348268.436	348268.436				ug/L
[	Ag	107	43.001	0.000	0.003516	0.000	10.699	ug/L
[	Cd	111	7.935	0.000	0.000800	0.002	209.342	ug/L
[	Cd	114	12.177	-0.000	-0.001751	0.002	98.409	ug/L
[>	In	115	273296.880	273296.880				ug/L
[	Sb	121	393.681	0.001	0.060166	0.003	5.488	ug/L
[	Sb	123	316.215	0.001	0.064046	0.006	8.916	ug/L
[	Ba	135	22.000	-0.000	-0.000191	0.001	300.004	ug/L
[	Ba	137	32.667	-0.000	-0.003698	0.001	14.784	ug/L
[>	Tb	159	342010.756	342010.756				ug/L
[	Tl	203	91.002	-0.000	-0.003594	0.004	109.887	ug/L
[	Tl	205	228.006	-0.000	-0.002006	0.001	40.120	ug/L
[	Pb	208	402.675	0.000	0.002462	0.001	37.332	ug/L
[>	Bi	209	288317.967	288317.967				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[>	Li	6.015	85.209
[	B	11.009	
[	Be	9.012	
[	V	50.944	
[	Cr	51.941	
[	Cr	52.941	

Sample Information

Sample ID: 0908185-10
Autosampler Position: 20
Sample Date/Time: Wednesday, August 19, 2009 09:57:14
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\0908185-10.018
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	119571.217	119571.217				ug/L
	B	11	96.335	0.000	0.471684	0.145	30.655	ug/L
	Be	9	2.000	0.000	0.004159	0.014	327.736	ug/L
	V	51	3540.950	0.001	0.037288	0.003	7.475	ug/L
	Cr	52	10952.166	0.004	0.152317	0.018	12.000	ug/L
	Cr	53	399.015	0.000	0.143908	0.024	16.960	ug/L
	Mn	55	1948.952	0.004	0.129058	0.004	3.470	ug/L
	Co	59	302.676	0.000	0.012672	0.001	11.509	ug/L
	Ni	60	84.335	0.000	0.012961	0.000	3.825	ug/L
	Ni	62	22.000	0.000	0.017944	0.015	83.476	ug/L
	Cu	63	301.343	0.000	0.026549	0.002	8.354	ug/L
	Cu	65	149.670	0.000	0.023944	0.006	23.036	ug/L
	Zn	66	2945.637	0.009	2.238983	0.042	1.898	ug/L
	Zn	68	2370.084	0.006	2.198793	0.058	2.654	ug/L
>	Ge	72	317610.760	317610.760				ug/L
	As	75	110.184	-0.000	-0.091375	0.050	54.185	ug/L
	Se	77	240.006	0.000	0.260440	0.115	44.329	ug/L
	Se	82	1.286	0.000	0.147353	0.148	100.202	ug/L
>	Rh	103	363261.944	363261.944				ug/L
	Ag	107	51.001	0.000	0.004215	0.000	3.827	ug/L
	Cd	111	5.596	-0.000	-0.000529	0.002	462.519	ug/L
	Cd	114	13.127	-0.000	-0.001668	0.001	64.371	ug/L
>	In	115	275642.535	275642.535				ug/L
	Sb	121	479.354	0.002	0.073659	0.002	2.496	ug/L
	Sb	123	367.885	0.001	0.074751	0.007	8.966	ug/L
	Ba	135	143.003	0.000	0.070385	0.001	0.986	ug/L
	Ba	137	244.340	0.001	0.067484	0.005	7.671	ug/L
>	Tb	159	340357.786	340357.786				ug/L
	Tl	203	45.001	-0.000	-0.011234	0.000	2.432	ug/L
	Tl	205	86.001	-0.001	-0.011867	0.001	5.442	ug/L
	Pb	208	722.688	0.001	0.019295	0.001	5.637	ug/L
>	Bi	209	285923.497	285923.497				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	84.605
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

Sample Information

Sample ID: 9H19009-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 10:20:13
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\9H19009-CCB.022
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	114622.956	114622.956				ug/L
	B	11	100.668	0.000	0.599997	0.121	20.153	ug/L
	Be	9	0.667	-0.000	-0.013326	0.008	61.246	ug/L
	V	51	3208.733	0.000	0.008260	0.011	137.818	ug/L
	Cr	52	9960.041	0.001	0.053159	0.020	37.490	ug/L
	Cr	53	345.679	0.000	0.093803	0.030	32.131	ug/L
	Mn	55	508.023	-0.000	-0.000618	0.003	554.838	ug/L
	Co	59	100.002	-0.000	-0.008119	0.002	19.880	ug/L
	Ni	60	62.668	0.000	0.003441	0.003	101.187	ug/L
	Ni	62	17.334	0.000	0.004714	0.012	249.112	ug/L
	Cu	63	168.004	-0.000	-0.000641	0.001	93.948	ug/L
	Cu	65	96.335	0.000	0.001733	0.002	93.238	ug/L
	Zn	66	181.004	0.000	0.006960	0.013	179.865	ug/L
	Zn	68	389.348	-0.000	-0.027771	0.024	88.173	ug/L
>	Ge	72	309384.592	309384.592				ug/L
	As	75	274.601	0.000	0.016122	0.051	319.332	ug/L
	Se	77	239.340	0.000	0.306256	0.020	6.515	ug/L
	Se	82	23.728	0.000	0.284823	0.219	76.828	ug/L
>	Rh	103	350003.623	350003.623				ug/L
	Ag	107	53.667	0.000	0.004746	0.000	7.818	ug/L
	Cd	111	6.631	0.000	0.000119	0.002	1316.605	ug/L
	Cd	114	19.651	-0.000	-0.000115	0.001	1032.675	ug/L
>	In	115	271499.516	271499.516				ug/L
	Sb	121	545.360	0.002	0.085863	0.004	4.298	ug/L
	Sb	123	412.093	0.001	0.085761	0.006	6.958	ug/L
	Ba	135	26.667	0.000	0.003080	0.001	27.163	ug/L
	Ba	137	42.667	0.000	0.000176	0.002	1106.655	ug/L
>	Tb	159	329892.135	329892.135				ug/L
	Tl	203	61.668	-0.000	-0.008016	0.001	9.361	ug/L
	Tl	205	141.669	-0.000	-0.007562	0.000	5.948	ug/L
	Pb	208	368.674	0.000	0.001613	0.001	49.110	ug/L
>	Bi	209	275224.464	275224.464				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	81.104
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19032

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 114 Be, Se
Calibration: 9H19010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H19032-CAL1	9h19032-001	08/19/09 10:34
Cal Standard	9H19032-CAL2	9h19032-002	08/19/09 10:36
Cal Standard	9H19032-CAL3	9h19032-003	08/19/09 10:39
Cal Standard	9H19032-CAL4	9h19032-004	08/19/09 10:42
Cal Standard	9H19032-CAL5	9h19032-005	08/19/09 10:44
Cal Standard	9H19032-CAL6	9h19032-006	08/19/09 10:47
Cal Standard	9H19032-CAL7	9h19032-007	08/19/09 10:50
Secondary Cal Check	9H19032-SCV1	9h19032-008	08/19/09 10:52
Calibration Check	9H19032-CCV1	9h19032-008	08/19/09 10:52
Calibration Blank	9H19032-CCB1	9h19032-011	08/19/09 11:02
Interference Check A	9H19032-IFA1	9h19032-012	08/19/09 11:05
Interference Check B	9H19032-IFB1	9h19032-013	08/19/09 11:08
Calibration Check	9H19032-CCV2	9h19032-014	08/19/09 11:10
Calibration Blank	9H19032-CCB2	9h19032-015	08/19/09 11:12
LCS	0909625-BS2	9h19032-017	08/19/09 11:32
LCS Dup	0909625-BSD2	9h19032-018	08/19/09 11:35
EQBK-1	0908185-10	9h19032-019	08/19/09 11:37
EQBK-1	0908185-10	9h19032-019	08/19/09 11:37
Blank	0909625-BLK2	9h19032-022	08/19/09 11:43
Calibration Check	9H19032-CCV3	9h19032-023	08/19/09 11:46
Calibration Blank	9H19032-CCB3	9h19032-024	08/19/09 11:48

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H19032
Instrument ID: 114
Calibration: 9H19010

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19032-CCB1	Beryllium	-0.010	0.40	0.063	ug/L	U	08/19/09 11:02
	Selenium	-0.084	0.60	0.079	ug/L	J	08/19/09 11:02
9H19032-CCB2	Beryllium	0.0033	0.40	0.063	ug/L	U	08/19/09 11:12
	Selenium	-0.043	0.60	0.079	ug/L	U	08/19/09 11:12
0909625-BLK2	Beryllium, Total	2.0	2.0	0.31	ug/L	U	08/19/09 11:43
	Selenium, Total	3.0	3.0	0.40	ug/L	U	08/19/09 11:43
9H19032-CCB3	Beryllium	0.0081	0.40	0.063	ug/L	U	08/19/09 11:48
	Selenium	-0.097	0.60	0.079	ug/L	J	08/19/09 11:48

* Values outside of QC limits

METHOD BLANK DATA SHEET
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Laboratory ID: 0909625-BLK1
File ID: 9h19009-015
Prepared: 08/18/09 07:00
Preparation: 3020A Digestion
Initial/Final: 25 mL / 125 mL
Analyzed: 08/19/09 09:36
Instrument: 114
QC Batch: 0909625
Sequence: 9H19009
Calibration: 9H19009

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
7440-36-0	Antimony, Total	0.40	3.0	3.0	ug/L	U
7440-38-2	Arsenic, Total	0.39	2.0	2.0	ug/L	U
7440-39-3	Barium, Total	0.32	2.0	2.0	ug/L	U
7440-43-9	Cadmium, Total	0.060	0.20	0.20	ug/L	U
7440-47-3	Chromium, Total	0.34	2.0	2.0	ug/L	U
7440-48-4	Cobalt, Total	0.036	1.0	1.0	ug/L	U
7440-50-8	Copper, Total	0.26	1.0	1.0	ug/L	U
7439-92-1	Lead, Total	0.26	1.0	1.0	ug/L	U
7439-96-5	Manganese, Total	0.58	3.0	3.0	ug/L	U
7440-02-0	Nickel, Total	0.46	2.0	2.0	ug/L	U
7440-22-4	Silver, Total	0.053	0.50	0.50	ug/L	U
7440-28-0	Thallium, Total	0.050	0.20	0.20	ug/L	U
7440-62-2	Vanadium, Total	0.30	1.0	1.0	ug/L	U
7440-66-6	Zinc, Total	2.0	6.0	2.1	ug/L	J

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5041 g / 250 mL

Laboratory ID: 0909449-MS1

QC Batch: 0909449

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Arsenic, Total	19.8	4.60	20.6	81	80 - 120	mg/kg dry wt.
Copper, Total	19.8	84.9	114	148 *	80 - 120	mg/kg dry wt.
Lead, Total	19.8	104	119	75 *	80 - 120	mg/kg dry wt.
Nickel, Total	19.8	24.3	37.5	67 *	80 - 120	mg/kg dry wt.
Selenium, Total	19.8	0.476	16.1	79 *	80 - 120	mg/kg dry wt.
Silver, Total	19.8	0.607	22.7	111	75 - 120	mg/kg dry wt.
Thallium, Total	19.8	0.251	20.0	100	80 - 120	mg/kg dry wt.
Vanadium, Total	19.8	56.5	71.7	76 *	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

* [spike] > 4 x [parent] ∴ no action

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5084 g / 250 mL

Laboratory ID: 0909449-MSD1

QC Batch: 0909449

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Arsenic, Total	19.7	20.8	82	1	20	80 - 120	mg/kg dry wt.
Copper, Total	19.7	104	99	9	20	80 - 120	mg/kg dry wt.
Lead, Total	19.7	122	91	3	20	80 - 120	mg/kg dry wt.
Nickel, Total	19.7	36.6	62 *	3	20	80 - 120	mg/kg dry wt.
Selenium, Total	19.7	16.1	79 *	0.2	20	80 - 120	mg/kg dry wt.
Silver, Total	19.7	20.4	100	11	20	75 - 120	mg/kg dry wt.
Thallium, Total	19.7	19.8	99	1	20	80 - 120	mg/kg dry wt.
Vanadium, Total	19.7	70.6	71 *	2	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5201 g / 250 mL

Laboratory ID: 0909513-MS1

QC Batch: 0909513

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Antimony, Total	19.2	1.24	20.4	100	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5048 g / 250 mL

Laboratory ID: 0909513-MSD1

QC Batch: 0909513

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Antimony, Total	19.8	20.9	99	2	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 0909449-PS1
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.020812 g / 10 mL
QC Batch: 0909449
Sequence: 9H17031

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Arsenic, Total	75 - 125	0.0280	0.00957	0.0200	92	mg/L
Nickel, Total	75 - 125	0.0665	0.0506	0.0200	80	mg/L
Selenium, Total	75 - 125	0.0191	0.000991	0.0200	90	mg/L
Silver, Total	75 - 125	0.0208	0.00126	0.0200	98	mg/L
Thallium, Total	75 - 125	0.0203	0.000523	0.0200	99	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 0909449-PS2
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.020812 g / 10 mL
QC Batch: 0909449
Sequence: 9H17031

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Copper, Total	75 - 125	0.279	0.177	0.100	102	mg/L
Lead, Total	75 - 125	0.319	0.217	0.100	102	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 0909449-PS3
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.020812 g / 10 mL
QC Batch: 0909449
Sequence: 9H17031

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Vanadium, Total	75 - 125	0.152	0.118	0.0400	86	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 0909513-PS1
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.01044 g / 5 mL
QC Batch: 0909513
Sequence: 9H18065

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Antimony, Total	75 - 125	0.0225	0.00260	0.0200	100	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 79.99
Laboratory ID: 9H17031-SRD1
QC Batch: 9H17031
Lab Source ID: 0908185-03
Sequence: 9H17031

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Arsenic, Total	0.00957		0.00988		3.0		mg/L	10
Nickel, Total	0.0506		0.0529		5.0		mg/L	10
Selenium, Total	0.000991		0.00119	J	20.0 #		mg/L	10
Silver, Total	0.00126		0.00145		15.0 #		mg/L	10
Thallium, Total	0.000523		0.000575	J	10.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 9H17031-SRD3
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
QC Batch: 9H17031
Sequence: 9H17031

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Copper, Total	0.0353		0.0382		8.0		mg/L	10
Lead, Total	0.0434		0.0454		5.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 79.99

Laboratory ID: 9H17031-SRD4

Lab Source ID: 0908185-03

SDG: SSP0809

Project: RFAAP SSP at Six Sites

QC Batch: 9H17031

Sequence: 9H17031

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Vanadium, Total	0.0588		0.0609		4.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION

USEPA-6020A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 79.99

Laboratory ID: 9H18065-SRD1

Lab Source ID: 0908185-03

SDG: SSP0809

Project: RFAAP SSP at Six Sites

QC Batch: 9H18065

Sequence: 9H18065

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Antimony, Total	0.00260		0.00267		3.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SAMPLE ID SUMMARY

USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE2	0908176-07
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1B	0908185-04
77SB3A	0908185-05
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09
EQBK-1	0908185-10

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCB1	Aluminum	0.00082	0.10	0.018	mg/L	U	08/18/09 09:24
	Barium	-0.00077	0.010	0.0028	mg/L	U	08/18/09 09:24
	Beryllium	0.0000031	0.010	0.00035	mg/L	U	08/18/09 09:24
	Cadmium	0.00027	0.020	0.0024	mg/L	U	08/18/09 09:24
	Calcium	0.010	0.50	0.087	mg/L	U	08/18/09 09:24
	Chromium	0.0020	0.050	0.0074	mg/L	U	08/18/09 09:24
	Cobalt	-0.00073	0.020	0.0044	mg/L	U	08/18/09 09:24
	Iron	0.00041	0.10	0.0047	mg/L	U	08/18/09 09:24
	Magnesium	-0.038	0.50	0.044	mg/L	U	08/18/09 09:24
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 09:24
	Potassium	-0.011	0.50	0.068	mg/L	U	08/18/09 09:24
	Sodium	-0.022	1.0	0.054	mg/L	U	08/18/09 09:24
	Zinc	-0.00074	0.050	0.0079	mg/L	U	08/18/09 09:24
9H18017-CCB2	Aluminum	0.0017	0.10	0.018	mg/L	U	08/18/09 09:46
	Barium	-0.00072	0.010	0.0028	mg/L	U	08/18/09 09:46
	Beryllium	-0.000030	0.010	0.00035	mg/L	U	08/18/09 09:46
	Cadmium	0.00038	0.020	0.0024	mg/L	U	08/18/09 09:46
	Calcium	0.010	0.50	0.087	mg/L	U	08/18/09 09:46
	Chromium	0.00033	0.050	0.0074	mg/L	U	08/18/09 09:46
	Cobalt	0.00076	0.020	0.0044	mg/L	U	08/18/09 09:46
	Iron	0.0026	0.10	0.0047	mg/L	U	08/18/09 09:46
	Magnesium	0.0019	0.50	0.044	mg/L	U	08/18/09 09:46
	Manganese	-0.00086	0.010	0.0021	mg/L	U	08/18/09 09:46
	Potassium	0.0095	0.50	0.068	mg/L	U	08/18/09 09:46
	Sodium	-0.036	1.0	0.054	mg/L	U	08/18/09 09:46
	Zinc	-0.0011	0.050	0.0079	mg/L	U	08/18/09 09:46
0909448-BLK1	Aluminum, Total	10	10	1.8	mg/kg dry wt.	U	08/18/09 09:49
	Barium, Total	1.0	1.0	0.28	mg/kg dry wt.	U	08/18/09 09:49
	Beryllium, Total	1.0	1.0	0.035	mg/kg dry wt.	U	08/18/09 09:49
	Cadmium, Total	2.0	2.0	0.24	mg/kg dry wt.	U	08/18/09 09:49
	Calcium, Total	15	50	8.7	mg/kg dry wt.	J	08/18/09 09:49
	Chromium, Total	5.0	5.0	0.74	mg/kg dry wt.	U	08/18/09 09:49
	Cobalt, Total	2.0	2.0	0.44	mg/kg dry wt.	U	08/18/09 09:49

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
0909448-BLK1	Iron, Total	10	10	0.47	mg/kg dry wt.	U	08/18/09 09:49
	Magnesium, Total	50	50	4.4	mg/kg dry wt.	U	08/18/09 09:49
	Manganese, Total	1.0	1.0	0.21	mg/kg dry wt.	U	08/18/09 09:49
	Potassium, Total	50	50	6.8	mg/kg dry wt.	U	08/18/09 09:49
	Sodium, Total	100	100	5.4	mg/kg dry wt.	U	08/18/09 09:49
	Zinc, Total	1.4	5.0	0.79	mg/kg dry wt.	J	08/18/09 09:49
9H18017-CCB3	Aluminum	-0.0069	0.10	0.018	mg/L	U	08/18/09 10:36
	Barium	-0.00061	0.010	0.0028	mg/L	U	08/18/09 10:36
	Beryllium	-0.000099	0.010	0.00035	mg/L	U	08/18/09 10:36
	Cadmium	0.00049	0.020	0.0024	mg/L	U	08/18/09 10:36
	Calcium	0.017	0.50	0.087	mg/L	U	08/18/09 10:36
	Chromium	0.0038	0.050	0.0074	mg/L	U	08/18/09 10:36
	Cobalt	0.0030	0.020	0.0044	mg/L	U	08/18/09 10:36
	Iron	0.0046	0.10	0.0047	mg/L	U	08/18/09 10:36
	Magnesium	0.0015	0.50	0.044	mg/L	U	08/18/09 10:36
	Manganese	-0.0011	0.010	0.0021	mg/L	U	08/18/09 10:36
	Potassium	-0.019	0.50	0.068	mg/L	U	08/18/09 10:36
	Sodium	-0.034	1.0	0.054	mg/L	U	08/18/09 10:36
	Zinc	-0.0015	0.050	0.0079	mg/L	U	08/18/09 10:36
9H18017-CCB4	Aluminum	-0.0022	0.10	0.018	mg/L	U	08/18/09 11:26
	Barium	-0.00057	0.010	0.0028	mg/L	U	08/18/09 11:26
	Beryllium	-0.00014	0.010	0.00035	mg/L	U	08/18/09 11:26
	Cadmium	0.00060	0.020	0.0024	mg/L	U	08/18/09 11:26
	Calcium	0.0078	0.50	0.087	mg/L	U	08/18/09 11:26
	Chromium	0.000027	0.050	0.0074	mg/L	U	08/18/09 11:26
	Cobalt	-0.0015	0.020	0.0044	mg/L	U	08/18/09 11:26
	Iron	0.0071	0.10	0.0047	mg/L	J	08/18/09 11:26
	Magnesium	-0.017	0.50	0.044	mg/L	U	08/18/09 11:26
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 11:26
	Potassium	0.019	0.50	0.068	mg/L	U	08/18/09 11:26
	Sodium	-0.029	1.0	0.054	mg/L	U	08/18/09 11:26
	Zinc	-0.00034	0.050	0.0079	mg/L	U	08/18/09 11:26
9H18017-CCB5	Aluminum	-0.0074	0.10	0.018	mg/L	U	08/18/09 12:14

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCB5	Barium	-0.00032	0.010	0.0028	mg/L	U	08/18/09 12:14
	Beryllium	-0.000041	0.010	0.00035	mg/L	U	08/18/09 12:14
	Cadmium	-0.000019	0.020	0.0024	mg/L	U	08/18/09 12:14
	Calcium	0.0059	0.50	0.087	mg/L	U	08/18/09 12:14
	Chromium	0.00075	0.050	0.0074	mg/L	U	08/18/09 12:14
	Cobalt	-0.00041	0.020	0.0044	mg/L	U	08/18/09 12:14
	Iron	0.0061	0.10	0.0047	mg/L	J	08/18/09 12:14
	Magnesium	-0.027	0.50	0.044	mg/L	U	08/18/09 12:14
	Manganese	-0.0010	0.010	0.0021	mg/L	U	08/18/09 12:14
	Potassium	0.022	0.50	0.068	mg/L	U	08/18/09 12:14
	Sodium	-0.032	1.0	0.054	mg/L	U	08/18/09 12:14
	Zinc	-0.0013	0.050	0.0079	mg/L	U	08/18/09 12:14
9H18017-CCB6	Aluminum	-0.00033	0.10	0.018	mg/L	U	08/18/09 13:07
	Barium	-0.00041	0.010	0.0028	mg/L	U	08/18/09 13:07
	Beryllium	0.000048	0.010	0.00035	mg/L	U	08/18/09 13:07
	Cadmium	0.00016	0.020	0.0024	mg/L	U	08/18/09 13:07
	Calcium	0.0096	0.50	0.087	mg/L	U	08/18/09 13:07
	Chromium	-0.00079	0.050	0.0074	mg/L	U	08/18/09 13:07
	Cobalt	0.00097	0.020	0.0044	mg/L	U	08/18/09 13:07
	Iron	0.0069	0.10	0.0047	mg/L	J	08/18/09 13:07
	Magnesium	-0.024	0.50	0.044	mg/L	U	08/18/09 13:07
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 13:07
	Potassium	0.017	0.50	0.068	mg/L	U	08/18/09 13:07
	Sodium	-0.032	1.0	0.054	mg/L	U	08/18/09 13:07
	Zinc	-0.00080	0.050	0.0079	mg/L	U	08/18/09 13:07
9H18017-CCB7	Aluminum	0.0023	0.10	0.018	mg/L	U	08/18/09 13:55
	Barium	-0.00057	0.010	0.0028	mg/L	U	08/18/09 13:55
	Beryllium	0.0000076	0.010	0.00035	mg/L	U	08/18/09 13:55
	Cadmium	0.00042	0.020	0.0024	mg/L	U	08/18/09 13:55
	Calcium	0.013	0.50	0.087	mg/L	U	08/18/09 13:55
	Chromium	-0.0028	0.050	0.0074	mg/L	U	08/18/09 13:55
	Cobalt	-0.00046	0.020	0.0044	mg/L	U	08/18/09 13:55
	Iron	0.0050	0.10	0.0047	mg/L	J	08/18/09 13:55

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCB7	Magnesium	-0.0056	0.50	0.044	mg/L	U	08/18/09 13:55
	Manganese	-0.0011	0.010	0.0021	mg/L	U	08/18/09 13:55
	Potassium	-0.0060	0.50	0.068	mg/L	U	08/18/09 13:55
	Sodium	-0.034	1.0	0.054	mg/L	U	08/18/09 13:55
	Zinc	-0.0017	0.050	0.0079	mg/L	U	08/18/09 13:55
9H18017-CCB8	Aluminum	0.013	0.10	0.018	mg/L	U	08/18/09 14:37
	Barium	-0.00057	0.010	0.0028	mg/L	U	08/18/09 14:37
	Beryllium	-0.000037	0.010	0.00035	mg/L	U	08/18/09 14:37
	Cadmium	0.00076	0.020	0.0024	mg/L	U	08/18/09 14:37
	Calcium	0.027	0.50	0.087	mg/L	U	08/18/09 14:37
	Chromium	-0.0021	0.050	0.0074	mg/L	U	08/18/09 14:37
	Cobalt	-0.0011	0.020	0.0044	mg/L	U	08/18/09 14:37
	Iron	0.0093	0.10	0.0047	mg/L	J	08/18/09 14:37
	Magnesium	-0.034	0.50	0.044	mg/L	U	08/18/09 14:37
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 14:37
	Potassium	0.0075	0.50	0.068	mg/L	U	08/18/09 14:37
	Sodium	-0.036	1.0	0.054	mg/L	U	08/18/09 14:37
	Zinc	-0.0023	0.050	0.0079	mg/L	U	08/18/09 14:37
9H18017-CCB9	Aluminum	-0.0077	0.10	0.018	mg/L	U	08/18/09 15:02
	Barium	-0.00077	0.010	0.0028	mg/L	U	08/18/09 15:02
	Beryllium	-0.000041	0.010	0.00035	mg/L	U	08/18/09 15:02
	Cadmium	0.0011	0.020	0.0024	mg/L	U	08/18/09 15:02
	Calcium	0.028	0.50	0.087	mg/L	U	08/18/09 15:02
	Chromium	-0.0011	0.050	0.0074	mg/L	U	08/18/09 15:02
	Cobalt	-0.00044	0.020	0.0044	mg/L	U	08/18/09 15:02
	Iron	0.0029	0.10	0.0047	mg/L	U	08/18/09 15:02
	Magnesium	-0.034	0.50	0.044	mg/L	U	08/18/09 15:02
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 15:02
	Potassium	0.0032	0.50	0.068	mg/L	U	08/18/09 15:02
	Sodium	-0.032	1.0	0.054	mg/L	U	08/18/09 15:02
	Zinc	-0.0031	0.050	0.0079	mg/L	U	08/18/09 15:02
9H18017-CCBA	Aluminum	-0.0018	0.10	0.018	mg/L	U	08/18/09 15:42
	Barium	0.00017	0.010	0.0028	mg/L	U	08/18/09 15:42

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCBA	Beryllium	-0.000061	0.010	0.00035	mg/L	U	08/18/09 15:42
	Cadmium	0.0011	0.020	0.0024	mg/L	U	08/18/09 15:42
	Calcium	0.017	0.50	0.087	mg/L	U	08/18/09 15:42
	Chromium	0.00013	0.050	0.0074	mg/L	U	08/18/09 15:42
	Cobalt	-0.00054	0.020	0.0044	mg/L	U	08/18/09 15:42
	Iron	0.0046	0.10	0.0047	mg/L	U	08/18/09 15:42
	Magnesium	-0.015	0.50	0.044	mg/L	U	08/18/09 15:42
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 15:42
	Potassium	0.0043	0.50	0.068	mg/L	U	08/18/09 15:42
	Sodium	-0.020	1.0	0.054	mg/L	U	08/18/09 15:42
	Zinc	-0.0028	0.050	0.0079	mg/L	U	08/18/09 15:42
9H18017-CCBB	Aluminum	-0.0087	0.10	0.018	mg/L	U	08/18/09 16:23
	Barium	0.00015	0.010	0.0028	mg/L	U	08/18/09 16:23
	Beryllium	-0.00019	0.010	0.00035	mg/L	U	08/18/09 16:23
	Cadmium	0.0013	0.020	0.0024	mg/L	U	08/18/09 16:23
	Calcium	0.014	0.50	0.087	mg/L	U	08/18/09 16:23
	Chromium	0.0011	0.050	0.0074	mg/L	U	08/18/09 16:23
	Cobalt	0.0012	0.020	0.0044	mg/L	U	08/18/09 16:23
	Iron	0.0043	0.10	0.0047	mg/L	U	08/18/09 16:23
	Magnesium	-0.031	0.50	0.044	mg/L	U	08/18/09 16:23
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 16:23
	Potassium	0.018	0.50	0.068	mg/L	U	08/18/09 16:23
	Sodium	-0.023	1.0	0.054	mg/L	U	08/18/09 16:23
	Zinc	0.00084	0.050	0.0079	mg/L	U	08/18/09 16:23
9H18017-CCBC	Aluminum	-0.0059	0.10	0.018	mg/L	U	08/18/09 17:04
	Barium	0.00018	0.010	0.0028	mg/L	U	08/18/09 17:04
	Beryllium	-0.00031	0.010	0.00035	mg/L	U	08/18/09 17:04
	Cadmium	0.00073	0.020	0.0024	mg/L	U	08/18/09 17:04
	Calcium	0.016	0.50	0.087	mg/L	U	08/18/09 17:04
	Chromium	0.0031	0.050	0.0074	mg/L	U	08/18/09 17:04
	Cobalt	0.0011	0.020	0.0044	mg/L	U	08/18/09 17:04
	Iron	0.0040	0.10	0.0047	mg/L	U	08/18/09 17:04
	Magnesium	-0.0095	0.50	0.044	mg/L	U	08/18/09 17:04

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCBC	Manganese	-0.0014	0.010	0.0021	mg/L	U	08/18/09 17:04
	Potassium	-0.016	0.50	0.068	mg/L	U	08/18/09 17:04
	Sodium	-0.031	1.0	0.054	mg/L	U	08/18/09 17:04
	Zinc	0.00051	0.050	0.0079	mg/L	U	08/18/09 17:04
9H18017-CCBD	Aluminum	0.0018	0.10	0.018	mg/L	U	08/18/09 17:20
	Barium	0.000017	0.010	0.0028	mg/L	U	08/18/09 17:20
	Beryllium	-0.00013	0.010	0.00035	mg/L	U	08/18/09 17:20
	Cadmium	0.00094	0.020	0.0024	mg/L	U	08/18/09 17:20
	Calcium	0.023	0.50	0.087	mg/L	U	08/18/09 17:20
	Chromium	0.0073	0.050	0.0074	mg/L	U	08/18/09 17:20
	Cobalt	0.0036	0.020	0.0044	mg/L	U	08/18/09 17:20
	Iron	0.0048	0.10	0.0047	mg/L	J	08/18/09 17:20
	Magnesium	-0.043	0.50	0.044	mg/L	U	08/18/09 17:20
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 17:20
	Potassium	0.022	0.50	0.068	mg/L	U	08/18/09 17:20
	Sodium	-0.031	1.0	0.054	mg/L	U	08/18/09 17:20
	Zinc	-0.0011	0.050	0.0079	mg/L	U	08/18/09 17:20

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H18017

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Instrument: 101

Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Cal Standard	9H18017-CAL1	9H18017-002	08/18/09 09:03	
Cal Standard	9H18017-CAL2	9H18017-003	08/18/09 09:07	
Cal Standard	9H18017-CAL3	9H18017-004	08/18/09 09:10	
Cal Standard	9H18017-CAL4	9H18017-005	08/18/09 09:13	
Cal Standard	9H18017-CAL5	9H18017-006	08/18/09 09:17	
Secondary Cal Check	9H18017-SCV1	9H18017-007	08/18/09 09:20	✓
Calibration Check	9H18017-CCV1	9H18017-007	08/18/09 09:20	✓
Calibration Blank	9H18017-CCB1	9H18017-008	08/18/09 09:24	✓
Interference Check A	9H18017-IFA1	9H18017-009	08/18/09 09:29	
Interference Check A	9H18017-IFA2	9H18017-010	08/18/09 09:32	
Interference Check B	9H18017-IFB1	9H18017-011	08/18/09 09:36	
Interference Check B	9H18017-IFB2	9H18017-012	08/18/09 09:39	
Calibration Check	9H18017-CCV2	9H18017-013	08/18/09 09:43	✓
Calibration Blank	9H18017-CCB2	9H18017-014	08/18/09 09:46	✓
Blank	0909448-BLK1	9H18017-015	08/18/09 09:49	X Calcium 5 mg/kg Zinc 1.4
LCS	0909448-BS1	9H18017-016	08/18/09 09:53	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS1	0908176-01	9H18017-017	08/18/09 09:56	
60SS2	0908176-02	9H18017-018	08/18/09 10:00	
60SS2	0908176-02	9H18017-018	08/18/09 10:00	
60SS2	0908176-02	9H18017-018	08/18/09 10:00	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS2	0908176-02	9H18017-018	08/18/09 10:00
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS3	0908176-03	9H18017-019	08/18/09 10:04
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08
60SS4	0908176-04	9H18017-020	08/18/09 10:08

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SS5	0908176-05	9H18017-021	08/18/09 10:11
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE1	0908176-06	9H18017-022	08/18/09 10:15
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
60SE2	0908176-07	9H18017-023	08/18/09 10:19
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
DUP-1	0908176-08	9H18017-024	08/18/09 10:22
Calibration Check	9H18017-CCV3	9H18017-025	08/18/09 10:26 ✓
Calibration Blank	9H18017-CCB3	9H18017-027	08/18/09 10:36 ✓
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40
60TP1	0908185-02	9H18017-028	08/18/09 10:40

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0908185-03	9H18017-029	08/18/09 10:43
77SB1A	0909448-MS1	9H18017-030	08/18/09 10:47
77SB1A	0909448-MSD1	9H18017-031	08/18/09 10:51
77SB1A	9H18017-SRD1	9H18017-032	08/18/09 10:54
77SB1A	0909448-PS1	9H18017-033	08/18/09 10:58
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB1B	0908185-04	9H18017-034	08/18/09 11:02
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H18017

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Instrument: 101

Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3A	0908185-05	9H18017-035	08/18/09 11:05
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB3B	0908185-06	9H18017-036	08/18/09 11:09
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
77SB2A	0908185-07	9H18017-037	08/18/09 11:13
Calibration Check	9H18017-CCV4	9H18017-038	08/18/09 11:16
Calibration Blank	9H18017-CCB4	9H18017-040	08/18/09 11:26

Iron 0.0071 mg/L

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB2B	0908185-08	9H18017-041	08/18/09 11:29	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
77SB4B	0908185-09	9H18017-042	08/18/09 11:33	
Calibration Check	9H18017-CCV5	9H18017-051	08/18/09 12:05	✓
Calibration Blank	9H18017-CCB5	9H18017-053	08/18/09 12:14	X Iron 0.0061 mg/L
Serial Dilution	9H18017-SRD2	9H18017-054	08/18/09 12:18	
Calibration Check	9H18017-CCV6	9H18017-066	08/18/09 13:04	✓
Calibration Blank	9H18017-CCB6	9H18017-067	08/18/09 13:07	X Iron 0.0057 mg/L
Calibration Check	9H18017-CCV7	9H18017-078	08/18/09 13:46	✓
Calibration Blank	9H18017-CCB7	9H18017-080	08/18/09 13:55	X Iron 0.0052 mg/L

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H18017-CCV8	9H18017-091	08/18/09 14:34
Calibration Blank	9H18017-CCB8	9H18017-092	08/18/09 14:37
Calibration Check	9H18017-CCV9	9H18017-095	08/18/09 14:48
Calibration Blank	9H18017-CCB9	9H18017-097	08/18/09 15:02
60SS2	0908176-02	9H18017-099	08/18/09 15:09
60SS2	0908176-02	9H18017-099	08/18/09 15:09
60SS3	0908176-03	9H18017-100	08/18/09 15:12
60SS3	0908176-03	9H18017-100	08/18/09 15:12
60SS5	0908176-05	9H18017-101	08/18/09 15:15
60SE2	0908176-07	9H18017-103	08/18/09 15:22
60TP1	0908185-02	9H18017-104	08/18/09 15:25
77SB1A	0908185-03	9H18017-105	08/18/09 15:29
77SB1A	9H18017-SRD4	9H18017-106	08/18/09 15:32
77SB1A	0909448-PS2	9H18017-107	08/18/09 15:36
Calibration Check	9H18017-CCVA	9H18017-108	08/18/09 15:39
Calibration Blank	9H18017-CCBA	9H18017-109	08/18/09 15:42
77SB1A	0908185-03	9H18017-110	08/18/09 15:46
77SB1A	9H18017-SRD5	9H18017-111	08/18/09 15:49
77SB1A	0909448-PS3	9H18017-112	08/18/09 15:53
77SB1A	0908185-03	9H18017-113	08/18/09 15:56
77SB1A	0908185-03	9H18017-113	08/18/09 15:56
77SB1A	0908185-03	9H18017-113	08/18/09 15:56
77SB1A	9H18017-SRD6	9H18017-114	08/18/09 15:59
77SB1A	0909448-PS4	9H18017-115	08/18/09 16:03
77SB3B	0908185-06	9H18017-116	08/18/09 16:06
77SB3B	0908185-06	9H18017-116	08/18/09 16:06
77SB2B	0908185-08	9H18017-117	08/18/09 16:09
Serial Dilution	9H18017-SRD7	9H18017-119	08/18/09 16:16
Calibration Check	9H18017-CCVB	9H18017-120	08/18/09 16:19
Calibration Blank	9H18017-CCBB	9H18017-121	08/18/09 16:23
Serial Dilution	9H18017-SRD8	9H18017-124	08/18/09 16:33
Calibration Check	9H18017-CCVC	9H18017-132	08/18/09 17:00

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Blank	9H18017-CCBC	9H18017-133	08/18/09 17:04
Calibration Check	9H18017-CCVD	9H18017-137	08/18/09 17:17
Calibration Blank	9H18017-CCBD	9H18017-138	08/18/09 17:20

Fe 0.0018 mg/L

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20016

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H20005

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H20016-CAL1	9H20016-002	08/20/09 08:15
Cal Standard	9H20016-CAL2	9H20016-003	08/20/09 08:19
Cal Standard	9H20016-CAL3	9H20016-004	08/20/09 08:22
Cal Standard	9H20016-CAL4	9H20016-005	08/20/09 08:25
Cal Standard	9H20016-CAL5	9H20016-006	08/20/09 08:29
Secondary Cal Check	9H20016-SCV1	9H20016-007	08/20/09 08:32
Calibration Check	9H20016-CCV1	9H20016-007	08/20/09 08:32
Calibration Blank	9H20016-CCB1	9H20016-008	08/20/09 08:36
Interference Check A	9H20016-IFA1	9H20016-009	08/20/09 08:39
Interference Check A	9H20016-IFA2	9H20016-010	08/20/09 08:43
Interference Check B	9H20016-IFB1	9H20016-011	08/20/09 08:46
Interference Check B	9H20016-IFB2	9H20016-012	08/20/09 08:50
Calibration Check	9H20016-CCV2	9H20016-013	08/20/09 08:53
Calibration Blank	9H20016-CCB2	9H20016-014	08/20/09 08:56
Blank	0909623-BLK1	9H20016-015	08/20/09 09:00
LCS	0909623-BS1	9H20016-016	08/20/09 09:03
LCS Dup	0909623-BSD1	9H20016-017	08/20/09 09:07
EQBK-1	0908185-10	9H20016-018	08/20/09 09:10
EQBK-1	0908185-10	9H20016-018	08/20/09 09:10
EQBK-1	0908185-10	9H20016-018	08/20/09 09:10
EQBK-1	0908185-10	9H20016-018	08/20/09 09:10
EQBK-1	0908185-10	9H20016-018	08/20/09 09:10
EQBK-1	0908185-10	9H20016-018	08/20/09 09:10
Calibration Check	9H20016-CCV3	9H20016-021	08/20/09 09:20
Calibration Blank	9H20016-CCB3	9H20016-022	08/20/09 09:23

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20016

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H20005

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H20016-CCB1	Aluminum	-26	50	24	ug/L	J	08/20/09 08:36
	Calcium	-0.036	0.50	0.058	mg/L	U	08/20/09 08:36
	Iron	0.86	25	8.0	ug/L	U	08/20/09 08:36
	Magnesium	0.0022	0.50	0.044	mg/L	U	08/20/09 08:36
	Potassium	-0.0099	0.50	0.098	mg/L	U	08/20/09 08:36
	Sodium	-0.014	0.50	0.082	mg/L	U	08/20/09 08:36
9H20016-CCB2	Aluminum	-24	50	24	ug/L	J	08/20/09 08:56
	Calcium	-0.032	0.50	0.058	mg/L	U	08/20/09 08:56
	Iron	2.5	25	8.0	ug/L	U	08/20/09 08:56
	Magnesium	0.020	0.50	0.044	mg/L	U	08/20/09 08:56
	Potassium	-0.031	0.50	0.098	mg/L	U	08/20/09 08:56
	Sodium	-0.021	0.50	0.082	mg/L	U	08/20/09 08:56
0909623-BLK1	Aluminum, Total	50	50	24	ug/L	U	08/20/09 09:00
	Calcium, Total	500	500	58	ug/L	U	08/20/09 09:00
	Iron, Total	25	25	8.0	ug/L	U	08/20/09 09:00
	Magnesium, Total	500	500	44	ug/L	U	08/20/09 09:00
	Potassium, Total	500	500	98	ug/L	U	08/20/09 09:00
	Sodium, Total	500	500	82	ug/L	U	08/20/09 09:00
9H20016-CCB3	Aluminum	-31	50	24	ug/L	J	08/20/09 09:23
	Calcium	-0.037	0.50	0.058	mg/L	U	08/20/09 09:23
	Iron	1.6	25	8.0	ug/L	U	08/20/09 09:23
	Magnesium	0.0052	0.50	0.044	mg/L	U	08/20/09 09:23
	Potassium	-0.050	0.50	0.098	mg/L	U	08/20/09 09:23
	Sodium	-0.0088	0.50	0.082	mg/L	U	08/20/09 09:23

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809

Client: URS Corporation
Project: RFAAP SSP at Six Sites

Matrix: Soil
Preparation: 3050B Digestion

Initial/Final: 0.5138 g / 50 mL

Laboratory ID: 0909448-MS1
QC Batch: 0909448

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Aluminum, Total	122	26800	29000	1790 * ☆	80 - 120	mg/kg dry wt.
Barium, Total	24.3	99.9	125	102	80 - 120	mg/kg dry wt.
Beryllium, Total	2.43	1.30	3.84	104	80 - 120	mg/kg dry wt.
Cadmium, Total	24.3	1.73	24.8	95	80 - 120	mg/kg dry wt.
Calcium, Total	1220	3970	5010	86	80 - 120	mg/kg dry wt.
Chromium, Total	24.3	36.4	62.1	106	80 - 120	mg/kg dry wt.
Cobalt, Total	24.3	10.4	32.8	92	80 - 120	mg/kg dry wt.
Iron, Total	24.3	32600	29100	-14400 * ☆	80 - 120	mg/kg dry wt.
Magnesium, Total	1220	11200	12500	108	80 - 120	mg/kg dry wt.
Manganese, Total	24.3	657	590	-277 * ☆	80 - 120	mg/kg dry wt.
Potassium, Total	1220	1840	3250	116	80 - 120	mg/kg dry wt.
Sodium, Total	1220	30.4	1240	100	80 - 120	mg/kg dry wt.
Zinc, Total	24.3	174	184	43 * ☆	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

☆ [spike] ≯ 4× [parent] so no action

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5201 g / 50 mL

Laboratory ID: 0909448-MSD1

QC Batch: 0909448

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Aluminum, Total	120	28500	1390 *	2	20	80 - 120	mg/kg dry wt.
Barium, Total	24.0	138	157 *	10	20	80 - 120	mg/kg dry wt.
Beryllium, Total	2.40	3.79	103	1	20	80 - 120	mg/kg dry wt.
Cadmium, Total	24.0	23.7	91	5	20	80 - 120	mg/kg dry wt.
Calcium, Total	1200	9110	428 *	58 *	20	80 - 120	mg/kg dry wt.
Chromium, Total	24.0	63.4	112	2	20	80 - 120	mg/kg dry wt.
Cobalt, Total	24.0	32.3	91	2	20	80 - 120	mg/kg dry wt.
Iron, Total	24.0	29700	-12200 *	2	20	80 - 120	mg/kg dry wt.
Magnesium, Total	1200	14800	297 *	16	20	80 - 120	mg/kg dry wt.
Manganese, Total	24.0	681	101	14	20	80 - 120	mg/kg dry wt.
Potassium, Total	1200	3170	110	3	20	80 - 120	mg/kg dry wt.
Sodium, Total	1200	1190	96	4	20	80 - 120	mg/kg dry wt.
Zinc, Total	24.0	172	-10 *	7	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 79.99

Laboratory ID: 0909448-PS1

Lab Source ID: 0908185-03

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.041208 g / 4 mL

QC Batch: 0909448

Sequence: 9H18017

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Barium, Total	75 - 125	1.23	1.03	0.250	79	mg/L
Beryllium, Total	75 - 125	0.0369	0.0134	0.0250	94	mg/L
Cadmium, Total	75 - 125	0.241	0.0179	0.250	89	mg/L
Calcium, Total	75 - 125	50.9	40.9	12.5	80	mg/L
Chromium, Total	75 - 125	0.596	0.375	0.250	89	mg/L
Cobalt, Total	75 - 125	0.324	0.107	0.250	86	mg/L
Potassium, Total	75 - 125	30.4	18.9	12.5	91	mg/L
Sodium, Total	75 - 125	12.1	0.313	12.5	94	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 0909448-PS2
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 2.0604E-04 g / 0.02 mL
QC Batch: 0909448
Sequence: 9H18017

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Iron, Total	75 - 125	464	336	125	103	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 0909448-PS3
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.0010302 g / 0.1 mL
QC Batch: 0909448
Sequence: 9H18017

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Aluminum, Total	75 - 125	397	276	125	96	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 79.99
Laboratory ID: 0909448-PS4
Lab Source ID: 0908185-03

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.010302 g / 1 mL
QC Batch: 0909448
Sequence: 9H18017

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Magnesium, Total	75 - 125	239	116	125	98	mg/L
Manganese, Total	75 - 125	9.17	6.77	2.50	96	mg/L
Zinc, Total	75 - 125	4.30	1.79	2.50	100	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 79.99
Laboratory ID: 9H18017-SRD1
QC Batch: 9H18017
Lab Source ID: 0908185-03
Sequence: 9H18017

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Barium, Total	1.03		1.02		1.0		mg/L	10
Beryllium, Total	0.0134		0.0153	J	14.0 #		mg/L	10
Cadmium, Total	0.0179	J	0.0642	J	259.0 #		mg/L	10
Calcium, Total	40.9		40.9		0.0		mg/L	10
Chromium, Total	0.375		0.383		2.0		mg/L	10
Cobalt, Total	0.107		0.112		5.0 #		mg/L	10
Potassium, Total	18.9		18.7		1.0		mg/L	10
Sodium, Total	0.313	J	0.176	U	44.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 79.99
Laboratory ID: 9H18017-SRD4
QC Batch: 9H18017
Lab Source ID: 0908185-03
Sequence: 9H18017

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Iron, Total	0.672		0.683		2.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 79.99
Laboratory ID: 9H18017-SRD5
QC Batch: 9H18017
Lab Source ID: 0908185-03
Sequence: 9H18017

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Aluminum, Total	2.76		2.98		8.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

77SB1A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP0809
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 79.99
Laboratory ID: 9H18017-SRD6
QC Batch: 9H18017
Lab Source ID: 0908185-03
Sequence: 9H18017

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Magnesium, Total	11.6		11.9		3.0		mg/L	10
Manganese, Total	0.677		0.701		4.0		mg/L	10
Zinc, Total	0.179		1.49		732.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SAMPLE ID SUMMARY

USEPA-7471A

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE2	0908176-07
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1B	0908185-04
77SB3A	0908185-05
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-7471A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 7471A Mercury Digestion

Initial/Final: 0.3101 g / 50 mL

Laboratory ID: 0909544-MS1

QC Batch: 0909544

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Mercury, Total	0.322	1.03	1.42	121 *	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-7471A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 7471A Mercury Digestion

Initial/Final: 0.3107 g / 50 mL

Laboratory ID: 0909544-MSD1

QC Batch: 0909544

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Mercury, Total	0.322	1.21	56 *	16	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

SAMPLE ID SUMMARY

USEPA-9012A

Laboratory: TriMatrix Laboratories, Inc.

SDG: SSP0809

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS1	0908176-01
60SS2	0908176-02
60SS3	0908176-03
60SS4	0908176-04
60SS5	0908176-05
60SE1	0908176-06
60SE2	0908176-07
DUP-1	0908176-08
60TP1	0908185-02
77SB1A	0908185-03
77SB1B	0908185-04
77SB3A	0908185-05
77SB3B	0908185-06
77SB2A	0908185-07
77SB2B	0908185-08
77SB4B	0908185-09
EQBK-1	0908185-10

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 24.74 g / 250 mL

Laboratory ID: 0909426-MS1

QC Batch: 0909426

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Cyanide, Total	1.26	0.148	1.29	91	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

77SB1A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 24.76 g / 250 mL

Laboratory ID: 0909426-MSD1

QC Batch: 0909426

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Cyanide, Total	1.26	1.33	93	3	20	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DUPLICATES
USEPA-9012A

77SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
QC Batch: 0909426
Preparation: 9010B Cyanide Distillation
Source Sample Name: 77SB1B

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Laboratory ID: 0909426-DUP1
Lab Source ID: 0908185-04
Initial/Final: 24.51 g / 250 mL
% Solids: 71.95

Analyte	Control Limit	Sample Conc.	C	Dup. Conc.	C	RPD %	Q	Method	Units
Cyanide, Total	20	0.42	U	0.42	U			USEPA-9012A	mg/kg dry

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Total Organic Carbon

Reviewer: Andrea Sansom
Date: October 20, 2009
DV Level: II III IV

Review Document:

_X__ Region III Modified for National Functional Guidelines
_X__ SW-846 for aqueous by SW9060 or Methods of Soil Analyses for soil by Walkley Black
_X__ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP0809
Test Name: TOC
Method No.: Walkley Black

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement? (4C and <2)	X		
	If samples were received with the cooler temperature exceeding 20 ^{O}C, then flag L(+)/UL(-).			
1.4	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Have any technical holding times (28 days), determined from date of sampling to date of analysis, been exceeded? If yes, J(+)/UJ(-).		X	
2.2	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.			X

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are two standards included in the calibration curve run with four injections each? If no, flag "R".			
4.2	Was a second source calibration verification analyzed for each calibration curve? If no, flag "R".			
4.3	Were continuing calibration standards analyzed every 10 samples? If no, flag "R".			
4.4	Are all calibration standard %RSD (<20%, r>0.995, or r^2<0.99), second source (±10%) or %D(≤10%) within			
For initial calibration: %RSD > 20%, but < 50%, J(+), only; %RSD > 50%, but < 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).				
For second source: %D>10%, J(+)/R(-).				
For continuing calibration: Positive Bias - %D >+ 10%, J(+), only. Negative Bias - %D>-10% but <-50%, J(+)/UJ(-) and %D>-50%, J(+)/R(-).				

Notes: N/A, this is a titration

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
5.2	Are there any %R for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
5.3	Are there any RPD for LCS/LCSD recoveries outside the QC limits? If Yes, J(+) only.		X	

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?			X
6.2	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?			X
6.3	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	Action: No action is required based on MS/MSd failure alone. Note in the report and use professional judgement.			

Notes: Laboratory only conducts sample duplicates

7.0 Field Duplicate		Yes	No	NA
7.1	Evaluate field duplicate results? Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria recommended should be noted during data validation and discussed in the DV report.			X

Notes:

8.0 Compound Identification and Detection Limit Verification		Yes	No	NA
8.1	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

9.0 Data Completeness		Yes	No	NA
9.1	Is % completeness for certainty? (Control limit 90%)	X		
9.1.1	Number of samples: 4			
9.1.2	Number of target compounds in each analysis: 1			
9.1.3	Number of results that are uncertain at comparison criteria standard: 0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)			
	% Completeness = 100%			

Notes:

SAMPLE ID SUMMARY

MSA 29-3.5.2

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SSP0809

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
60SS3	0908185-01
60TP1	0908185-02
77SB2A	0908185-07
77SB2B	0908185-08

DUPLICATES
MSA 29-3.5.2

60SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
QC Batch: 0910014
Preparation: Method-Specific Preparation
Source Sample Name: 60SS3

SDG: SSP0809
Project: RFAAP SSP at Six Sites
Laboratory ID: 0910014-DUP1
Lab Source ID: 0908185-01
Initial/Final: 10.04 g / 10.04 mL
% Solids:

Analyte	Control Limit	Sample Conc.	C	Dup. Conc.	C	RPD %	Q	Method	Units
Carbon, Total Organic	20	0.0960	J	0.104	J	8		MSA 29-3.5.2	%

* Values outside of QC limits

DATA VALIDATION PACKAGE

Prepared for:

URS Corporation
5540 Falmouth Street, Suite 201
Richmond, VA 23230

Project:

RFAAP SSP at Six Sites

Sample Delivery Group (SDG):

SSP0809

Date:

September 10, 2009

Prepared by:

TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court SE
Grand Rapids, MI 49512-5503

SDG CASE NARRATIVE

URS Corporation
RFAAP SSP at Six Sites

SDG Executive Summary

This case narrative applies to samples received on August 11, 2009 through August 12, 2009. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between URS Corporation and TriMatrix Laboratories, Inc..

Each sample receipt event was assigned a unique TriMatrix work order number. Sample receipt documentation is included in section A of this data package.

Project Technical Issues/Problems

Project-related data qualification designations and reporting conventions are included in Attachment 1 - *Project Technical Narrative.*

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG are presented in Attachment 2 - *Statement of Data Qualifications*. The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this data package are intended to comply with the documents referenced in the introductory section of this narrative. The EDD, if requested, will be issued separately from this hardcopy report. Hold time reports for each test procedure are presented following the CLP-like forms section of this report.

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC). Estimates of analytical uncertainties for the test results contained within the report are available upon request.

Lisa M. Harvey

Lisa M. Harvey, Project Chemist

09-10-09
Date

SDG: SSP0809

SDG CASE NARRATIVE

Sample Receipt and Login -- Work Order: 0908176

TriMatrix Laboratories received the cooler(s) for this work order on August 11, 2009, at 09:10am. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix *Sample Receiving / Log-In Checklist* provided in section A of this package. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding COC form. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date Sampled
60SS1	0908176-01	Soil	8/10/2009
60SS2	0908176-02	Soil	8/10/2009
60SS3	0908176-03	Soil	8/10/2009
60SS4	0908176-04	Soil	8/10/2009
60SS5	0908176-05	Soil	8/10/2009
60SE1	0908176-06	Soil	8/10/2009
60SE2	0908176-07	Soil	8/10/2009
DUP-1	0908176-08	Soil	8/10/2009

No administrative issues were encountered during the receipt and analysis of this work order.

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SDG CASE NARRATIVE

Sample Receipt and Login -- Work Order: 0908185

TriMatrix Laboratories received the cooler(s) for this work order on August 12, 2009, at 09:00am. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix *Sample Receiving / Log-In Checklist* provided in section A of this package. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding COC form. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date Sampled
60SS3	0908185-01	Soil	8/11/2009
60TP1	0908185-02	Soil	8/11/2009
77SB1A	0908185-03	Soil	8/11/2009
77SB1B	0908185-04	Soil	8/11/2009
77SB3A	0908185-05	Soil	8/11/2009
77SB3B	0908185-06	Soil	8/11/2009
77SB2A	0908185-07	Soil	8/11/2009
77SB2B	0908185-08	Soil	8/11/2009
77SB4B	0908185-09	Soil	8/11/2009
EQBK-1	0908185-10	Water	8/11/2009
Trip Blank	0908185-11	Water	8/11/2009

No administrative issues were encountered during the receipt and analysis of this work order.

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SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative

Sample Result Reporting Convention

Sample results are reported as RL 'U' (e.g., 0.001 U) if the target analyte was not detected above the MDL. If a sample for an organic parameter is reanalyzed and also reported, the second analysis includes the suffix 'REn' where n = the first, second, etc. reanalysis. If a sample is reanalyzed for confirmation purposes, is confirmed and also reported, the second analysis includes the suffix 'RE1'. If the confirmation was not performed simultaneously, the second set of sample results is reported on a second Form 1 since that confirmation analysis did not occur at the same time and/or date.

Method Detection Limits, Target Analytes, and Reporting Limits

All method detection limits (MDL) for analytes in this report are compliant with the DoD QSM specification that each reporting limit (RL) employed is to be at least three times the MDL. In addition, no RL is less than the equivalent concentration of the lowest instrument calibration standard.

Quality Control Limits

Quality control limits specified in the DoD QSM were employed. For cases in which the analyte is not listed in the QSM, internal laboratory control limits were used.

Data Qualifier Designation

If applicable, a sample result is qualified with:

- a "U" flag if the analyte was not detected at a concentration greater than the MDL,
- a "B", "J", and/or an "E" flag as defined in the Variance section,
- a LIMS-generated statement of qualification. Qualifying statements, if any, will be found in Attachment 2 to this narrative.

QC Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven digit number that associates all samples analyzed as a set under one analytical sequence.

Variances

Data Qualifier Flags

Data qualifier flags other than those listed in the DoD QSM were employed or the definition of an existing flag was modified.

J – Estimated: the analyte was detected at a concentration greater than the limit of detection (i.e., MDL) but less than the reporting limit (i.e., MRL).

B – Blank contamination: The analyte was detected above one-half the reporting limit in an associated method blank. The same analyte in the sample was detected at less than five times the method blank concentration. (If a common laboratory contaminant is present in the method blank at a concentration greater than one-half the reporting limit but less than or equal to that reporting limit, any associated sample results are flagged but corrective action is not necessarily taken. A text qualifier is also associated with such a result.)

E – Exceeds calibration range: The analyte response exceeded the calibrated range of the instrument. (With the exception of metals for which only the final non-qualified result is reported, both the initial E-qualified result and final non-qualified result from reanalysis-at-dilution are reported.)

Text Qualifier

A LIMS-generated text qualifier is substituted for many instances in which the DoD QSM "Q" flag would otherwise apply. The text qualifiers are listed in a summary format by parameter with applicable samples identified.

Methods 6010B and 6020A

The acceptance criterion of < 2 x RL is substituted for < 2 x MDL for interference check solution ICS-A.

Project Correspondence

Any additional correspondence with the Client, and potentially any third parties also involved in the project, regarding sample receipt and/or analysis follows.

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Polychlorinated Biphenyls (PCBs) by EPA Method 8082

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8082

Sample/Analyte:		
	0908185-03 77SB1A	PCB-1260
	0908185-03 77SB1A	PCB-1260 [2C]

Qualification: The RPD between the detected values from the primary and confirmation analyses exceeded 40%. The higher concentration result has been reported.

Analysis: USEPA-8082

Sample/Analyte:		
	0908176-01 60SS1	PCB-1260 [2C]
	0908176-03 60SS3	PCB-1260 [2C]
	0908176-04 60SS4	PCB-1260 [2C]
	0908176-05 60SS5	PCB-1260 [2C]
	0908176-07 60SE2	PCB-1260 [2C]
	0908176-08 DUP-1	PCB-1260

Qualification: Concentration exceeds calibration range

Analysis: USEPA-8082

Sample/Analyte:		
	0909440-MS1	PCB-1260
	0909440-MSD1	PCB-1260

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Organochlorine Pesticides by EPA Method 8081A

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8081A

Sample/Analyte:	
0908185-03 77SB1A	4,4'-DDE [2C]
0908185-03 77SB1A	4,4'-DDT
0908185-03 77SB1A	4,4'-DDT [2C]
0908185-03 77SB1A	Dieldrin [2C]
0908185-03 77SB1A	Toxaphene
0908185-03 77SB1A	Toxaphene [2C]

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8081A

Sample/Analyte:	
0908185-03 77SB1A	Toxaphene

Qualification: The RPD between the detected values from the primary and confirmation analyses exceeded 40%. The higher concentration result has been reported.

Analysis: USEPA-8081A

Sample/Analyte:	
0908176-01 60SS1	Dieldrin
0908176-01 60SS1	Heptachlor Epoxide
0908176-03 60SS3	4,4'-DDE
0908176-04 60SS4	4,4'-DDD
0908176-04 60SS4	4,4'-DDE
0908176-07 60SE2	Heptachlor Epoxide
0908176-08 DUP-1	gamma-Chlordane
0908176-08 DUP-1	Heptachlor Epoxide
0908185-03 77SB1A	4,4'-DDE
0908185-03 77SB1A	Dieldrin
0908185-03 77SB1A	Endosulfan II [2C]
0908185-03 77SB1A	Endrin [2C]
0908185-05 77SB3A	4,4'-DDT
0908185-05 77SB3A	Dieldrin

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Organochlorine Pesticides by EPA Method 8081A

Sample/Analyte:	0908185-05 77SB3A	Endosulfan Sulfate
	0908185-05 77SB3A	Endrin
	0908185-05 77SB3A	Endrin Aldehyde
	0908185-05 77SB3A	gamma-Chlordane
	0908185-07 77SB2A	gamma-Chlordane
	0908185-10 EQBK-1	gamma-BHC (Lindane)
	0908185-10 EQBK-1	Heptachlor Epoxide

Qualification: The LCS recovery exceeded the control limit but it was within the marginal exceedance for a compound that is not a project-specific analyte of concern. The result for this analyte in any sample from the associated QC batch is not considered qualified.

Analysis: USEPA-8081A

Sample/Analyte:	0908185-10 EQBK-1	beta-BHC [2C]

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Volatile Organic Compounds by EPA Method 8260B

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8260B

Sample/Analyte:	
0908185-03 77SB1A	1,2,3-Trichlorobenzene
0908185-03 77SB1A	1,2,4-Trichlorobenzene

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8260B

Sample/Analyte:	
0908185-03 77SB1A	1,2,3-Trichlorobenzene
0908185-03 77SB1A	1,2,4-Trichlorobenzene

Qualification: The associated Internal Standard response was less than the lower control limit but greater than or equal to 30%. Reanalysis confirmed the response; sample matrix interference is evident. The result is considered estimated.

Analysis: USEPA-8260B

Sample/Analyte:	
0908176-06 60SE1	1,1,2,2-Tetrachloroethane
0908176-06 60SE1	1,2,3-Trichlorobenzene
0908176-06 60SE1	1,2,4-Trichlorobenzene
0908176-06 60SE1	1,2-Dibromo-3-chloropropane
0908176-06 60SE1	1,2-Dichlorobenzene
0908176-06 60SE1	1,3-Dichlorobenzene
0908176-06 60SE1	1,4-Dichlorobenzene
0908176-06 60SE1	Isopropylbenzene

Qualification: One or more surrogate recoveries for the sample were less than the lower control limit but greater than or equal to 10%. All results are considered estimated.

Analysis: USEPA-8260B

Sample/Analyte: 0908176-06 60SE1

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The LCS recovery was outside of the control limit with no allowed marginal exceedences. The result for this analyte in any sample from the associated QC batch is considered qualified.

Analysis: USEPA-8270C

Sample/Analyte:	
0908176-01 60SS1	Benzaldehyde
0908176-01RE1 60SS1	Benzaldehyde
0908176-02 60SS2	Benzaldehyde
0908176-03 60SS3	Benzaldehyde
0908176-04 60SS4	Benzaldehyde
0908176-05 60SS5	Benzaldehyde
0908176-06 60SE1	Benzaldehyde
0908176-06RE1 60SE1	Benzaldehyde
0908176-07 60SE2	Benzaldehyde
0908176-07RE1 60SE2	Benzaldehyde
0908176-08 DUP-1	Benzaldehyde
0908185-02 60TP1	Benzaldehyde
0908185-03 77SB1A	Benzaldehyde
0908185-03RE1 77SB1A	Benzaldehyde
0908185-04 77SB1B	Benzaldehyde
0908185-05 77SB3A	Benzaldehyde
0908185-05RE1 77SB3A	Benzaldehyde
0908185-06 77SB3B	Benzaldehyde
0908185-07 77SB2A	Benzaldehyde
0908185-08 77SB2B	Benzaldehyde
0908185-09 77SB4B	Benzaldehyde
0908185-10 EQBK-1	2,4-Dichlorophenol
0908185-10 EQBK-1	2-Methylnaphthalene
0908185-10 EQBK-1	Benzo(a)pyrene
0908185-10 EQBK-1	Caprolactam
0908185-10 EQBK-1	Carbazole
0908185-10 EQBK-1	Dibenzofuran
0908185-10 EQBK-1	Hexachloroethane
0908185-10 EQBK-1	Naphthalene
0908185-10 EQBK-1	Pentachlorophenol

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The associated Internal Standard response was outside the control limit. The results for these analytes are considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	
0908176-01 60SS1	3,3´-Dichlorobenzidine
0908176-01 60SS1	Benzo(a)anthracene
0908176-01 60SS1	Benzo(a)pyrene
0908176-01 60SS1	Benzo(b)fluoranthene
0908176-01 60SS1	Benzo(g,h,i)perylene
0908176-01 60SS1	Benzo(k)fluoranthene
0908176-01 60SS1	Bis(2-ethylhexyl) Phthalate
0908176-01 60SS1	Butyl Benzyl Phthalate
0908176-01 60SS1	Chrysene
0908176-01 60SS1	Dibenz(a,h)anthracene
0908176-01 60SS1	Di-n-octyl Phthalate
0908176-01 60SS1	Indeno(1,2,3-cd)pyrene
0908176-01 60SS1	Pyrene
0908176-06 60SE1	3,3´-Dichlorobenzidine
0908176-06 60SE1	Benzo(a)anthracene
0908176-06 60SE1	Benzo(a)pyrene
0908176-06 60SE1	Benzo(b)fluoranthene
0908176-06 60SE1	Benzo(g,h,i)perylene
0908176-06 60SE1	Benzo(k)fluoranthene
0908176-06 60SE1	Bis(2-ethylhexyl) Phthalate
0908176-06 60SE1	Butyl Benzyl Phthalate
0908176-06 60SE1	Chrysene
0908176-06 60SE1	Dibenz(a,h)anthracene
0908176-06 60SE1	Di-n-octyl Phthalate
0908176-06 60SE1	Indeno(1,2,3-cd)pyrene
0908176-06 60SE1	Pyrene
0908176-07 60SE2	3,3´-Dichlorobenzidine
0908176-07 60SE2	Benzo(a)anthracene
0908176-07 60SE2	Benzo(a)pyrene
0908176-07 60SE2	Benzo(b)fluoranthene
0908176-07 60SE2	Benzo(g,h,i)perylene

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Sample/Analyte:	0908176-07 60SE2	Benzo(k)fluoranthene
	0908176-07 60SE2	Bis(2-ethylhexyl) Phthalate
	0908176-07 60SE2	Butyl Benzyl Phthalate
	0908176-07 60SE2	Chrysene
	0908176-07 60SE2	Dibenz(a,h)anthracene
	0908176-07 60SE2	Di-n-octyl Phthalate
	0908176-07 60SE2	Indeno(1,2,3-cd)pyrene
	0908176-07 60SE2	Pyrene
	0908185-03 77SB1A	3,3´-Dichlorobenzidine
	0908185-03 77SB1A	Benzo(a)anthracene
	0908185-03 77SB1A	Benzo(a)pyrene
	0908185-03 77SB1A	Benzo(b)fluoranthene
	0908185-03 77SB1A	Benzo(g,h,i)perylene
	0908185-03 77SB1A	Benzo(k)fluoranthene
	0908185-03 77SB1A	Butyl Benzyl Phthalate
	0908185-03 77SB1A	Chrysene
	0908185-03 77SB1A	Dibenz(a,h)anthracene
	0908185-03 77SB1A	Di-n-octyl Phthalate
	0908185-03 77SB1A	Indeno(1,2,3-cd)pyrene
	0908185-03 77SB1A	Pyrene
	0908185-05 77SB3A	3,3´-Dichlorobenzidine
	0908185-05 77SB3A	Benzo(a)anthracene
	0908185-05 77SB3A	Benzo(a)pyrene
	0908185-05 77SB3A	Benzo(b)fluoranthene
	0908185-05 77SB3A	Benzo(g,h,i)perylene
	0908185-05 77SB3A	Benzo(k)fluoranthene
	0908185-05 77SB3A	Butyl Benzyl Phthalate
	0908185-05 77SB3A	Chrysene
	0908185-05 77SB3A	Dibenz(a,h)anthracene
	0908185-05 77SB3A	Di-n-octyl Phthalate
	0908185-05 77SB3A	Indeno(1,2,3-cd)pyrene
	0908185-05 77SB3A	Pyrene

Qualification: Matrix QC results are not available due to sample matrix interference.

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Analysis: USEPA-8270C

Sample/Analyte: 0908185-03 77SB1A

Qualification: The RL for this analysis has been elevated due to sample matrix interference.

Analysis: USEPA-8270C

Sample/Analyte: 0908176-01RE1 60SS1
0908176-06RE1 60SE1
0908176-07RE1 60SE2
0908185-03RE1 77SB1A
0908185-05RE1 77SB3A

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Nitroaromatics & Nitramines by EPA Method 8330

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8330

Sample/Analyte:	
9F26032-CAL1	4-Nitroaniline
9F26032-CAL1	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
9F26032-CAL2	4-Nitroaniline
9F26032-CAL2	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
9F26032-SCV1	4-Nitroaniline
9F26032-SCV1	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis:	USEPA-6010B	
Sample/Analyte:	0908185-03 77SB1A	Calcium ✓
Analysis:	USEPA-6020A	
Sample/Analyte:	0908185-03 77SB1A	Nickel
	0908185-03 77SB1A	Selenium
	0908185-03 77SB1A	Vanadium
Analysis:	USEPA-7471A	
Sample/Analyte:	0908185-03 77SB1A	Mercury

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis:	USEPA-6010B	
Sample/Analyte:	0908185-03 77SB1A	Calcium ✓

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis:	USEPA-6010B	
Sample/Analyte:	0908185-03 77SB1A	Barium ✓

Qualification: This analyte was not present in this sample at a concentration greater than 50 times the MDL, therefore serial dilution is not required.

Analysis:	USEPA-6010B	
Sample/Analyte:	0908185-03 77SB1A	Beryllium
	0908185-03 77SB1A	Cadmium
	0908185-03 77SB1A	Zinc

Qualification: This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore serial dilution is not required.

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Analysis:	USEPA-6020A	
Sample/Analyte:	0908185-03 77SB1A	Selenium
	0908185-03 77SB1A	Silver

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was greater than or equal to 4 times the spiked amount; the non-spiked sample result is not qualified.

Analysis:	USEPA-6010B	
Sample/Analyte:	0908185-03 77SB1A	Aluminum
	0908185-03 77SB1A	Iron
	0908185-03 77SB1A	Magnesium
	0908185-03 77SB1A	Manganese
	0908185-03 77SB1A	Zinc
Analysis:	USEPA-6020A	
Sample/Analyte:	0908185-03 77SB1A	Copper
	0908185-03 77SB1A	Lead

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TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 129210

SSP 08D9

For Lab Use Only

Cart: 1

VOA Rack/Tray: —

Receipt Log No.: 21.10

Project Chemist: CMH

Laboratory Project No.: E 0908176

Client Name: URS Corporation	Project Name: Bramp SSP 6 Sites
Address: 5540 Falmouth St, Suite 201	Client Project No./P.O. No.: 11657490
Richmond, VA 23230	Invoice No. ☐ Client ☐ Other (comments)
Phone (804) 965-9000	Contact/Report To: Tina Devine
Fax (804) 965-9764	

Analyses Requested

A A A A A A

VOCs 8260B Soils 8270C PCB Aroclors 8082 Explosives 8330 TAL Inorganics 6010/7471 Cyanide/MCAWW 335.4 TOC Soils

Page 1 of 1

⇦ PRESERVATIVES
A NONE pH<9
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc NaOH pH>9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number	#	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Container Type (corresponds to Container Packing List)	Number of Containers Submitted	Total	Sample Comments
A	SD	-01	1	GCSS1		8/10/09	1315		X	S	3	1	5	
		-02	2	GCSS2		8/10/09	1350		X	S	3	1	5	
		-03	3	GCSS3		8/10/09	1410		X	S	3	1	5	
		-04	4	GCSS4		8/10/09	1615		X	S	3	1	5	
		-05	5	GCSS5		8/10/09	1600		X	S	3	1	5	
		-06	6	GCSE1		8/10/09	1555		X	S	3	1	5	
		-07	7	GCSE2		8/10/09	1540		X	S	3	1	5	
	FD	-08	8	DUP-1		8/10/09	—		X	S	3	1	5	
			9											
			10											

Sampled By (print): MARK FISHER

Sampler's Signature: [signature]

Company: URS Corp.

How Shipped? Hand Carrier: Fed Ex

Tracking No.:

Comments: SVOC's, PCB Aroclors, Explosives/MCAWW & TAL Inorganics all come from 1 250 ml glass jar.

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
[signature]	8/10/09	1700						

1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
						[signature]	8-11-09	0910

TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 129208

Page 1 of 2

SSP 0809

For Lab Use Only

Cart: 7
VOA Rack/Tray: —
Receipt Log No.: 23.2
Project Chemist: CMH
Laboratory Project No.: 0908185

Client Name: LCS Corporation
Address: 5540 Falmouth St. Suite 209
Richmond, VA. 23230
Phone (804) 965-9000
Fax (804) 965-9764

Project Name: Repair SSP 6 sites
Client Project No./P.O. No.: 11657490
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina Devine

Analyses Requested

A A A A A A

VOC's 8260B SVOC's 8270C PCB's 8082 Exp/Ne/MeTHG 6020, 7470A TAL Inorganics 6010B, 6020, 7470A, 9056 Sulfate 9056 TOC's 9060A

PRESERVATIVES
A NONE pH<6
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc NaOH pH>9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Container Type (corresponds to Container Packing List)	Number of Containers Submitted	Total	Sample Comments
H	SO	01	1 60SS3		5/11/09	0825		X	S		1	1	
G/A	SO	02	2 60TP1		5/11/09	1100		X	S	3 1 →	1 1	6	
B	SO	03	3 77SB1A MS/MSD		5/11/09	1300		X	S	8 3 →	1	12	
A	SO	04	4 77SB1B		5/11/09	1310		X	S	3 1 →	1	5	
1	SO	05	5 77SB3A		5/11/09	1340		X	S	3 1 →	1	5	
1	SO	06	6 ~~77SB3~~ 77SB3B		5/11/09	1400		X	S	3 1 →	1	5	
G	SO	07	7 77SB2A		5/11/09	1415		X	S	3 1 →	1 1	6	
G	SO	08	8 77SB2B		5/11/09	1430		X	S	3 1 →	1 1	6	
A	SO	09	9 77SB4B		5/11/09	1520		X	S	3 1 →	1	5	
			10										

Sampled By (print): MARK Fisher
Sampler's Signature: [signature]
Company: LCS Corp.

How Shipped? Hand Carried Fed Ex
Tracking No.

Comments: SVOC's, PCB/PEST, Exp/Ne/MeTHG and TAL Inorganics can all fit in 1-250 ml glass jar for all locations

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
[signature]	5/11/09	1700						

1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
						[signature]	5/12/09	0815

TriMatrixCOC -- COC WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 129758

SDG 0908185

Page 2 of 2

For Lab Use Only

Cart: 7
VOA Rack/Tray: 6/6 R
Receipt Log No.: 232
Project Chemist: MH
Laboratory Project No.: 0908185

Client Name: URS Corporation
Address: 5510 Federal St. Suite 201
Richmond, VA 23230
Phone (804) 965-9000
Fax (804) 965-9769

Project Name: Reuse SSD 6 S.Ls
Client Project No./P.O. No.: 11657490
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina Devine

Analyses Requested

DAAAGE

VOC's 8260B
SVOC's 8270C
Expl/Nerve Agents
PCB/Pest 8082/8081
Total Metals 6020
Cyanide

Container Type (corresponds to Container Packing List)

PRESERVATIVES
A NONE pH<2
B HNO3 pH<2
C H2SO4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc NaOH pH>9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number		Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted						Total	Sample Comments
C	EB WG	10	1	EQBK-1		8/11/09	1110		X	GW	3	2	4	2	1	1	13	
T	WG	11	2	Trip Blank		8/11/09	1110		X	W	1						1	
			3															
			4															
			5															
			6															
			7															
			8															
			9															
			10															

Sampled By (print): Mark Fisher
Sampler's Signature:
Company: URS Corp.

How Shipped? Hand Carrier: Fed Ex
Tracking No.

Comments

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
	8/11/09	1700						

1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
							8.12.09	0900

TriMatrixCOC -- COC WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

JJP0809

TriMatrix Laboratories, Inc.

SAMPLE RECEIVING / LOG-IN CHECKLIST

Client URS	Project-Submittal No. new / add to 09081776
Receipt Record Page/Line No. 21-10	Project Chemist MH
	Sample Nos.

Coolers Received

Recorded by (initials/date) WC 8-11-09	☑ Cooler ☐ Box ☐ Other______	Qty Received 1	Thermometer Used	☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#______)
				☐ See Additional Cooler Information Form

Cooler No.	Tm 1352			
Time	0950			
Custody Seals	☐ none ☑ present / intact ☐ present / not intact	☐ none ☐ present / intact ☐ present / not intact	☐ none ☐ present / intact ☐ present / not intact	☐ none ☐ present / intact ☐ present / not intact
Coolant Location:	[✓ Dispersed] / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom	Dispersed / Top / Middle / Bottom
Coolant / Temperature Taken Via:	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☐ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☐ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☐ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers
Alternate Temperature Taken Via:	☑ temperature blank (tb) ☐ 1 container	☐ temperature blank (tb) ☐ 1 container	☐ temperature blank (tb) ☐ 1 container	☐ temperature blank (tb) ☐ 1 container
Recorded °C / Correction Factor °C / Actual °C: tb	3.1 / – / 3.1			
tb location:	[✓ representative] / in ice	representative / in ice	representative / in ice	representative / in ice
1	3.6 / – / 3.6			
2	4.1 / – / 4.1			
3	4.4 / – / 4.4			
Average °C	4.0			
	☐ Cooler ID on COC? ☐ VOC trip blank received?	☐ Cooler ID on COC? ☐ VOC trip blank received?	☐ Cooler ID on COC? ☐ VOC trip blank received?	☐ Cooler ID on COC? ☐ VOC trip blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance Form

Paperwork Received

☐ No COC received

N/A	Yes	No	
	☑	☐	**Chain of Custody Record(s)?**
	☐		If **No**, COC initiated by ______________
	☑		Rec'd for Lab signed/date/time?
☐	☑		Shipping Document?
☑	☐		Other ______________

COC ID Nos.

☑ TriMatrix 129210

☐ Other (name or ID#)______________

Check COC for Accuracy

☐ No analysis requested

Yes	No	
☑	☐	Sample ID matches COC?
☑	☐	Sample date and time matches COC?
☑		Container type completed on COC?
☑	☐	All container types indicated are received?

Sample Condition Summary

☐ Non-TriMatrix containers, see Notes

N/A	Yes	No	
	☐	☑	Broken containers/lids?
	☐	☑	Missing or incomplete labels?
	☐	☑	Illegible information on labels?
	☐	☑	Low volume received?
	☐	☑	Inappropriate containers received?
☑	☐	☐	VOC vials / TOX containers have headspace?
☐	☐	☑	Extra sample locations / containers not listed on COC?

Check Sample Preservation

N/A	Yes	No	
	☑	☐	Average sample temperature ≤6° C?
☑	☐		Completed Sample Preservation Verification Form?
☑	☐	☐	Samples preserved correctly?
☑	☐		If "No", added orange tag?
☑	☐		Received pre-preserved VOC soils?

☐ MeOH ☐ Na_2SO_4

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☑ EnCores / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged Containers
☐ Yellow/White-tagged 1L Ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

Notes

☐ Trip blank received ☐ Trip blank not listed on COC
☐ No COC received, Proj. Chemist reviewed (init./date) ______________
☐ No analysis requested, Proj. Chemist completed (init./date) ______________

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
8-11-09 0910	8-11-09 1000	[✓ Yes] / No

TriMatrix Laboratories, Inc.

SAMPLE RECEIVING / LOG-IN CHECKLIST

Client	Project-Submittal No.
URS - Richmond	new / add to 0908185
Receipt Record Page/Line No. 23-2	Project Chemist TMT / Sample Nos. 01-11

Coolers Received

Recorded by (initials/date)		Qty Received	
WC 8.12.09	☑ Cooler ☐ Box ☐ Other	2	Thermometer Used ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#_____) ☐ See Additional Cooler Information Form

Cooler No.	Time	Cooler No.	Time	Cooler No.	Time	Cooler No.	Time
Tm 1379	0916	Tm 1381	0925				

Custody Seals

☐ none		☐ none	
☑ present / intact		☑ present / intact	
☐ present / not intact		☐ present / not intact	

Coolant Location: Dispersed / Top / Middle / Bottom

Dispersed		Dispersed	

Coolant / Temperature Taken Via:

☑ loose ice / avg 2-3 containers		☑ loose ice / avg 2-3 containers	
☐ bagged ice / avg 2-3 containers		☐ bagged ice / avg 2-3 containers	
☐ blue ice / avg 2-3 containers		☐ blue ice / avg 2-3 containers	
☐ none / avg 2-3 containers		☐ none / avg 2-3 containers	

Alternate Temperature Taken Via:

☑ temperature blank (tb)		☑ temperature blank (tb)	
☐ 1 container		☐ 1 container	

Recorded °C	Correction Factor °C	Actual °C	Recorded °C	Correction Factor °C	Actual °C
tb 2.0	-	2.0	tb 2.8	-	2.8
tb location: representative / in ice			tb location: representative / in ice		
1 2.5	-	2.5	1 3.1	-	3.1
2 2.7	-	2.7	2 3.7	-	3.7
3 3.2	-	3.2	3 3.6	-	3.6
Average °C		2.8	Average °C		3.5
☐ Cooler ID on COC?			☐ Cooler ID on COC?		
☐ VOC trip blank received?			☑ VOC trip blank received?		

Cooler No.	Time	Cooler No.	Time

Custody Seals

☐ none	☐ none
☐ present / intact	☐ present / intact
☐ present / not intact	☐ present / not intact

Coolant Location: Dispersed / Top / Middle / Bottom

Coolant / Temperature Taken Via:

☐ loose ice / avg 2-3 containers	☐ loose ice / avg 2-3 containers
☐ bagged ice / avg 2-3 containers	☐ bagged ice / avg 2-3 containers
☐ blue ice / avg 2-3 containers	☐ blue ice / avg 2-3 containers
☐ none / avg 2-3 containers	☐ none / avg 2-3 containers

Alternate Temperature Taken Via:

☐ temperature blank (tb)	☐ temperature blank (tb)
☐ 1 container	☐ 1 container

Recorded °C	Correction Factor °C	Actual °C	Recorded °C	Correction Factor °C	Actual °C
tb			tb		
tb location: representative / in ice			tb location: representative / in ice		
1			1		
2			2		
3			3		
Average °C			Average °C		
☐ Cooler ID on COC?			☐ Cooler ID on COC?		
☐ VOC trip blank received?			☐ VOC trip blank received?		

If any shaded areas checked, complete Sample Receiving Non-Conformance Form

Paperwork Received

☐ No COC received

N/A	Yes	No	
	☑	☐	**Chain of Custody Record(s)?**
	☐		If **No**, COC initiated by _____
	☑		Rec'd for Lab signed/date/time?
☐	☑		Shipping Document?
☑	☐		Other _____

COC ID Nos.

☑ TriMatrix

☐ Other (name or ID#)_____

Check COC for Accuracy

☐ No analysis requested

Yes	No	
☑	☐	Sample ID matches COC?
☑	☐	Sample date and time matches COC?
☑		Container type completed on COC?
☑	☐	All container types indicated are received?

Sample Condition Summary

☐ Non-TriMatrix containers, see Notes

N/A	Yes	No	
	☐	☑	Broken containers/lids?
	☐	☑	Missing or incomplete labels?
	☐	☑	Illegible information on labels?
	☐	☑	Low volume received?
	☐	☑	Inappropriate containers received?
☐	☐	☑	VOC vials / TOX containers have headspace?
☐	☐	☑	Extra sample locations / containers not listed on COC?

Check Sample Preservation

N/A	Yes	No	
	☑	☐	Average sample temperature ≤6° C?
☐	☑		Completed Sample Preservation Verification Form?
☐	☑		Samples preserved correctly?
☑	☐		If "No", added orange tag?
☑	☐		Received pre-preserved VOC soils?

☐ MeOH ☐ Na_2SO_4

Check for Short Hold-Time Prep/Analyses

- ☐ Bacteriological
- ☐ Air Bags
- ☑ EnCores / Methanol Pre-Preserved
- ☐ Formaldehyde/Aldehyde
- ☐ Green-tagged Containers
- ☐ Yellow/White-tagged 1L Ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

Notes

☑ Trip blank received ☐ Trip blank not listed on COC

☐ No COC received, Proj. Chemist reviewed (init./date) _____

☐ No analysis requested, Proj. Chemist completed (init./date) _____

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
8.12.09 0900	8.12.09 0930	Yes / No

TriMatrix Laboratories, Inc.

SAMPLE PRESERVATION VERIFICATION FORM

page ___ of ___

Client	URS. Richmond	Project-Submittal No.	0908185
Receipt Log No.	23.2	Completed By (initials/date)	WC 8.12.09
		Project Chemist	CMH

COC ID No.	129758	Adjusted by:_____ Date:_____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5	4	13	3	6	15	
Tag Color	Lt. Blue	Blue	Brown	Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4	None	HNO_3	HNO_3	
Expected pH	>12 ✓	<2	<2	~7	<2 ✓	<2	
COC Line No. 1							
COC Line No. 2							
COC Line No. 3							
COC Line No. 4							
COC Line No. 5							
COC Line No. 6							
COC Line No. 7							
COC Line No. 8							
COC Line No. 9							
COC Line No. 10							

Comments

pH strip lot No. ☑ **HC821466** ☐ _____

Aqueous Samples: For each sample and container type, check the box if pH is acceptable. **If pH is not acceptable for any sample container, record pH in box, and note on Sample Receiving Checklist and on Sample Receiving Non-Conformance Form.** If approved by Project Chemist, add acid or base to the sample to achieve the correct pH. Add up to, but do not exceed 2x the volume initially added at container prep (see table below for initial volumes used). **Add orange pH tag to sample container and record information requested. Record adjusted pH on this form. Do not adjust pH for container types 3, 6, and 15.**

COC ID No.		Adjusted by:_____ Date:_____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5	4	13	3	6	15	
Tag Color	Lt. Blue	Blue	Brown	Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4	None	HNO_3	HNO_3	
Expected pH	>12	<2	<2	~7	<2	<2	
COC Line No. 1							
COC Line No. 2							
COC Line No. 3							
COC Line No. 4							
COC Line No. 5							
COC Line No. 6							
COC Line No. 7							
COC Line No. 8							
COC Line No. 9							
COC Line No. 10							

Comments

Container Size (mL)	Original Vol. of Preservative (mL)
Container Type 5:	NaOH
500	2.5
1000	5.0
Container Type 4:	H_2SO_4
125	0.5
250	1.0
500	2.0
1000	4.0
Container Type 13	H_2SO_4
500	2.5

01-12

FedEx Express **US Airbill**

FedEx Tracking Number **8653 1327 8434**

From ID No. **0200**

1 From

Date

Sender's Name — Phone

Company

Address — Dept/Floor/Suite/Room

City — State — ZIP

2 Your Internal Billing Reference

3 To

Recipient's Name — Phone

Company

Recipient's Address — Dept/Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City

4a Express Package Service — *Packages up to 150 lbs.*

- FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge. One-pound rate. * To most locations.

4b Express Freight Service — *Packages over 150 lbs.*

- FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation. ** To most locations.

5 Packaging

- FedEx Envelope*
- FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- FedEx Box
- FedEx Tube
- Other — * Declared value limit $500.

6 Special Handling

- SATURDAY Delivery — Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- HOLD Weekday at FedEx Location — Not available for FedEx First Overnight.
- HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods?

- No
- Yes — As per attached Shipper's Declaration
- Yes — Shipper's Declaration not required.
- Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment — *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- Sender — Acct. No. in Section 1 will be billed
- Recipient
- Third Party
- Credit Card
- Cash/Check

Total Packages — Total Weight — Total Declared Value

Signature for delivery. Fee applies.

Official Sample Seal

CUSTODY SEAL — Signature — Site — Date 8/1/09

TriMatrix Laboratories, Inc.

(616) 975-4500

8653 1327 8434

FedEx 0002/0002 WED - 12AUG A1

PRIORITY OVERNIGHT

MPS# 0681 7955 0349 5047

Mstr# 8653 1327 8434 0200

49512

MI-US

GRR

XX GRRA

Official Sample Seal

CUSTODY SEAL — Signature — Site — Date 8/1/09

TriMatrix Laboratories

(616) 975-45

0f108685227

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Region III Modifications to the National Functional Guidelines for Data Review (September 1994).

Data Validation Flags

Flag	Interpretation
R	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
U	Not detected. The associated number indicates the approximate sample concentration is necessary to be detected.
B	Not detected substantially above the level reported in laboratory or field blanks.
N	Tentative Identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.
J	Analyte present. Reported value may not be accurate or precise.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	Not detected, quantitation limit may be inaccurate or imprecise.
UL	Not detected, quantitation limit is probably higher.
NT	Not tested, no analytical result provided.

The other type of code used by URS is a “Reason Code”. The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	j	Vial Headspace
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits
l	LCS recovery failure	l	LCS recovery failure	l	LCS recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	m	MS/MSD recovery failure
p	Poor chromatography	p	Poor chromatography	n	ICS failure
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	o	Calibration blank contamination
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	p	Preparation blank contamination
s	Surrogate failure	s	Surrogate failure	q	Concentration exceeded the linear range
t	TIC	u	No confirmation column	r	Linearity failure in calibration or MSA
w	Identification criteria failure	w	Retention time failure	s	Serial dilution failure
x	Field blank contamination	x	Field blank contamination	u	BOD minimum depletion did not exceed 2mg/L
y	Trip blank contamination	z	Method blank contamination	v	Post-digestion spike failure
z	Method blank contamination			w	CRDL Standard Failure
				x	Field blank contamination

DATA VALIDATION REPORT - Level III Review

SDG No.:	**SS0809B**	**Fraction:**	**VOC, SVOC, Pesticides, PCB, Explosives, TAL Inorganics, & TOC**
Laboratory:	**TriMatrix**	**Project:**	**Radford SSP**
Reviewer:	**Andrea Sansom**	**Date:**	**November 3, 2009**

This report presents the findings of a review of the referenced data. The report consists of this summary, copies of data reports with data qualifying flags applied (as required), the completed data validation checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the USEPA Region III Modifications to the National Functional Guidelines for Organic and Inorganic Data Review as pertains to the specifics of the analytical methods employed and provisions of the approved project-specific QAPP.

Major Anomalies: For the semi-volatile organic compound analyses (SVOC), the laboratory control spikes displayed the following anomalies:

Batch	Analyte	Laboratory Control Spike (%)	Laboratory Control Spike Duplicate (%)	Control Limits (%)	Relative Percent Difference	Control Limit (%)
0909484	Benzo(a)pyrene	110	**111**	55-110	0.7	30
	Caprolactam	**22**	**15**	25-135	**39**	
	Carbazole	**137**	**135**	50-115	2	
	Dibenzofuran	**107**	104	55-105	3	
	2,4-Dichlorophenol	**106**	100	50-105	6	
	Hexachloroethane	**102**	91	30-95	11	
	2-Methylnaphthalene	**114**	105	45-105	8	
	Naphthalene	**102**	93	40-100	9	
	Pentachlorophenol	**117**	115	40-115	2	
0909647	Benzaldehyde	**4**	not applicable	50-150	-	-
0909777		**2**				
	Carbazole	**132**		45-115		
	Di-n-butylphthalate	**127**		55-110		
	4-Methylphenol	**109**		40-105		

The associated field sample results were non-detect for benzaldehyde and caprolactam; these results were flagged R,l. The other associated field sample results were either non-detect while the laboratory control spikes displayed a positive bias or subsequently flagged for a method blank detection; therefore, no further data qualifying action was taken. The matrix spike pair performed on field sample 18SB2B displayed the following percent recovery anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits
Benzaldehyde	**2**	**2**	50-150
Carbazole	**122**	**128**	45-115
Di-n-butylphthalate	**118**	**116**	55-110

The associated batch laboratory control spike displayed similar anomalies indicating the matrix was not the reason for poor accuracy. No further data qualifying action was taken based on these matrix spike anomalies.

Minor Anomalies: For the volatile organic compound analyses (VOC) analyses, blanks displayed the following positive detections:

Type	Identification	Analyte	Result	Units
Batch Blank	0909662-BLK1	1,2,3-Trichlorobenzene	2.3	µg/kg
		2-Hexanone	1.5	
		Bromomethane	1.0	
		Methylene Chloride	7.8	
EQBK-2	0908228-17	Acetone	2.6	µg/L
		Chloromethane	0.22	
		Toluene	0.33	
Trip Blank	0908228-18	Acetone	4.7	

The associated field sample results were non-detect for 1,2,3-trichlorobenzene, 2-hexanone, acetone, chloromethane, toluene, and bromomethane, thus, no data qualifying action was required. Positive associated field sample results were less than ten times the method blank detection for methylene chloride and were flagged B,z. The initial calibration 9H12016 displayed a correlations less than the control limit of 0.995 for 1,2-dibromo-3-chloropropane at 0.994. Since the associated field sample results were non-detect, no data qualifying action was taken. The matrix spike performed on field sample 18SB2B displayed a surrogate percent recovery less than the lower control limit of 85% for 4-bromofluorobenzene at 84%. The matrix spike pair displayed acceptable percent recoveries and relative percent differences. No data qualifying action is taken based on a surrogate anomaly in a matrix spike quality control sample.

For the SVOC analyses, blanks displayed the following positive detections:

Batch Identification	Identification	Analyte	Result	Units
0909484	0909484-BLK1	Butyl Benzyl Phthalate	0.09	µg/L
		Diethyl Phthalate	0.05	
		Di-n-butyl Phthalate	0.35	
	EQBK-2	Bis(2-ethylhexyl) Phthalate	0.26	
		Butyl Benzyl Phthalate	0.51	
		Diethyl Phthalate	0.081	
		Di-n-butyl Phthalate	0.66	
0909647	0909647-BLK1	Bis(2-ethylhexyl) Phthalate	7.3	µg/kg
0909777	0909777-BLK1		5	
		Di-n-butyl Phthalate	110	

Positive associated field sample results less than ten times the method blank detections were flagged B,z. The equipment blank detections for butyl benzyl phthalate, diethylphthalate, and di-n-butylphthalate were flagged B due to method blank detections and no further data qualifying action was taken. The associated positive field sample result greater than ten times the method blank concentration but less than ten times the equipment blank detection for bis(2-ethylhexyl)phthalate was flagged B,x. The

continuing calibration check analyzed on 8/21/09 at 1438 displayed a percent difference greater than the control limit of 20% with a negative bias for 2,4-dinitrophenol at 20.4%. The associated field sample results were non-detect and were flagged UJ,c. Field sample 18SB4A displayed a surrogate percent recovery greater than the upper control limit of 100% for nitrobenzene-d_5 at 102%. Since only one base / neutral fraction surrogate displayed an anomalous percent recovery, no data qualifying action was required.

For the pesticide analyses, the continuing calibrations displayed the following percent differences greater than the control limit of 15%:

Date	Time	Column	Analyte	Percent Difference	Bias
8/26/09	1739	1	Toxaphene	65.4	+
		2		38.3	
	2316	1	4,4'-DDT	16.6	-
			Methoxychlor	18.8	
8/27/09	0146		4,4'-DDT	18.3	
			Methoxychlor	19.6	
	0224		Toxaphene	16.3	
8/28/09	1012		Methoxychlor	16.1	
	1050		Toxaphene	20.6	+
9/01/09	0502			15.9	-
		2		20.5	

Field sample results were non-detect when both columns displayed a positive bias, thus, no data qualifying action was taken. No data qualifying action was required for non-detect results reported from the passing column when the second analytical column displayed an anomaly of either bias. When both columns displayed a negative bias, the associated field sample results were non-detect and were flagged UJ,c. The separate toxaphene continuing calibrations displayed surrogate percent difference anomalies. Since the surrogates displayed acceptable percent differences in the single peak pesticide continuing calibrations, no data qualifying action was deemed necessary. Field sample 18SB3B displayed a relative percent difference greater than the control limit of 40% between the dual column concentrations for endrin aldehyde. This result was flagged J,g.

For the PCB analyses, a continuing calibration check standard analyzed on 8/22/09 at 1711 displayed a percent difference greater than the control limit of 15% with a positive bias on column 1 for Aroclor 1254 at 16.0%. The associated field sample results were non-detect. No data qualifying action was required.

For the explosives analyses, the following continuing calibrations displayed percent differences greater than the control limit (i.e., 15%):

Date	Time	Analyte	%D	Bias
08/25/09	1017	4-Amino-2,6-dinitrotoluene	15.6	-
	1514	HMX	15.1	
08/26/09	1011	Tetryl	16.1	
		HMX	16.6	
	1719	Tetryl	16.2	
	2341	4-Amino-2,6-dinitrotoluene	15.2	
		Tetryl	16.4	

Date	Time	Analyte	%D	Bias
08/27/09	1729	Tetryl	16.3	-
08/28/09	0113		17.4	

Since the associated field sample results were non-detect while the continuing calibrations displayed a negative bias, the associated field sample results were flagged UJ,c. A couple continuing calibrations also displayed percent differences greater than the control limit of 15% with a negative bias for the surrogate 4-nitroaniline. Since all the field samples and batch quality control samples displayed acceptable surrogate percent recoveries, no data qualifying action was taken. Equipment blank EQBK-2 displayed detections for 2-nitrotoluene at 0.35 µg/L and tetryl at 0.22 µg/L. Since the associated field sample results were non-detect, no data qualifying action was taken. These detections displayed relative percent differences greater than the control limit of 40% between the dual column concentrations. These results were flagged J,g, unless previously flagged for a continuing calibration anomaly.

For the inorganic analyses, the method blanks displayed the following detections:

Date	Time	Identification	Analyte	Result	Units
08/17/09	1142	9H17031-CCB4	Selenium	-0.00013	mg/L
	1217	9H17031-CCB5	Silver	0.000035	
	1254	9H17031-CCB6	Arsenic	-0.000087	
			Silver	0.000024	
	1329	9H17031-CCB7	Arsenic	-0.000078	
			Silver	0.000029	
08/18/09	1126	9H18017-CCB4	Iron	0.0071	
	1136	0909502-BLK1	Aluminum	4.2	mg/kg
			Calcium	16	
			Magnesium	7.1	
			Zinc	0.95	
	1214	9H18017-CCB5	Iron	0.0061	mg/L
	1307	9H18017-CCB6		0.0069	
	1355	9H18017-CCB7		0.0050	
	1505	0909502-BLK1		0.71	mg/kg
08/19/09	0932	9H19009-CCB2	Antimony	0.10	µg/L
	0936	0909625-BLK1	Zinc	2.1	
	1020	9H19009-CCB2	Cobalt	-0.0081	
	1102	9H19032-CCB1	Selenium	-0.084	
	1148	9H19032-CCB3		-0.097	
08/20/09	0836	9H20016-CCB1	Aluminum	-26	
	0856	9H20016-CCB2		-24	
	0913	EQBK-2	Iron	9.4	
	0923	9H20016-CCB3	Aluminum	-31	

The positive equipment blank EQBK-2 result for zinc was less than five times the associated method blank detection and was flagged B,p. The positive field sample results less than five times the positive instrument blank concentrations were flagged B,o. The non-detect field sample results associated with negative blank detections were flagged UL,o. The associated positive field sample results less then five times the absolute value of negative blank detections were flagged L,o. The equipment blank EQBK-2 displayed the following detections:

Analyte	Result	Units
Iron	9.4	µg/L
Chromium	0.58	
Selenium	0.74	
Zinc	6.9	

The equipment blank detection for zinc was previously flagged for a similar method blank detection and no further data qualifying action was taken. Positive associated field sample results less than five times the remaining equipment blank detections were flagged B,x. The matrix spike pair performed on field sample 18SB2B displayed the following anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits	RPD	Control Limit
Arsenic	**74**	**73**	80-120	1	20
Cobalt	**30**	**42**		8	
Lead	**79**	85		4	
Selenium	**74**	**75**		4	

The associated field sample results were positive for arsenic, cobalt, lead, and selenium; these results were flagged L,m, unless previously flagged for an equipment blank detection. The serial dilution displayed a percent difference greater than the control limit of 10% for chromium at 12%. The associated field sample results were positive and were flagged J,s. The field duplicate pair conducted on parent sample 72SB1B displayed a relative percent difference greater than the control limit of 35% for calcium at 94.7%. The associated field duplicate sample results were positive and were flagged J,f.

Correctable Anomalies: Due to laboratory capability limitations, the sample summary forms displayed an analytical date of 8/18-20/09 for 72SB1A, 72SB1B, DUP-2, 18SB2A, and EQBK-2 even though Aroclor 1262 and 1268 were manually noted as not being a match on raw data collected during the analysis conducted on 8/22/09. The sample 72SB1A summary form displayed an analytical date of 8/19/09 for the Aroclor 1254 result although reported from data collected during the analysis conducted on 8/21/09.

Comments: The samples are dried prior to metals digestion; the results are not adjusted for percent solids. In addition, the preparation volumes do not adjust the MDL/MRL until a greater than 6% difference in the default amount and actual amount is observed. Field samples were analyzed at dilutions for aluminum, iron, manganese, and vanadium due to the abundance of these target compounds; therefore, the reporting limits for these constituents were elevated appropriately. No anomalies were encountered if a given fraction was not mentioned. Except for data flagged "R", data are usable as qualified for their intended purpose based on the data reviewed.

Signed: Andrea Sansom

Andrea Sansom

Radford SSP
SS0809B

Field Sample Identification	Laboratory Sample Identification	Date Sampled	VOC	SVOC	Pesticides	PCB	Explosives, NG, PETN	TAL Inorganics	TOC
72SB1A	0908228-01	8/12/2009			X	X			
72SB1B	0908228-02	8/12/2009	X	X	X	X	X	X	
DUP-2	0908228-03	8/12/2009	X	X	X	X	X	X	
18SB2A	0908228-04	8/12/2009	X	X	X	X	X	X	X
18SB2B	0908228-05	8/12/2009	X	X	X	X	X	X	
18SB4A	0908228-06	8/12/2009	X	X	X	X	X	X	
18SB4B	0908228-07	8/12/2009	X	X	X	X	X	X	
18SB3A	0908228-08	8/12/2009	X	X	X	X	X	X	
18SB3B	0908228-09	8/12/2009	X	X	X	X	X	X	
18SB1A	0908228-10	8/12/2009	X	X	X	X	X	X	
18SB1B	0908228-11	8/12/2009	X	X	X	X	X	X	X
18SB5A	0908228-12	8/12/2009	X	X	X	X	X	X	
18SB5B	0908228-13	8/12/2009	X	X	X	X	X	X	
DUP-3	0908228-14	8/12/2009	X	X	X	X	X	X	
18SB6A	0908228-15	8/12/2009	X	X	X	X	X	X	
18SB6B	0908228-16	8/12/2009	X	X	X	X	X	X	
EQBK-2	0908228-17	8/12/2009	X	X	X	X	X	X	
Trip Blank	0908228-18	8/12/2009	X						

Radford SSP
Duplicate Statistics

Client Sample ID:			**72SB1B**		**DUP-2**					
Lab Sample ID:			**0908228-02**		**0908228-03**					
Date Sampled:			**8/12/09**		**8/12/09**					
	Units	**RL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
Organics										
Methylene Chloride	ug/kg	25	3.6	JB	3.7	JB	2.7%	**0.1**	50	Pass
Benzo(a)anthracene	ug/kg	21	1.6	J		U	100.0%	**1.6**	42	Pass
Bis(2-ethylhexyl) Phthalate	ug/kg	210	8.6	JB	12	JB	33.0%	**3.4**	420	Pass
Butyl Benzyl Phthalate	ug/kg	210	210	U	6.9	J	187.3%	**203.1**	420	Pass
TAL Inorganics										
Aluminum	mg/kg	10	26000	B	24000	B	**8.0%**	2000	20	Pass
Barium	mg/kg	1	100		98		**2.0%**	2	2	Pass
Beryllium	mg/kg	1	1.5		1.5		**0.0%**	0	2	Pass
Cadmium	mg/kg	2	0.73	J	0.59	J	21.2%	**0.14**	4	Pass
Calcium	mg/kg	50	1000		2800		**94.7%**	1800	100	**Fail**
Chromium	mg/kg	5	32		31		**3.2%**	1	10	Pass
Cobalt	mg/kg	2	16		15		**6.5%**	1	4	Pass
Iron	mg/kg	10	38000	B	38000	B	**0.0%**	0	20	Pass
Magnesium	mg/kg	50	3100	B	3600	B	**14.9%**	500	100	Pass
Manganese	mg/kg	1	650		610		**6.3%**	40	2	Pass
Mercury	mg/kg	0.05	0.014	J	0.014	J	0.0%	**0**	0.1	Pass
Potassium	mg/kg	50	1800		1800		**0.0%**	0	100	Pass
Sodium	mg/kg	100	35	J	36	J	2.8%	**1**	200	Pass
Zinc	mg/kg	5	66	B	64	B	**3.1%**	2	10	Pass
Antimony	mg/kg	0.2	0.12	J	0.13	J	8.0%	**0.01**	0.4	Pass
Arsenic	mg/kg	0.1	1.5		1.5		**0.0%**	0	0.2	Pass
Copper	mg/kg	0.2	17		17		**0.0%**	0	0.4	Pass
Lead	mg/kg	0.2	15		16		**6.5%**	1	0.4	Pass
Nickel	mg/kg	0.1	15		15		**0.0%**	0	0.2	Pass
Selenium	mg/kg	0.2	0.21		0.28		**28.6%**	0.07	0.4	Pass
Silver	mg/kg	0.1	0.052	J	0.041	J	23.7%	**0.011**	0.2	Pass
Thallium	mg/kg	0.1	0.21		0.21		**0.0%**	0	0.2	Pass
Vanadium	mg/kg	0.2	68	D	67	D	**1.5%**	1	0.4	Pass
Cyanide, Total	mg/kg	0.37	0.16	J	0.29	J	57.8%	**0.13**	0.74	Pass
Percent Solids	%	0.1	81		82		**1.2%**	1	0.2	Pass

Control limit

Organics: [sample]>RL use 60%; [sample]<RL use Δ<2*RL

Metals: [sample]>RL use 35%; [sample]<RL use Δ<2*RL

Radford SSP
Duplicate Statistics

Client Sample ID:			**18SB5B**		**DUP-3**					
Lab Sample ID:			**0908228-13**		**0908228-14**					
Date Sampled:			**8/12/09**		**8/12/09**					
	Units	**RL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
Organics										
Chloroform	ug/kg	6.1	1.2	J	2.4	J	66.7%	**1.2**	12.2	Pass
Methylene Chloride	ug/kg	24	5.6	JB	4.9	JB	13.3%	**0.7**	48	Pass
Bis(2-ethylhexyl) Phthalate	ug/kg	210	13	JB	9.3	JB	33.2%	**3.7**	420	Pass
Butyl Benzyl Phthalate	ug/kg	210	17	J	12	J	34.5%	**5**	420	Pass
Di-n-butyl Phthalate	ug/kg	210	190	JB	210	B	10.0%	**20**	420	Pass
TAL Inorganics										
Aluminum	mg/kg	10	32000	B	33000	B	**3.1%**	1000	20	Pass
Barium	mg/kg	1	150		150		**0.0%**	0	2	Pass
Beryllium	mg/kg	1	1.5		1.3		**14.3%**	0.2	2	Pass
Cadmium	mg/kg	2	0.83	J	0.74	J	11.5%	**0.09**	4	Pass
Calcium	mg/kg	50	1200		1300		**8.0%**	100	100	Pass
Chromium	mg/kg	5	47		45		**4.3%**	2	10	Pass
Cobalt	mg/kg	2	13		11		**16.7%**	2	4	Pass
Iron	mg/kg	10	38000	B	37000	B	**2.7%**	1000	20	Pass
Magnesium	mg/kg	50	4100	B	4200	B	**2.4%**	100	100	Pass
Manganese	mg/kg	1	760		590		**25.2%**	170	2	Pass
Mercury	mg/kg	0.05	0.053		0.053		**0.0%**	0	0.1	Pass
Potassium	mg/kg	50	1800		1800		**0.0%**	0	100	Pass
Sodium	mg/kg	100	65	J	65	J	0.0%	**0**	200	Pass
Zinc	mg/kg	5	82	B	85	B	**3.6%**	3	10	Pass
Antimony	mg/kg	0.2	0.16	J	0.17	J	6.1%	**0.01**	0.4	Pass
Arsenic	mg/kg	0.1	2.1		2.1		**0.0%**	0	0.2	Pass
Copper	mg/kg	0.2	14		14		**0.0%**	0	0.4	Pass
Lead	mg/kg	0.2	14		13		**7.4%**	1	0.4	Pass
Nickel	mg/kg	0.1	16		17		**6.1%**	1	0.2	Pass
Selenium	mg/kg	0.2	0.27		0.17	J	45.5%	**0.1**	0.4	Pass
Silver	mg/kg	0.1	0.046	J	0.051	J	10.3%	**0.005**	0.2	Pass
Thallium	mg/kg	0.1	0.24		0.25		**4.1%**	0.01	0.2	Pass
Vanadium	mg/kg	0.2	60	D	59	D	**1.7%**	1	0.4	Pass
Cyanide, Total	mg/kg	0.37		U	0.11	J	100.0%	**0.11**	0.74	Pass
Percent Solids	%	0.1	82		82		**0.0%**	0	0.2	Pass

Control limit

Organics: [sample]>RL use 60%; [sample]<RL use Δ<2*RL

Metals: [sample]>RL use 35%; [sample]<RL use Δ<2*RL

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: 0908228-02.D

Sampled: 08/12/09 09:10 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 04:55

Solids: 81.03 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	25	25	3.9	U
71-43-2	Benzene	1	6.2	6.2	0.26	U
74-97-5	Bromochloromethane	1	25	25	0.55	U
75-27-4	Bromodichloromethane	1	6.2	6.2	1.1	U
75-25-2	Bromoform	1	6.2	6.2	0.57	U
74-83-9	Bromomethane	1	6.2	6.2	1.2	U
75-15-0	Carbon Disulfide	1	6.2	6.2	0.42	U
56-23-5	Carbon Tetrachloride	1	6.2	6.2	0.83	U
108-90-7	Chlorobenzene	1	6.2	6.2	0.97	U
75-00-3	Chloroethane	1	25	25	0.97	U
67-66-3	Chloroform	1	6.2	6.2	0.28	U
74-87-3	Chloromethane	1	6.2	6.2	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.2	6.2	0.58	U
106-93-4	1,2-Dibromoethane	1	6.2	6.2	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.2	6.2	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.2	6.2	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.2	6.2	0.58	U
75-71-8	Dichlorodifluoromethane	1	6.2	6.2	0.43	U
75-34-3	1,1-Dichloroethane	1	6.2	6.2	0.39	U
107-06-2	1,2-Dichloroethane	1	6.2	6.2	0.45	U
75-35-4	1,1-Dichloroethene	1	6.2	6.2	0.87	U
156-59-2	cis-1,2-Dichloroethene	1	6.2	6.2	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.2	6.2	1.0	U
78-87-5	1,2-Dichloropropane	1	6.2	6.2	0.46	U
10061-01-5	cis-1,3-Dichloropropene	1	6.2	6.2	0.52	U
10061-02-6	trans-1,3-Dichloropropene	1	6.2	6.2	0.37	U
100-41-4	Ethylbenzene	1	6.2	6.2	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.2	6.2	0.24	U
79-20-9	Methyl Acetate	1	25	25	3.0	U
1634-04-4	Methyl tert-Butyl Ether	1	6.2	6.2	0.60	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	3.6	25	1.5	J B,F
78-93-3	2-Butanone (MEK)	1	25	25	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.2	6.2	0.96	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.2	6.2	0.97	U
127-18-4	Tetrachloroethene	1	6.2	6.2	0.92	U
108-88-3	Toluene	1	6.2	6.2	0.74	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: 0908228-02.D

Sampled: 08/12/09 09:10 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 04:55

Solids: 81.03 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.48	U
120-82-1	1,2,4-Trichlorobenzene	1	6.2	6.2	0.88	U
71-55-6	1,1,1-Trichloroethane	1	6.2	6.2	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.2	6.2	1.1	U
79-01-6	Trichloroethene	1	6.2	6.2	0.54	U
75-69-4	Trichlorofluoromethane	1	6.2	6.2	0.39	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.2	6.2	0.65	U
75-01-4	Vinyl Chloride	1	6.2	6.2	0.32	U
1330-20-7	Xylene (Total)	1	6.2	6.2	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.3	96	78 - 121	
1,2-Dichloroethane-d4	40.0	34.7	87	66 - 124	
Toluene-d8	40.0	40.1	100	85 - 115	
4-Bromofluorobenzene	40.0	39.0	98	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	829560	4.27	947725	4.28	
Chlorobenzene-d5	533582	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	243258	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: 0908228-03.D

Sampled: 08/12/09 00:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 05:28

Solids: 81.56 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	25	25	3.8	U
71-43-2	Benzene	1	6.1	6.1	0.26	U
74-97-5	Bromochloromethane	1	25	25	0.54	U
75-27-4	Bromodichloromethane	1	6.1	6.1	1.1	U
75-25-2	Bromoform	1	6.1	6.1	0.57	U
74-83-9	Bromomethane	1	6.1	6.1	1.2	U
75-15-0	Carbon Disulfide	1	6.1	6.1	0.42	U
56-23-5	Carbon Tetrachloride	1	6.1	6.1	0.83	U
108-90-7	Chlorobenzene	1	6.1	6.1	0.97	U
75-00-3	Chloroethane	1	25	25	0.96	U
67-66-3	Chloroform	1	6.1	6.1	0.28	U
74-87-3	Chloromethane	1	6.1	6.1	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.1	6.1	0.57	U
106-93-4	1,2-Dibromoethane	1	6.1	6.1	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.1	6.1	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.1	6.1	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.1	6.1	0.58	U
75-71-8	Dichlorodifluoromethane	1	6.1	6.1	0.43	U
75-34-3	1,1-Dichloroethane	1	6.1	6.1	0.38	U
107-06-2	1,2-Dichloroethane	1	6.1	6.1	0.45	U
75-35-4	1,1-Dichloroethene	1	6.1	6.1	0.87	U
156-59-2	cis-1,2-Dichloroethene	1	6.1	6.1	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.1	6.1	1.0	U
78-87-5	1,2-Dichloropropane	1	6.1	6.1	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.1	6.1	0.52	U
10061-02-6	trans-1,3-Dichloropropene	1	6.1	6.1	0.37	U
100-41-4	Ethylbenzene	1	6.1	6.1	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.1	6.1	0.24	U
79-20-9	Methyl Acetate	1	25	25	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.1	6.1	0.60	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	3.7	25	1.5	J B7
78-93-3	2-Butanone (MEK)	1	25	25	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.1	6.1	0.95	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.1	6.1	0.96	U
127-18-4	Tetrachloroethene	1	6.1	6.1	0.92	U
108-88-3	Toluene	1	6.1	6.1	0.74	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: 0908228-03.D

Sampled: 08/12/09 00:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 05:28

Solids: 81.56 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.48	U
120-82-1	1,2,4-Trichlorobenzene	1	6.1	6.1	0.87	U
71-55-6	1,1,1-Trichloroethane	1	6.1	6.1	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.1	6.1	1.1	U
79-01-6	Trichloroethene	1	6.1	6.1	0.53	U
75-69-4	Trichlorofluoromethane	1	6.1	6.1	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.1	6.1	0.64	U
75-01-4	Vinyl Chloride	1	6.1	6.1	0.32	U
1330-20-7	Xylene (Total)	1	6.1	6.1	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	36.8	92	78 - 121	
1,2-Dichloroethane-d4	40.0	39.0	98	66 - 124	
Toluene-d8	40.0	39.0	97	85 - 115	
4-Bromofluorobenzene	40.0	37.1	93	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	861888	4.28	947725	4.28	
Chlorobenzene-d5	571338	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	252715	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: 0908228-04.D

Sampled: 08/12/09 10:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 06:00

Solids: 83.74 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.6 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	21	21	3.3	U
71-43-2	Benzene	1	5.3	5.3	0.22	U
74-97-5	Bromochloromethane	1	21	21	0.47	U
75-27-4	Bromodichloromethane	1	5.3	5.3	0.93	U
75-25-2	Bromoform	1	5.3	5.3	0.49	U
74-83-9	Bromomethane	1	5.3	5.3	1.0	U
75-15-0	Carbon Disulfide	1	5.3	5.3	0.36	U
56-23-5	Carbon Tetrachloride	1	5.3	5.3	0.72	U
108-90-7	Chlorobenzene	1	5.3	5.3	0.84	U
75-00-3	Chloroethane	1	21	21	0.84	U
67-66-3	Chloroform	1	5.3	5.3	0.24	U
74-87-3	Chloromethane	1	5.3	5.3	0.44	U
110-82-7	Cyclohexane	1	11	11	0.88	U
96-12-8	1,2-Dibromo-3-chloropropane	1	11	11	2.2	U
124-48-1	Dibromochloromethane	1	5.3	5.3	0.50	U
106-93-4	1,2-Dibromoethane	1	5.3	5.3	0.88	U
95-50-1	1,2-Dichlorobenzene	1	5.3	5.3	0.28	U
541-73-1	1,3-Dichlorobenzene	1	5.3	5.3	0.41	U
106-46-7	1,4-Dichlorobenzene	1	5.3	5.3	0.50	U
75-71-8	Dichlorodifluoromethane	1	5.3	5.3	0.38	U
75-34-3	1,1-Dichloroethane	1	5.3	5.3	0.33	U
107-06-2	1,2-Dichloroethane	1	5.3	5.3	0.39	U
75-35-4	1,1-Dichloroethene	1	5.3	5.3	0.76	U
156-59-2	cis-1,2-Dichloroethene	1	5.3	5.3	0.30	U
156-60-5	trans-1,2-Dichloroethene	1	5.3	5.3	0.87	U
78-87-5	1,2-Dichloropropane	1	5.3	5.3	0.39	U
10061-01-5	cis-1,3-Dichloropropene	1	5.3	5.3	0.45	U
10061-02-6	trans-1,3-Dichloropropene	1	5.3	5.3	0.32	U
100-41-4	Ethylbenzene	1	5.3	5.3	0.16	U
591-78-6	2-Hexanone	1	11	11	1.1	U
98-82-8	Isopropylbenzene	1	5.3	5.3	0.21	U
79-20-9	Methyl Acetate	1	21	21	2.6	U
1634-04-4	Methyl tert-Butyl Ether	1	5.3	5.3	0.52	U
108-87-2	Methylcyclohexane	1	11	11	0.93	U
75-09-2	Methylene Chloride	1	2.7	21	1.3	J
78-93-3	2-Butanone (MEK)	1	21	21	2.4	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	11	11	0.19	U
100-42-5	Styrene	1	5.3	5.3	0.83	U
79-34-5	1,1,2,2-Tetrachloroethane	1	5.3	5.3	0.83	U
127-18-4	Tetrachloroethene	1	5.3	5.3	0.80	U
108-88-3	Toluene	1	5.3	5.3	0.64	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: 0908228-04.D

Sampled: 08/12/09 10:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 06:00

Solids: 83.74 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.6 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	21	21	0.42	U
120-82-1	1,2,4-Trichlorobenzene	1	5.3	5.3	0.76	U
71-55-6	1,1,1-Trichloroethane	1	5.3	5.3	0.89	U
79-00-5	1,1,2-Trichloroethane	1	5.3	5.3	0.98	U
79-01-6	Trichloroethene	1	5.3	5.3	0.46	U
75-69-4	Trichlorofluoromethane	1	5.3	5.3	0.33	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	5.3	5.3	0.56	U
75-01-4	Vinyl Chloride	1	5.3	5.3	0.27	U
1330-20-7	Xylene (Total)	1	5.3	5.3	1.1	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.2	98	78 - 121	
1,2-Dichloroethane-d4	40.0	40.1	100	66 - 124	
Toluene-d8	40.0	38.5	96	85 - 115	
4-Bromofluorobenzene	40.0	36.8	92	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	925534	4.28	947725	4.28	
Chlorobenzene-d5	600928	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	238194	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-05 File ID: 0908228-05.D

Sampled: 08/12/09 10:10 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 06:32

Solids: 83.60 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.7	U
71-43-2	Benzene	1	6.0	6.0	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.53	U
75-27-4	Bromodichloromethane	1	6.0	6.0	1.0	U
75-25-2	Bromoform	1	6.0	6.0	0.55	U
74-83-9	Bromomethane	1	6.0	6.0	1.2	U
75-15-0	Carbon Disulfide	1	6.0	6.0	0.41	U
56-23-5	Carbon Tetrachloride	1	6.0	6.0	0.81	U
108-90-7	Chlorobenzene	1	6.0	6.0	0.94	U
75-00-3	Chloroethane	1	24	24	0.94	U
67-66-3	Chloroform	1	0.61	6.0	0.27	J
74-87-3	Chloromethane	1	6.0	6.0	0.50	U
110-82-7	Cyclohexane	1	12	12	0.99	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.0	6.0	0.56	U
106-93-4	1,2-Dibromoethane	1	6.0	6.0	0.99	U
95-50-1	1,2-Dichlorobenzene	1	6.0	6.0	0.31	U
541-73-1	1,3-Dichlorobenzene	1	6.0	6.0	0.46	U
106-46-7	1,4-Dichlorobenzene	1	6.0	6.0	0.56	U
75-71-8	Dichlorodifluoromethane	1	6.0	6.0	0.42	U
75-34-3	1,1-Dichloroethane	1	6.0	6.0	0.37	U
107-06-2	1,2-Dichloroethane	1	6.0	6.0	0.43	U
75-35-4	1,1-Dichloroethene	1	6.0	6.0	0.85	U
156-59-2	cis-1,2-Dichloroethene	1	6.0	6.0	0.34	U
156-60-5	trans-1,2-Dichloroethene	1	6.0	6.0	0.97	U
78-87-5	1,2-Dichloropropane	1	6.0	6.0	0.44	U
10061-01-5	cis-1,3-Dichloropropene	1	6.0	6.0	0.50	U
10061-02-6	trans-1,3-Dichloropropene	1	6.0	6.0	0.36	U
100-41-4	Ethylbenzene	1	6.0	6.0	0.18	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.0	6.0	0.23	U
79-20-9	Methyl Acetate	1	24	24	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.0	6.0	0.58	U
108-87-2	Methylcyclohexane	1	12	12	1.0	U
75-09-2	Methylene Chloride	1	4.7	24	1.5	J B7
78-93-3	2-Butanone (MEK)	1	24	24	2.7	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.21	U
100-42-5	Styrene	1	6.0	6.0	0.93	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.0	6.0	0.94	U
127-18-4	Tetrachloroethene	1	6.0	6.0	0.89	U
108-88-3	Toluene	1	6.0	6.0	0.72	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-05 File ID: 0908228-05.D

Sampled: 08/12/09 10:10 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 06:32

Solids: 83.60 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.47	U
120-82-1	1,2,4-Trichlorobenzene	1	6.0	6.0	0.85	U
71-55-6	1,1,1-Trichloroethane	1	6.0	6.0	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.0	6.0	1.1	U
79-01-6	Trichloroethene	1	6.0	6.0	0.52	U
75-69-4	Trichlorofluoromethane	1	6.0	6.0	0.37	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.0	6.0	0.63	U
75-01-4	Vinyl Chloride	1	6.0	6.0	0.31	U
1330-20-7	Xylene (Total)	1	6.0	6.0	1.2	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	36.6	92	78 - 121	
1,2-Dichloroethane-d4	40.0	40.1	100	66 - 124	
Toluene-d8	40.0	38.8	97	85 - 115	
4-Bromofluorobenzene	40.0	37.8	95	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	881694	4.28	947725	4.28	
Chlorobenzene-d5	586489	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	280772	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: 0908228-06.D

Sampled: 08/12/09 11:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 07:04

Solids: 82.00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.7 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	26	26	4.0	U
71-43-2	Benzene	1	6.5	6.5	0.27	U
74-97-5	Bromochloromethane	1	26	26	0.57	U
75-27-4	Bromodichloromethane	1	6.5	6.5	1.1	U
75-25-2	Bromoform	1	6.5	6.5	0.60	U
74-83-9	Bromomethane	1	6.5	6.5	1.3	U
75-15-0	Carbon Disulfide	1	6.5	6.5	0.44	U
56-23-5	Carbon Tetrachloride	1	6.5	6.5	0.88	U
108-90-7	Chlorobenzene	1	6.5	6.5	1.0	U
75-00-3	Chloroethane	1	26	26	1.0	U
67-66-3	Chloroform	1	1.1	6.5	0.30	J
74-87-3	Chloromethane	1	6.5	6.5	0.54	U
110-82-7	Cyclohexane	1	13	13	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.7	U
124-48-1	Dibromochloromethane	1	6.5	6.5	0.60	U
106-93-4	1,2-Dibromoethane	1	6.5	6.5	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.5	6.5	0.34	U
541-73-1	1,3-Dichlorobenzene	1	6.5	6.5	0.50	U
106-46-7	1,4-Dichlorobenzene	1	6.5	6.5	0.61	U
75-71-8	Dichlorodifluoromethane	1	6.5	6.5	0.46	U
75-34-3	1,1-Dichloroethane	1	6.5	6.5	0.40	U
107-06-2	1,2-Dichloroethane	1	6.5	6.5	0.47	U
75-35-4	1,1-Dichloroethene	1	6.5	6.5	0.92	U
156-59-2	cis-1,2-Dichloroethene	1	6.5	6.5	0.37	U
156-60-5	trans-1,2-Dichloroethene	1	6.5	6.5	1.1	U
78-87-5	1,2-Dichloropropane	1	6.5	6.5	0.48	U
10061-01-5	cis-1,3-Dichloropropene	1	6.5	6.5	0.55	U
10061-02-6	trans-1,3-Dichloropropene	1	6.5	6.5	0.39	U
100-41-4	Ethylbenzene	1	6.5	6.5	0.20	U
591-78-6	2-Hexanone	1	13	13	1.4	U
98-82-8	Isopropylbenzene	1	6.5	6.5	0.25	U
79-20-9	Methyl Acetate	1	26	26	3.1	U
1634-04-4	Methyl tert-Butyl Ether	1	6.5	6.5	0.63	U
108-87-2	Methylcyclohexane	1	13	13	1.1	U
75-09-2	Methylene Chloride	1	3.9	26	1.6	J
78-93-3	2-Butanone (MEK)	1	26	26	3.0	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.23	U
100-42-5	Styrene	1	6.5	6.5	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.5	6.5	1.0	U
127-18-4	Tetrachloroethene	1	6.5	6.5	0.97	U
108-88-3	Toluene	1	6.5	6.5	0.78	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: 0908228-06.D

Sampled: 08/12/09 11:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 07:04

Solids: 82.00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.7 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	26	26	0.51	U
120-82-1	1,2,4-Trichlorobenzene	1	6.5	6.5	0.92	U
71-55-6	1,1,1-Trichloroethane	1	6.5	6.5	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.5	6.5	1.2	U
79-01-6	Trichloroethene	1	6.5	6.5	0.56	U
75-69-4	Trichlorofluoromethane	1	6.5	6.5	0.40	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.5	6.5	0.68	U
75-01-4	Vinyl Chloride	1	6.5	6.5	0.33	U
1330-20-7	Xylene (Total)	1	6.5	6.5	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.5	96	78 - 121	
1,2-Dichloroethane-d4	40.0	39.6	99	66 - 124	
Toluene-d8	40.0	37.7	94	85 - 115	
4-Bromofluorobenzene	40.0	34.7	87	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	876189	4.28	947725	4.28	
Chlorobenzene-d5	549990	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	194007	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-07 File ID: 0908228-07.D

Sampled: 08/12/09 11:15 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 07:36

Solids: 81.42 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.3 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	25	25	3.8	U
71-43-2	Benzene	1	6.1	6.1	0.26	U
74-97-5	Bromochloromethane	1	25	25	0.54	U
75-27-4	Bromodichloromethane	1	6.1	6.1	1.1	U
75-25-2	Bromoform	1	6.1	6.1	0.57	U
74-83-9	Bromomethane	1	6.1	6.1	1.2	U
75-15-0	Carbon Disulfide	1	6.1	6.1	0.42	U
56-23-5	Carbon Tetrachloride	1	6.1	6.1	0.83	U
108-90-7	Chlorobenzene	1	6.1	6.1	0.97	U
75-00-3	Chloroethane	1	25	25	0.97	U
67-66-3	Chloroform	1	0.49	6.1	0.28	J
74-87-3	Chloromethane	1	6.1	6.1	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.1	6.1	0.57	U
106-93-4	1,2-Dibromoethane	1	6.1	6.1	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.1	6.1	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.1	6.1	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.1	6.1	0.58	U
75-71-8	Dichlorodifluoromethane	1	6.1	6.1	0.43	U
75-34-3	1,1-Dichloroethane	1	6.1	6.1	0.38	U
107-06-2	1,2-Dichloroethane	1	6.1	6.1	0.45	U
75-35-4	1,1-Dichloroethene	1	6.1	6.1	0.87	U
156-59-2	cis-1,2-Dichloroethene	1	6.1	6.1	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.1	6.1	1.0	U
78-87-5	1,2-Dichloropropane	1	6.1	6.1	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.1	6.1	0.52	U
10061-02-6	trans-1,3-Dichloropropene	1	6.1	6.1	0.37	U
100-41-4	Ethylbenzene	1	6.1	6.1	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.1	6.1	0.24	U
79-20-9	Methyl Acetate	1	25	25	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.1	6.1	0.60	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	3.4	25	1.5	J
78-93-3	2-Butanone (MEK)	1	25	25	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.1	6.1	0.95	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.1	6.1	0.96	U
127-18-4	Tetrachloroethene	1	6.1	6.1	0.92	U
108-88-3	Toluene	1	6.1	6.1	0.74	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB4B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908228-07
File ID: 0908228-07.D
Sampled: 08/12/09 11:15
Prepared: 08/17/09 02:00
Analyzed: 08/17/09 07:36
Solids: 81.42
Preparation: 5035 Soil Purge & Trap -
Initial/Final: 5.3 g / 5 mL
QC Batch: 0909662
Sequence: 9H18051
Calibration: 9H12016
Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.48	U
120-82-1	1,2,4-Trichlorobenzene	1	6.1	6.1	0.87	U
71-55-6	1,1,1-Trichloroethane	1	6.1	6.1	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.1	6.1	1.1	U
79-01-6	Trichloroethene	1	6.1	6.1	0.53	U
75-69-4	Trichlorofluoromethane	1	6.1	6.1	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.1	6.1	0.64	U
75-01-4	Vinyl Chloride	1	6.1	6.1	0.32	U
1330-20-7	Xylene (Total)	1	6.1	6.1	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	34.7	87	78 - 121	
1,2-Dichloroethane-d4	40.0	37.9	95	66 - 124	
Toluene-d8	40.0	38.5	96	85 - 115	
4-Bromofluorobenzene	40.0	37.6	94	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	834823	4.28	947725	4.28	
Chlorobenzene-d5	535186	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	256477	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: 0908228-08.D

Sampled: 08/12/09 11:35 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 08:09

Solids: 84.77 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	26	26	4.0	U
71-43-2	Benzene	1	6.4	6.4	0.27	U
74-97-5	Bromochloromethane	1	26	26	0.57	U
75-27-4	Bromodichloromethane	1	6.4	6.4	1.1	U
75-25-2	Bromoform	1	6.4	6.4	0.59	U
74-83-9	Bromomethane	1	6.4	6.4	1.2	U
75-15-0	Carbon Disulfide	1	6.4	6.4	0.43	U
56-23-5	Carbon Tetrachloride	1	6.4	6.4	0.87	U
108-90-7	Chlorobenzene	1	6.4	6.4	1.0	U
75-00-3	Chloroethane	1	26	26	1.0	U
67-66-3	Chloroform	1	6.4	6.4	0.29	U
74-87-3	Chloromethane	1	6.4	6.4	0.53	U
110-82-7	Cyclohexane	1	13	13	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.6	U
124-48-1	Dibromochloromethane	1	6.4	6.4	0.60	U
106-93-4	1,2-Dibromoethane	1	6.4	6.4	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.4	6.4	0.33	U
541-73-1	1,3-Dichlorobenzene	1	6.4	6.4	0.49	U
106-46-7	1,4-Dichlorobenzene	1	6.4	6.4	0.60	U
75-71-8	Dichlorodifluoromethane	1	6.4	6.4	0.45	U
75-34-3	1,1-Dichloroethane	1	6.4	6.4	0.40	U
107-06-2	1,2-Dichloroethane	1	6.4	6.4	0.47	U
75-35-4	1,1-Dichloroethene	1	6.4	6.4	0.91	U
156-59-2	cis-1,2-Dichloroethene	1	6.4	6.4	0.36	U
156-60-5	trans-1,2-Dichloroethene	1	6.4	6.4	1.0	U
78-87-5	1,2-Dichloropropane	1	6.4	6.4	0.47	U
10061-01-5	cis-1,3-Dichloropropene	1	6.4	6.4	0.54	U
10061-02-6	trans-1,3-Dichloropropene	1	6.4	6.4	0.39	U
100-41-4	Ethylbenzene	1	6.4	6.4	0.20	U
591-78-6	2-Hexanone	1	13	13	1.3	U
98-82-8	Isopropylbenzene	1	6.4	6.4	0.25	U
79-20-9	Methyl Acetate	1	26	26	3.1	U
1634-04-4	Methyl tert-Butyl Ether	1	6.4	6.4	0.63	U
108-87-2	Methylcyclohexane	1	13	13	1.1	U
75-09-2	Methylene Chloride	1	4.3	26	1.6	J B
78-93-3	2-Butanone (MEK)	1	26	26	2.9	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.23	U
100-42-5	Styrene	1	6.4	6.4	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.4	6.4	1.0	U
127-18-4	Tetrachloroethene	1	6.4	6.4	0.96	U
108-88-3	Toluene	1	6.4	6.4	0.77	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: 0908228-08.D

Sampled: 08/12/09 11:35 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 08:09

Solids: 84.77 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	26	26	0.50	U
120-82-1	1,2,4-Trichlorobenzene	1	6.4	6.4	0.91	U
71-55-6	1,1,1-Trichloroethane	1	6.4	6.4	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.4	6.4	1.2	U
79-01-6	Trichloroethene	1	6.4	6.4	0.56	U
75-69-4	Trichlorofluoromethane	1	6.4	6.4	0.40	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.4	6.4	0.67	U
75-01-4	Vinyl Chloride	1	6.4	6.4	0.33	U
1330-20-7	Xylene (Total)	1	6.4	6.4	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.3	96	78 - 121	
1,2-Dichloroethane-d4	40.0	39.0	98	66 - 124	
Toluene-d8	40.0	36.8	92	85 - 115	
4-Bromofluorobenzene	40.0	35.8	90	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	877633	4.28	947725	4.28	
Chlorobenzene-d5	533658	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	205028	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: 0908228-09A.D

Sampled: 08/12/09 11:40 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 13:01

Solids: 81.36 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	25	25	3.8	U
71-43-2	Benzene	1	6.1	6.1	0.26	U
74-97-5	Bromochloromethane	1	25	25	0.54	U
75-27-4	Bromodichloromethane	1	6.1	6.1	1.1	U
75-25-2	Bromoform	1	6.1	6.1	0.57	U
74-83-9	Bromomethane	1	6.1	6.1	1.2	U
75-15-0	Carbon Disulfide	1	6.1	6.1	0.42	U
56-23-5	Carbon Tetrachloride	1	6.1	6.1	0.83	U
108-90-7	Chlorobenzene	1	6.1	6.1	0.97	U
75-00-3	Chloroethane	1	25	25	0.97	U
67-66-3	Chloroform	1	6.1	6.1	0.28	U
74-87-3	Chloromethane	1	6.1	6.1	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.1	6.1	0.57	U
106-93-4	1,2-Dibromoethane	1	6.1	6.1	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.1	6.1	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.1	6.1	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.1	6.1	0.58	U
75-71-8	Dichlorodifluoromethane	1	6.1	6.1	0.43	U
75-34-3	1,1-Dichloroethane	1	6.1	6.1	0.38	U
107-06-2	1,2-Dichloroethane	1	6.1	6.1	0.45	U
75-35-4	1,1-Dichloroethene	1	6.1	6.1	0.87	U
156-59-2	cis-1,2-Dichloroethene	1	6.1	6.1	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.1	6.1	1.0	U
78-87-5	1,2-Dichloropropane	1	6.1	6.1	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.1	6.1	0.52	U
10061-02-6	trans-1,3-Dichloropropene	1	6.1	6.1	0.37	U
100-41-4	Ethylbenzene	1	6.1	6.1	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.1	6.1	0.24	U
79-20-9	Methyl Acetate	1	25	25	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.1	6.1	0.60	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	3.2	25	1.5	J 6.7
78-93-3	2-Butanone (MEK)	1	25	25	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.1	6.1	0.96	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.1	6.1	0.96	U
127-18-4	Tetrachloroethene	1	6.1	6.1	0.92	U
108-88-3	Toluene	1	6.1	6.1	0.74	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: 0908228-09A.D

Sampled: 08/12/09 11:40 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 13:01

Solids: 81.36 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.48	U
120-82-1	1,2,4-Trichlorobenzene	1	6.1	6.1	0.87	U
71-55-6	1,1,1-Trichloroethane	1	6.1	6.1	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.1	6.1	1.1	U
79-01-6	Trichloroethene	1	6.1	6.1	0.53	U
75-69-4	Trichlorofluoromethane	1	6.1	6.1	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.1	6.1	0.64	U
75-01-4	Vinyl Chloride	1	6.1	6.1	0.32	U
1330-20-7	Xylene (Total)	1	6.1	6.1	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.4	98	78 - 121	
1,2-Dichloroethane-d4	40.0	40.2	100	66 - 124	
Toluene-d8	40.0	38.5	96	85 - 115	
4-Bromofluorobenzene	40.0	37.0	93	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	880593	4.28	947725	4.28	
Chlorobenzene-d5	569928	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	252651	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: 0908228-10.D

Sampled: 08/12/09 11:55 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 09:14

Solids: 86.40 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	23	23	3.6	U
71-43-2	Benzene	1	5.8	5.8	0.24	U
74-97-5	Bromochloromethane	1	23	23	0.51	U
75-27-4	Bromodichloromethane	1	5.8	5.8	1.0	U
75-25-2	Bromoform	1	5.8	5.8	0.53	U
74-83-9	Bromomethane	1	5.8	5.8	1.1	U
75-15-0	Carbon Disulfide	1	5.8	5.8	0.39	U
56-23-5	Carbon Tetrachloride	1	5.8	5.8	0.78	U
108-90-7	Chlorobenzene	1	5.8	5.8	0.91	U
75-00-3	Chloroethane	1	23	23	0.91	U
67-66-3	Chloroform	1	5.8	5.8	0.27	U
74-87-3	Chloromethane	1	5.8	5.8	0.48	U
110-82-7	Cyclohexane	1	12	12	0.96	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.4	U
124-48-1	Dibromochloromethane	1	5.8	5.8	0.54	U
106-93-4	1,2-Dibromoethane	1	5.8	5.8	0.95	U
95-50-1	1,2-Dichlorobenzene	1	5.8	5.8	0.30	U
541-73-1	1,3-Dichlorobenzene	1	5.8	5.8	0.44	U
106-46-7	1,4-Dichlorobenzene	1	5.8	5.8	0.54	U
75-71-8	Dichlorodifluoromethane	1	5.8	5.8	0.41	U
75-34-3	1,1-Dichloroethane	1	5.8	5.8	0.36	U
107-06-2	1,2-Dichloroethane	1	5.8	5.8	0.42	U
75-35-4	1,1-Dichloroethene	1	5.8	5.8	0.82	U
156-59-2	cis-1,2-Dichloroethene	1	5.8	5.8	0.33	U
156-60-5	trans-1,2-Dichloroethene	1	5.8	5.8	0.94	U
78-87-5	1,2-Dichloropropane	1	5.8	5.8	0.43	U
10061-01-5	cis-1,3-Dichloropropene	1	5.8	5.8	0.49	U
10061-02-6	trans-1,3-Dichloropropene	1	5.8	5.8	0.35	U
100-41-4	Ethylbenzene	1	5.8	5.8	0.18	U
591-78-6	2-Hexanone	1	12	12	1.2	U
98-82-8	Isopropylbenzene	1	5.8	5.8	0.23	U
79-20-9	Methyl Acetate	1	23	23	2.8	U
1634-04-4	Methyl tert-Butyl Ether	1	5.8	5.8	0.56	U
108-87-2	Methylcyclohexane	1	12	12	1.0	U
75-09-2	Methylene Chloride	1	4.2	23	1.4	J BZ
78-93-3	2-Butanone (MEK)	1	23	23	2.7	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.21	U
100-42-5	Styrene	1	5.8	5.8	0.90	U
79-34-5	1,1,2,2-Tetrachloroethane	1	5.8	5.8	0.91	U
127-18-4	Tetrachloroethene	1	5.8	5.8	0.86	U
108-88-3	Toluene	1	5.8	5.8	0.69	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: 0908228-10.D

Sampled: 08/12/09 11:55 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 09:14

Solids: 86.40 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	23	23	0.45	U
120-82-1	1,2,4-Trichlorobenzene	1	5.8	5.8	0.82	U
71-55-6	1,1,1-Trichloroethane	1	5.8	5.8	0.97	U
79-00-5	1,1,2-Trichloroethane	1	5.8	5.8	1.1	U
79-01-6	Trichloroethene	1	5.8	5.8	0.50	U
75-69-4	Trichlorofluoromethane	1	5.8	5.8	0.36	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	5.8	5.8	0.61	U
75-01-4	Vinyl Chloride	1	5.8	5.8	0.30	U
1330-20-7	Xylene (Total)	1	5.8	5.8	1.2	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.5	99	78 - 121	
1,2-Dichloroethane-d4	40.0	39.8	99	66 - 124	
Toluene-d8	40.0	38.0	95	85 - 115	
4-Bromofluorobenzene	40.0	35.9	90	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	884065	4.28	947725	4.28	
Chlorobenzene-d5	565029	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	235795	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: 0908228-11.D

Sampled: 08/12/09 12:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 09:46

Solids: 81.59 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.3 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	29	29	4.4	U
71-43-2	Benzene	1	7.1	7.1	0.30	U
74-97-5	Bromochloromethane	1	29	29	0.63	U
75-27-4	Bromodichloromethane	1	7.1	7.1	1.2	U
75-25-2	Bromoform	1	7.1	7.1	0.66	U
74-83-9	Bromomethane	1	7.1	7.1	1.4	U
75-15-0	Carbon Disulfide	1	7.1	7.1	0.48	U
56-23-5	Carbon Tetrachloride	1	7.1	7.1	0.96	U
108-90-7	Chlorobenzene	1	7.1	7.1	1.1	U
75-00-3	Chloroethane	1	29	29	1.1	U
67-66-3	Chloroform	1	0.40	7.1	0.33	J
74-87-3	Chloromethane	1	7.1	7.1	0.59	U
110-82-7	Cyclohexane	1	14	14	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.9	U
124-48-1	Dibromochloromethane	1	7.1	7.1	0.66	U
106-93-4	1,2-Dibromoethane	1	7.1	7.1	1.2	U
95-50-1	1,2-Dichlorobenzene	1	7.1	7.1	0.37	U
541-73-1	1,3-Dichlorobenzene	1	7.1	7.1	0.55	U
106-46-7	1,4-Dichlorobenzene	1	7.1	7.1	0.67	U
75-71-8	Dichlorodifluoromethane	1	7.1	7.1	0.50	U
75-34-3	1,1-Dichloroethane	1	7.1	7.1	0.44	U
107-06-2	1,2-Dichloroethane	1	7.1	7.1	0.52	U
75-35-4	1,1-Dichloroethene	1	7.1	7.1	1.0	U
156-59-2	cis-1,2-Dichloroethene	1	7.1	7.1	0.40	U
156-60-5	trans-1,2-Dichloroethene	1	7.1	7.1	1.2	U
78-87-5	1,2-Dichloropropane	1	7.1	7.1	0.53	U
10061-01-5	cis-1,3-Dichloropropene	1	7.1	7.1	0.60	U
10061-02-6	trans-1,3-Dichloropropene	1	7.1	7.1	0.43	U
100-41-4	Ethylbenzene	1	7.1	7.1	0.22	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	7.1	7.1	0.28	U
79-20-9	Methyl Acetate	1	29	29	3.4	U
1634-04-4	Methyl tert-Butyl Ether	1	7.1	7.1	0.70	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	6.5	29	1.8	J
78-93-3	2-Butanone (MEK)	1	29	29	3.3	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.26	U
100-42-5	Styrene	1	7.1	7.1	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.1	7.1	1.1	U
127-18-4	Tetrachloroethene	1	7.1	7.1	1.1	U
108-88-3	Toluene	1	7.1	7.1	0.86	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: 0908228-11.D

Sampled: 08/12/09 12:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 09:46

Solids: 81.59 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.3 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	29	29	0.56	U
120-82-1	1,2,4-Trichlorobenzene	1	7.1	7.1	1.0	U
71-55-6	1,1,1-Trichloroethane	1	7.1	7.1	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.1	7.1	1.3	U
79-01-6	Trichloroethene	1	7.1	7.1	0.62	U
75-69-4	Trichlorofluoromethane	1	7.1	7.1	0.44	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.1	7.1	0.75	U
75-01-4	Vinyl Chloride	1	7.1	7.1	0.37	U
1330-20-7	Xylene (Total)	1	7.1	7.1	1.5	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.8	99	78 - 121	
1,2-Dichloroethane-d4	40.0	39.8	99	66 - 124	
Toluene-d8	40.0	38.5	96	85 - 115	
4-Bromofluorobenzene	40.0	37.5	94	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	887371	4.28	947725	4.28	
Chlorobenzene-d5	587050	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	280949	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: 0908228-12A.D

Sampled: 08/12/09 13:05 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 13:33

Solids: 88.22 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.1 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	28	28	4.3	U
71-43-2	Benzene	1	6.9	6.9	0.29	U
74-97-5	Bromochloromethane	1	28	28	0.61	U
75-27-4	Bromodichloromethane	1	6.9	6.9	1.2	U
75-25-2	Bromoform	1	6.9	6.9	0.64	U
74-83-9	Bromomethane	1	6.9	6.9	1.3	U
75-15-0	Carbon Disulfide	1	6.9	6.9	0.47	U
56-23-5	Carbon Tetrachloride	1	6.9	6.9	0.93	U
108-90-7	Chlorobenzene	1	6.9	6.9	1.1	U
75-00-3	Chloroethane	1	28	28	1.1	U
67-66-3	Chloroform	1	6.9	6.9	0.32	U
74-87-3	Chloromethane	1	6.9	6.9	0.58	U
110-82-7	Cyclohexane	1	14	14	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.8	U
124-48-1	Dibromochloromethane	1	6.9	6.9	0.64	U
106-93-4	1,2-Dibromoethane	1	6.9	6.9	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.9	6.9	0.36	U
541-73-1	1,3-Dichlorobenzene	1	6.9	6.9	0.53	U
106-46-7	1,4-Dichlorobenzene	1	6.9	6.9	0.65	U
75-71-8	Dichlorodifluoromethane	1	6.9	6.9	0.49	U
75-34-3	1,1-Dichloroethane	1	6.9	6.9	0.43	U
107-06-2	1,2-Dichloroethane	1	6.9	6.9	0.50	U
75-35-4	1,1-Dichloroethene	1	6.9	6.9	0.98	U
156-59-2	cis-1,2-Dichloroethene	1	6.9	6.9	0.39	U
156-60-5	trans-1,2-Dichloroethene	1	6.9	6.9	1.1	U
78-87-5	1,2-Dichloropropane	1	6.9	6.9	0.51	U
10061-01-5	cis-1,3-Dichloropropene	1	6.9	6.9	0.58	U
10061-02-6	trans-1,3-Dichloropropene	1	6.9	6.9	0.42	U
100-41-4	Ethylbenzene	1	6.9	6.9	0.21	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	6.9	6.9	0.27	U
79-20-9	Methyl Acetate	1	28	28	3.3	U
1634-04-4	Methyl tert-Butyl Ether	1	6.9	6.9	0.67	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	3.1	28	1.7	J B,Z
78-93-3	2-Butanone (MEK)	1	28	28	3.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	6.9	6.9	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.9	6.9	1.1	U
127-18-4	Tetrachloroethene	1	6.9	6.9	1.0	U
108-88-3	Toluene	1	6.9	6.9	0.83	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: 0908228-12A.D

Sampled: 08/12/09 13:05 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 13:33

Solids: 88.22 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.1 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	28	28	0.54	U
120-82-1	1,2,4-Trichlorobenzene	1	6.9	6.9	0.98	U
71-55-6	1,1,1-Trichloroethane	1	6.9	6.9	1.2	U
79-00-5	1,1,2-Trichloroethane	1	6.9	6.9	1.3	U
79-01-6	Trichloroethene	1	6.9	6.9	0.60	U
75-69-4	Trichlorofluoromethane	1	6.9	6.9	0.43	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.9	6.9	0.72	U
75-01-4	Vinyl Chloride	1	6.9	6.9	0.36	U
1330-20-7	Xylene (Total)	1	6.9	6.9	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.6	97	78 - 121	
1,2-Dichloroethane-d4	40.0	38.1	95	66 - 124	
Toluene-d8	40.0	38.4	96	85 - 115	
4-Bromofluorobenzene	40.0	34.7	87	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	828138	4.28	947725	4.28	
Chlorobenzene-d5	519791	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	191872	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: 0908228-13.D

Sampled: 08/12/09 13:20 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 10:51

Solids: 82.12 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.8	U
71-43-2	Benzene	1	6.1	6.1	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.54	U
75-27-4	Bromodichloromethane	1	6.1	6.1	1.1	U
75-25-2	Bromoform	1	6.1	6.1	0.56	U
74-83-9	Bromomethane	1	6.1	6.1	1.2	U
75-15-0	Carbon Disulfide	1	6.1	6.1	0.41	U
56-23-5	Carbon Tetrachloride	1	6.1	6.1	0.82	U
108-90-7	Chlorobenzene	1	6.1	6.1	0.96	U
75-00-3	Chloroethane	1	24	24	0.96	U
67-66-3	Chloroform	1	1.2	6.1	0.28	J
74-87-3	Chloromethane	1	6.1	6.1	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.1	6.1	0.57	U
106-93-4	1,2-Dibromoethane	1	6.1	6.1	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.1	6.1	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.1	6.1	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.1	6.1	0.57	U
75-71-8	Dichlorodifluoromethane	1	6.1	6.1	0.43	U
75-34-3	1,1-Dichloroethane	1	6.1	6.1	0.38	U
107-06-2	1,2-Dichloroethane	1	6.1	6.1	0.44	U
75-35-4	1,1-Dichloroethene	1	6.1	6.1	0.86	U
156-59-2	cis-1,2-Dichloroethene	1	6.1	6.1	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.1	6.1	0.99	U
78-87-5	1,2-Dichloropropane	1	6.1	6.1	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.1	6.1	0.51	U
10061-02-6	trans-1,3-Dichloropropene	1	6.1	6.1	0.37	U
100-41-4	Ethylbenzene	1	6.1	6.1	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.1	6.1	0.24	U
79-20-9	Methyl Acetate	1	24	24	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.1	6.1	0.59	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	5.6	24	1.5	J B7
78-93-3	2-Butanone (MEK)	1	24	24	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.1	6.1	0.95	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.1	6.1	0.95	U
127-18-4	Tetrachloroethene	1	6.1	6.1	0.91	U
108-88-3	Toluene	1	6.1	6.1	0.73	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: 0908228-13.D

Sampled: 08/12/09 13:20 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 10:51

Solids: 82.12 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.48	U
120-82-1	1,2,4-Trichlorobenzene	1	6.1	6.1	0.87	U
71-55-6	1,1,1-Trichloroethane	1	6.1	6.1	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.1	6.1	1.1	U
79-01-6	Trichloroethene	1	6.1	6.1	0.53	U
75-69-4	Trichlorofluoromethane	1	6.1	6.1	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.1	6.1	0.64	U
75-01-4	Vinyl Chloride	1	6.1	6.1	0.31	U
1330-20-7	Xylene (Total)	1	6.1	6.1	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	35.9	90	78 - 121	
1,2-Dichloroethane-d4	40.0	38.8	97	66 - 124	
Toluene-d8	40.0	38.7	97	85 - 115	
4-Bromofluorobenzene	40.0	36.3	91	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	890698	4.28	947725	4.28	
Chlorobenzene-d5	596511	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	264393	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: 0908228-14.D

Sampled: 08/12/09 00:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 11:24

Solids: 82.34 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.8	U
71-43-2	Benzene	1	6.1	6.1	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.54	U
75-27-4	Bromodichloromethane	1	6.1	6.1	1.1	U
75-25-2	Bromoform	1	6.1	6.1	0.56	U
74-83-9	Bromomethane	1	6.1	6.1	1.2	U
75-15-0	Carbon Disulfide	1	6.1	6.1	0.41	U
56-23-5	Carbon Tetrachloride	1	6.1	6.1	0.82	U
108-90-7	Chlorobenzene	1	6.1	6.1	0.96	U
75-00-3	Chloroethane	1	24	24	0.96	U
67-66-3	Chloroform	1	2.4	6.1	0.28	J
74-87-3	Chloromethane	1	6.1	6.1	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.1	6.1	0.57	U
106-93-4	1,2-Dibromoethane	1	6.1	6.1	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.1	6.1	0.31	U
541-73-1	1,3-Dichlorobenzene	1	6.1	6.1	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.1	6.1	0.57	U
75-71-8	Dichlorodifluoromethane	1	6.1	6.1	0.43	U
75-34-3	1,1-Dichloroethane	1	6.1	6.1	0.38	U
107-06-2	1,2-Dichloroethane	1	6.1	6.1	0.44	U
75-35-4	1,1-Dichloroethene	1	6.1	6.1	0.86	U
156-59-2	cis-1,2-Dichloroethene	1	6.1	6.1	0.34	U
156-60-5	trans-1,2-Dichloroethene	1	6.1	6.1	0.99	U
78-87-5	1,2-Dichloropropane	1	6.1	6.1	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.1	6.1	0.51	U
10061-02-6	trans-1,3-Dichloropropene	1	6.1	6.1	0.37	U
100-41-4	Ethylbenzene	1	6.1	6.1	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.1	6.1	0.24	U
79-20-9	Methyl Acetate	1	24	24	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.1	6.1	0.59	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	4.9	24	1.5	J
78-93-3	2-Butanone (MEK)	1	24	24	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.1	6.1	0.94	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.1	6.1	0.95	U
127-18-4	Tetrachloroethene	1	6.1	6.1	0.91	U
108-88-3	Toluene	1	6.1	6.1	0.73	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: 0908228-14.D

Sampled: 08/12/09 00:00 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 11:24

Solids: 82.34 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.47	U
120-82-1	1,2,4-Trichlorobenzene	1	6.1	6.1	0.86	U
71-55-6	1,1,1-Trichloroethane	1	6.1	6.1	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.1	6.1	1.1	U
79-01-6	Trichloroethene	1	6.1	6.1	0.53	U
75-69-4	Trichlorofluoromethane	1	6.1	6.1	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.1	6.1	0.64	U
75-01-4	Vinyl Chloride	1	6.1	6.1	0.31	U
1330-20-7	Xylene (Total)	1	6.1	6.1	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.8	100	78 - 121	
1,2-Dichloroethane-d4	40.0	40.3	101	66 - 124	
Toluene-d8	40.0	38.9	97	85 - 115	
4-Bromofluorobenzene	40.0	37.2	93	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	909019	4.28	947725	4.28	
Chlorobenzene-d5	604833	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	255585	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: 0908228-15.D

Sampled: 08/12/09 13:40 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 11:56

Solids: 84.57 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.7	U
71-43-2	Benzene	1	5.9	5.9	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.52	U
75-27-4	Bromodichloromethane	1	5.9	5.9	1.0	U
75-25-2	Bromoform	1	5.9	5.9	0.55	U
74-83-9	Bromomethane	1	5.9	5.9	1.1	U
75-15-0	Carbon Disulfide	1	5.9	5.9	0.40	U
56-23-5	Carbon Tetrachloride	1	5.9	5.9	0.80	U
108-90-7	Chlorobenzene	1	5.9	5.9	0.93	U
75-00-3	Chloroethane	1	24	24	0.93	U
67-66-3	Chloroform	1	5.9	5.9	0.27	U
74-87-3	Chloromethane	1	5.9	5.9	0.49	U
110-82-7	Cyclohexane	1	12	12	0.98	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.4	U
124-48-1	Dibromochloromethane	1	5.9	5.9	0.55	U
106-93-4	1,2-Dibromoethane	1	5.9	5.9	0.97	U
95-50-1	1,2-Dichlorobenzene	1	5.9	5.9	0.31	U
541-73-1	1,3-Dichlorobenzene	1	5.9	5.9	0.45	U
106-46-7	1,4-Dichlorobenzene	1	5.9	5.9	0.56	U
75-71-8	Dichlorodifluoromethane	1	5.9	5.9	0.42	U
75-34-3	1,1-Dichloroethane	1	5.9	5.9	0.37	U
107-06-2	1,2-Dichloroethane	1	5.9	5.9	0.43	U
75-35-4	1,1-Dichloroethene	1	5.9	5.9	0.84	U
156-59-2	cis-1,2-Dichloroethene	1	5.9	5.9	0.34	U
156-60-5	trans-1,2-Dichloroethene	1	5.9	5.9	0.96	U
78-87-5	1,2-Dichloropropane	1	5.9	5.9	0.44	U
10061-01-5	cis-1,3-Dichloropropene	1	5.9	5.9	0.50	U
10061-02-6	trans-1,3-Dichloropropene	1	5.9	5.9	0.36	U
100-41-4	Ethylbenzene	1	5.9	5.9	0.18	U
591-78-6	2-Hexanone	1	12	12	1.2	U
98-82-8	Isopropylbenzene	1	5.9	5.9	0.23	U
79-20-9	Methyl Acetate	1	24	24	2.8	U
1634-04-4	Methyl tert-Butyl Ether	1	5.9	5.9	0.58	U
108-87-2	Methylcyclohexane	1	12	12	1.0	U
75-09-2	Methylene Chloride	1	3.2	24	1.5	J
78-93-3	2-Butanone (MEK)	1	24	24	2.7	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.21	U
100-42-5	Styrene	1	5.9	5.9	0.92	U
79-34-5	1,1,2,2-Tetrachloroethane	1	5.9	5.9	0.93	U
127-18-4	Tetrachloroethene	1	5.9	5.9	0.88	U
108-88-3	Toluene	1	5.9	5.9	0.71	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: 0908228-15.D

Sampled: 08/12/09 13:40 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 11:56

Solids: 84.57 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.46	U
120-82-1	1,2,4-Trichlorobenzene	1	5.9	5.9	0.84	U
71-55-6	1,1,1-Trichloroethane	1	5.9	5.9	0.99	U
79-00-5	1,1,2-Trichloroethane	1	5.9	5.9	1.1	U
79-01-6	Trichloroethene	1	5.9	5.9	0.51	U
75-69-4	Trichlorofluoromethane	1	5.9	5.9	0.37	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	5.9	5.9	0.62	U
75-01-4	Vinyl Chloride	1	5.9	5.9	0.30	U
1330-20-7	Xylene (Total)	1	5.9	5.9	1.2	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.2	98	78 - 121	
1,2-Dichloroethane-d4	40.0	39.6	99	66 - 124	
Toluene-d8	40.0	38.9	97	85 - 115	
4-Bromofluorobenzene	40.0	36.0	90	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	851700	4.28	947725	4.28	
Chlorobenzene-d5	562873	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	238907	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: 0908228-16.D

Sampled: 08/12/09 13:55 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 12:28

Solids: 81.98 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.9 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.8	U
71-43-2	Benzene	1	6.1	6.1	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.54	U
75-27-4	Bromodichloromethane	1	6.1	6.1	1.1	U
75-25-2	Bromoform	1	6.1	6.1	0.56	U
74-83-9	Bromomethane	1	6.1	6.1	1.2	U
75-15-0	Carbon Disulfide	1	6.1	6.1	0.41	U
56-23-5	Carbon Tetrachloride	1	6.1	6.1	0.82	U
108-90-7	Chlorobenzene	1	6.1	6.1	0.96	U
75-00-3	Chloroethane	1	24	24	0.96	U
67-66-3	Chloroform	1	0.62	6.1	0.28	J
74-87-3	Chloromethane	1	6.1	6.1	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U
124-48-1	Dibromochloromethane	1	6.1	6.1	0.57	U
106-93-4	1,2-Dibromoethane	1	6.1	6.1	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.1	6.1	0.32	U
541-73-1	1,3-Dichlorobenzene	1	6.1	6.1	0.47	U
106-46-7	1,4-Dichlorobenzene	1	6.1	6.1	0.57	U
75-71-8	Dichlorodifluoromethane	1	6.1	6.1	0.43	U
75-34-3	1,1-Dichloroethane	1	6.1	6.1	0.38	U
107-06-2	1,2-Dichloroethane	1	6.1	6.1	0.44	U
75-35-4	1,1-Dichloroethene	1	6.1	6.1	0.86	U
156-59-2	cis-1,2-Dichloroethene	1	6.1	6.1	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.1	6.1	0.99	U
78-87-5	1,2-Dichloropropane	1	6.1	6.1	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.1	6.1	0.51	U
10061-02-6	trans-1,3-Dichloropropene	1	6.1	6.1	0.37	U
100-41-4	Ethylbenzene	1	6.1	6.1	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.1	6.1	0.24	U
79-20-9	Methyl Acetate	1	24	24	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	6.1	6.1	0.60	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	3.9	24	1.5	J B,Z
78-93-3	2-Butanone (MEK)	1	24	24	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.1	6.1	0.95	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.1	6.1	0.96	U
127-18-4	Tetrachloroethene	1	6.1	6.1	0.91	U
108-88-3	Toluene	1	6.1	6.1	0.73	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: 0908228-16.D

Sampled: 08/12/09 13:55 Prepared: 08/17/09 02:00 Analyzed: 08/17/09 12:28

Solids: 81.98 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.9 g / 5 mL

QC Batch: 0909662 Sequence: 9H18051 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.48	U
120-82-1	1,2,4-Trichlorobenzene	1	6.1	6.1	0.87	U
71-55-6	1,1,1-Trichloroethane	1	6.1	6.1	1.0	U
79-00-5	1,1,2-Trichloroethane	1	6.1	6.1	1.1	U
79-01-6	Trichloroethene	1	6.1	6.1	0.53	U
75-69-4	Trichlorofluoromethane	1	6.1	6.1	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.1	6.1	0.64	U
75-01-4	Vinyl Chloride	1	6.1	6.1	0.31	U
1330-20-7	Xylene (Total)	1	6.1	6.1	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	40.0	100	78 - 121	
1,2-Dichloroethane-d4	40.0	39.7	99	66 - 124	
Toluene-d8	40.0	38.5	96	85 - 115	
4-Bromofluorobenzene	40.0	37.9	95	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	894422	4.28	947725	4.28	
Chlorobenzene-d5	596341	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	274524	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: 22817.D

Sampled: 08/12/09 10:30 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 13:41

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
67-64-1	Acetone	1	2.6	20	2.5	J
71-43-2	Benzene	1	1.0	1.0	0.088	U
74-97-5	Bromochloromethane	1	1.0	1.0	0.17	U
75-27-4	Bromodichloromethane	1	1.0	1.0	0.12	U
75-25-2	Bromoform	1	2.0	2.0	0.47	U
74-83-9	Bromomethane	1	1.0	1.0	0.15	U
75-15-0	Carbon Disulfide	1	5.0	5.0	0.20	U
56-23-5	Carbon Tetrachloride	1	1.0	1.0	0.16	U
108-90-7	Chlorobenzene	1	1.0	1.0	0.11	U
75-00-3	Chloroethane	1	1.0	1.0	0.13	U
67-66-3	Chloroform	1	1.0	1.0	0.074	U
74-87-3	Chloromethane	1	0.22	1.0	0.12	J
110-82-7	Cyclohexane	1	5.0	5.0	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	1	5.0	5.0	0.29	U
124-48-1	Dibromochloromethane	1	1.0	1.0	0.15	U
106-93-4	1,2-Dibromoethane	1	1.0	1.0	0.16	U
95-50-1	1,2-Dichlorobenzene	1	1.0	1.0	0.11	U
541-73-1	1,3-Dichlorobenzene	1	1.0	1.0	0.090	U
106-46-7	1,4-Dichlorobenzene	1	1.0	1.0	0.13	U
75-71-8	Dichlorodifluoromethane	1	1.0	1.0	0.13	U
75-34-3	1,1-Dichloroethane	1	1.0	1.0	0.092	U
107-06-2	1,2-Dichloroethane	1	1.0	1.0	0.096	U
75-35-4	1,1-Dichloroethene	1	1.0	1.0	0.17	U
156-59-2	cis-1,2-Dichloroethene	1	1.0	1.0	0.074	U
156-60-5	trans-1,2-Dichloroethene	1	1.0	1.0	0.086	U
78-87-5	1,2-Dichloropropane	1	1.0	1.0	0.16	U
10061-01-5	cis-1,3-Dichloropropene	1	1.0	1.0	0.076	U
10061-02-6	trans-1,3-Dichloropropene	1	1.0	1.0	0.078	U
100-41-4	Ethylbenzene	1	1.0	1.0	0.10	U
591-78-6	2-Hexanone	1	10	10	0.50	U
98-82-8	Isopropylbenzene	1	1.0	1.0	0.076	U
79-20-9	Methyl Acetate	1	5.0	5.0	0.17	U
1634-04-4	Methyl tert-Butyl Ether	1	1.0	1.0	0.11	U
108-87-2	Methylcyclohexane	1	5.0	5.0	0.081	U
75-09-2	Methylene Chloride	1	5.0	5.0	0.18	U
78-93-3	2-Butanone (MEK)	1	10	10	0.27	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	10	10	0.36	U
100-42-5	Styrene	1	1.0	1.0	0.036	U
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	1.0	0.12	U
127-18-4	Tetrachloroethene	1	1.0	1.0	0.10	U
108-88-3	Toluene	1	0.33	1.0	0.22	J

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: 22817.D

Sampled: 08/12/09 10:30 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 13:41

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	2.0	2.0	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	2.0	2.0	0.13	U
71-55-6	1,1,1-Trichloroethane	1	1.0	1.0	0.12	U
79-00-5	1,1,2-Trichloroethane	1	1.0	1.0	0.16	U
79-01-6	Trichloroethene	1	1.0	1.0	0.13	U
75-69-4	Trichlorofluoromethane	1	1.0	1.0	0.11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	1.0	1.0	0.12	U
75-01-4	Vinyl Chloride	1	1.0	1.0	0.062	U
1330-20-7	Xylene (Total)	1	3.0	3.0	0.20	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	41.0	103	85 - 115	
1,2-Dichloroethane-d4	40.0	43.3	108	70 - 120	
Toluene-d8	40.0	40.4	101	85 - 120	
4-Bromofluorobenzene	40.0	38.2	95	75 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	732067	5.14	951014	5.14	
Chlorobenzene-d5	600315	8.08	748999	8.08	
1,4-Dichlorobenzene-d4	328381	10.38	460871	10.38	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

Trip Blank

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-18 File ID: 22818.D

Sampled: 08/12/09 10:30 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 14:09

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
67-64-1	Acetone	1	4.7	20	2.5	J
71-43-2	Benzene	1	1.0	1.0	0.088	U
74-97-5	Bromochloromethane	1	1.0	1.0	0.17	U
75-27-4	Bromodichloromethane	1	1.0	1.0	0.12	U
75-25-2	Bromoform	1	2.0	2.0	0.47	U
74-83-9	Bromomethane	1	1.0	1.0	0.15	U
75-15-0	Carbon Disulfide	1	5.0	5.0	0.20	U
56-23-5	Carbon Tetrachloride	1	1.0	1.0	0.16	U
108-90-7	Chlorobenzene	1	1.0	1.0	0.11	U
75-00-3	Chloroethane	1	1.0	1.0	0.13	U
67-66-3	Chloroform	1	1.0	1.0	0.074	U
74-87-3	Chloromethane	1	1.0	1.0	0.12	U
110-82-7	Cyclohexane	1	5.0	5.0	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	1	5.0	5.0	0.29	U
124-48-1	Dibromochloromethane	1	1.0	1.0	0.15	U
106-93-4	1,2-Dibromoethane	1	1.0	1.0	0.16	U
95-50-1	1,2-Dichlorobenzene	1	1.0	1.0	0.11	U
541-73-1	1,3-Dichlorobenzene	1	1.0	1.0	0.090	U
106-46-7	1,4-Dichlorobenzene	1	1.0	1.0	0.13	U
75-71-8	Dichlorodifluoromethane	1	1.0	1.0	0.13	U
75-34-3	1,1-Dichloroethane	1	1.0	1.0	0.092	U
107-06-2	1,2-Dichloroethane	1	1.0	1.0	0.096	U
75-35-4	1,1-Dichloroethene	1	1.0	1.0	0.17	U
156-59-2	cis-1,2-Dichloroethene	1	1.0	1.0	0.074	U
156-60-5	trans-1,2-Dichloroethene	1	1.0	1.0	0.086	U
78-87-5	1,2-Dichloropropane	1	1.0	1.0	0.16	U
10061-01-5	cis-1,3-Dichloropropene	1	1.0	1.0	0.076	U
10061-02-6	trans-1,3-Dichloropropene	1	1.0	1.0	0.078	U
100-41-4	Ethylbenzene	1	1.0	1.0	0.10	U
591-78-6	2-Hexanone	1	10	10	0.50	U
98-82-8	Isopropylbenzene	1	1.0	1.0	0.076	U
79-20-9	Methyl Acetate	1	5.0	5.0	0.17	U
1634-04-4	Methyl tert-Butyl Ether	1	1.0	1.0	0.11	U
108-87-2	Methylcyclohexane	1	5.0	5.0	0.081	U
75-09-2	Methylene Chloride	1	5.0	5.0	0.18	U
78-93-3	2-Butanone (MEK)	1	10	10	0.27	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	10	10	0.36	U
100-42-5	Styrene	1	1.0	1.0	0.036	U
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	1.0	0.12	U
127-18-4	Tetrachloroethene	1	1.0	1.0	0.10	U
108-88-3	Toluene	1	1.0	1.0	0.22	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

Trip Blank

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-18 File ID: 22818.D

Sampled: 08/12/09 10:30 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 14:09

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	2.0	2.0	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	2.0	2.0	0.13	U
71-55-6	1,1,1-Trichloroethane	1	1.0	1.0	0.12	U
79-00-5	1,1,2-Trichloroethane	1	1.0	1.0	0.16	U
79-01-6	Trichloroethene	1	1.0	1.0	0.13	U
75-69-4	Trichlorofluoromethane	1	1.0	1.0	0.11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	1.0	1.0	0.12	U
75-01-4	Vinyl Chloride	1	1.0	1.0	0.062	U
1330-20-7	Xylene (Total)	1	3.0	3.0	0.20	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	41.6	104	85 - 115	
1,2-Dichloroethane-d4	40.0	43.4	108	70 - 120	
Toluene-d8	40.0	41.0	103	85 - 120	
4-Bromofluorobenzene	40.0	38.2	95	75 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	719267	5.14	951014	5.14	
Chlorobenzene-d5	587621	8.08	748999	8.08	
1,4-Dichlorobenzene-d4	321405	10.38	460871	10.38	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: 0908228-02.D

Sampled: 08/12/09 09:10 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 23:16

Solids: 81.03 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.1	U
98-86-2	Acetophenone	1	210	210	4.6	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U R,I
56-55-3	Benzo(a)anthracene	1	1.6	21	1.4	J
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	83	83	1.2	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	210	210	6.0	U
105-60-2	Caprolactam	1	410	410	16	U
86-74-8	Carbazole	1	410	410	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.1	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.3	U
53-70-3	Dibenz(a,h)anthracene	1	83	83	9.5	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	210	210	31	U
91-94-1	3,3'-Dichlorobenzidine	1	300	300	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.2	U
84-66-2	Diethyl Phthalate	1	210	210	4.3	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	410	410	130	U V1,C
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.6	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	8.6	210	5.7	J B,Z
206-44-0	Fluoranthene	1	21	21	0.94	U
86-73-7	Fluorene	1	41	41	8.5	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: 0908228-02.D

Sampled: 08/12/09 09:10 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 23:16

Solids: 81.03 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.3	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	83	83	4.5	U
78-59-1	Isophorone	1	210	210	7.7	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.9	U
106-44-5	4-Methylphenol	1	210	210	5.5	U
91-20-3	Naphthalene	1	21	21	2.6	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.4	U
100-02-7	4-Nitrophenol	1	830	830	160	U
88-75-5	2-Nitrophenol	1	210	210	8.2	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	410	410	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	21	21	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	12	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	823	613	74	35 - 105	
Phenol-d6	827	591	71	40 - 100	
Nitrobenzene-d5	409	318	78	35 - 100	
2-Fluorobiphenyl	415	292	70	45 - 105	
2,4,6-Tribromophenol	823	469	57	35 - 125	
o-Terphenyl	411	319	78	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	178005	7.945	162142	8.052	
Naphthalene-d8	676059	10.678	631706	10.803	
Acenaphthene-d10	349142	14.811	345886	14.941	
Phenanthrene-d10	502333	18.186	512675	18.281	
Chrysene-d12	593255	21.718	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: 0908228-03.D

Sampled: 08/12/09 00:00 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 23:51

Solids: 81.56 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.0	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U KJ
56-55-3	Benzo(a)anthracene	1	21	21	1.4	U
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	6.9	210	6.0	J
105-60-2	Caprolactam	1	400	400	15	U
86-74-8	Carbazole	1	400	400	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.0	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.3	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.4	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	210	210	30	U
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.1	U
84-66-2	Diethyl Phthalate	1	210	210	4.3	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	400	400	130	U UJC
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	12	210	5.7	J BJ
206-44-0	Fluoranthene	1	21	21	0.93	U
86-73-7	Fluorene	1	40	40	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: 0908228-03.D

Sampled: 08/12/09 00:00 Prepared: 08/18/09 07:41 Analyzed: 08/21/09 23:51

Solids: 81.56 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.6	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	400	400	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	21	21	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	817	737	90	35 - 105	
Phenol-d6	822	739	90	40 - 100	
Nitrobenzene-d5	407	387	95	35 - 100	
2-Fluorobiphenyl	413	337	82	45 - 105	
2,4,6-Tribromophenol	817	680	83	35 - 125	
o-Terphenyl	409	365	89	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	175677	7.944	162142	8.052	
Naphthalene-d8	704574	10.678	631706	10.803	
Acenaphthene-d10	370927	14.81	345886	14.941	
Phenanthrene-d10	534657	18.185	512675	18.281	
Chrysene-d12	665853	21.717	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: 0908228-04.D

Sampled: 08/12/09 10:00 Prepared: 08/18/09 07:41 Analyzed: 08/22/09 00:26

Solids: 83.74 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.93	U
208-96-8	Acenaphthylene	1	20	20	2.0	U
98-86-2	Acetophenone	1	200	200	4.4	U
120-12-7	Anthracene	1	20	20	3.0	U
1912-24-9	Atrazine	1	200	200	5.3	U
100-52-7	Benzaldehyde	1	200	200	7.4	U R,1
56-55-3	Benzo(a)anthracene	1	3.2	20	1.3	J
50-32-8	Benzo(a)pyrene	1	3.2	20	1.7	J
205-99-2	Benzo(b)fluoranthene	1	20	20	3.5	U
207-08-9	Benzo(k)fluoranthene	1	2.0	20	1.5	J
191-24-2	Benzo(g,h,i)perylene	1	80	80	1.1	U
92-52-4	1,1'-Biphenyl	1	200	200	0.99	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	200	200	5.9	U
105-60-2	Caprolactam	1	390	390	15	U
86-74-8	Carbazole	1	390	390	100	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.9	U
106-47-8	4-Chloroaniline	1	200	200	8.4	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.9	U
91-58-7	2-Chloronaphthalene	1	200	200	2.6	U
95-57-8	2-Chlorophenol	1	200	200	4.5	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	4.0	U
218-01-9	Chrysene	1	20	20	4.2	U
53-70-3	Dibenz(a,h)anthracene	1	80	80	9.2	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	200	200	30	U
91-94-1	3,3'-Dichlorobenzidine	1	290	290	33	U
120-83-2	2,4-Dichlorophenol	1	200	200	4.0	U
84-66-2	Diethyl Phthalate	1	200	200	4.1	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.8	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	390	390	130	U V1,C
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.7	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.4	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	42	200	5.6	J B,7
206-44-0	Fluoranthene	1	2.8	20	0.91	J
86-73-7	Fluorene	1	39	39	8.2	U

8270H

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: 0908228-04.D

Sampled: 08/12/09 10:00 Prepared: 08/18/09 07:41 Analyzed: 08/22/09 00:26

Solids: 83.74 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	5.1	U
87-68-3	Hexachlorobutadiene	1	200	200	4.1	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.4	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	80	80	4.4	U
78-59-1	Isophorone	1	200	200	7.4	U
91-57-6	2-Methylnaphthalene	1	200	200	0.54	U
95-48-7	2-Methylphenol	1	200	200	5.7	U
106-44-5	4-Methylphenol	1	200	200	5.3	U
91-20-3	Naphthalene	1	20	20	2.5	U
88-74-4	2-Nitroaniline	1	200	200	8.5	U
99-09-2	3-Nitroaniline	1	200	200	8.5	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.2	U
100-02-7	4-Nitrophenol	1	800	800	160	U
88-75-5	2-Nitrophenol	1	200	200	7.9	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.7	U
87-86-5	Pentachlorophenol	1	390	390	53	U
85-01-8	Phenanthrene	1	2.0	20	1.3	J
108-95-2	Phenol	1	200	200	53	U
129-00-0	Pyrene	1	2.8	20	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	796	742	93	35 - 105	
Phenol-d6	800	720	90	40 - 100	
Nitrobenzene-d5	396	384	97	35 - 100	
2-Fluorobiphenyl	402	345	86	45 - 105	
2,4,6-Tribromophenol	796	646	81	35 - 125	
o-Terphenyl	398	351	88	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	166915	7.939	162142	8.052	
Naphthalene-d8	650910	10.678	631706	10.803	
Acenaphthene-d10	329215	14.805	345886	14.941	
Phenanthrene-d10	438485	18.191	512675	18.281	
Chrysene-d12	372249	21.717	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-05 File ID: 0908228-05.D

Sampled: 08/12/09 10:10 Prepared: 08/20/09 08:09 Analyzed: 08/22/09 01:35

Solids: 83.60 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.93	U
208-96-8	Acenaphthylene	1	20	20	2.0	U
98-86-2	Acetophenone	1	200	200	4.4	U
120-12-7	Anthracene	1	20	20	3.1	U
1912-24-9	Atrazine	1	200	200	5.3	U
100-52-7	Benzaldehyde	1	200	200	7.4	U R,1
56-55-3	Benzo(a)anthracene	1	20	20	1.4	U
50-32-8	Benzo(a)pyrene	1	20	20	1.7	U
205-99-2	Benzo(b)fluoranthene	1	20	20	3.5	U
207-08-9	Benzo(k)fluoranthene	1	20	20	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	80	80	1.1	U
92-52-4	1,1'-Biphenyl	1	200	200	0.99	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	200	200	5.9	U
105-60-2	Caprolactam	1	390	390	15	U
86-74-8	Carbazole	1	390	390	100	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.9	U
106-47-8	4-Chloroaniline	1	200	200	8.5	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	8.0	U
91-58-7	2-Chloronaphthalene	1	200	200	2.6	U
95-57-8	2-Chlorophenol	1	200	200	4.5	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	4.0	U
218-01-9	Chrysene	1	20	20	4.2	U
53-70-3	Dibenz(a,h)anthracene	1	80	80	9.2	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	110	200	30	JB B,Z
91-94-1	3,3´-Dichlorobenzidine	1	290	290	33	U
120-83-2	2,4-Dichlorophenol	1	200	200	4.0	U
84-66-2	Diethyl Phthalate	1	200	200	4.2	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.8	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	390	390	130	U UJ,C
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.7	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.4	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	8.0	200	5.6	J B,Z
206-44-0	Fluoranthene	1	20	20	0.91	U
86-73-7	Fluorene	1	39	39	8.2	U

02719

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-05 File ID: 0908228-05.D

Sampled: 08/12/09 10:10 Prepared: 08/20/09 08:09 Analyzed: 08/22/09 01:35

Solids: 83.60 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	5.1	U
87-68-3	Hexachlorobutadiene	1	200	200	4.1	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.4	U
67-72-1	Hexachloroethane	1	200	200	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	80	80	4.4	U
78-59-1	Isophorone	1	200	200	7.4	U
91-57-6	2-Methylnaphthalene	1	200	200	0.54	U
95-48-7	2-Methylphenol	1	200	200	5.7	U
106-44-5	4-Methylphenol	1	200	200	5.3	U
91-20-3	Naphthalene	1	20	20	2.5	U
88-74-4	2-Nitroaniline	1	200	200	8.5	U
99-09-2	3-Nitroaniline	1	200	200	8.5	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.2	U
100-02-7	4-Nitrophenol	1	800	800	160	U
88-75-5	2-Nitrophenol	1	200	200	7.9	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.7	U
87-86-5	Pentachlorophenol	1	390	390	53	U
85-01-8	Phenanthrene	1	20	20	1.3	U
108-95-2	Phenol	1	200	200	53	U
129-00-0	Pyrene	1	20	20	1.4	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	797	728	91	35 - 105	
Phenol-d6	801	715	89	40 - 100	
Nitrobenzene-d5	397	358	90	35 - 100	
2-Fluorobiphenyl	403	321	80	45 - 105	
2,4,6-Tribromophenol	797	601	75	35 - 125	
o-Terphenyl	399	345	86	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	165818	7.944	162142	8.052	
Naphthalene-d8	675276	10.684	631706	10.803	
Acenaphthene-d10	350337	14.81	345886	14.941	
Phenanthrene-d10	506836	18.185	512675	18.281	
Chrysene-d12	641266	21.717	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: 0908228-06.D

Sampled: 08/12/09 11:00 Prepared: 08/18/09 07:41 Analyzed: 08/22/09 01:00

Solids: 82.00 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.95	U
208-96-8	Acenaphthylene	1	21	21	2.0	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.4	U
100-52-7	Benzaldehyde	1	210	210	7.5	U K,I
56-55-3	Benzo(a)anthracene	1	4.1	21	1.4	J
50-32-8	Benzo(a)pyrene	1	3.7	21	1.7	J
205-99-2	Benzo(b)fluoranthene	1	6.5	21	3.6	J
207-08-9	Benzo(k)fluoranthene	1	2.8	21	1.6	J
191-24-2	Benzo(g,h,i)perylene	1	3.3	82	1.1	J
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	7.7	210	6.0	J
105-60-2	Caprolactam	1	400	400	15	U
86-74-8	Carbazole	1	400	400	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.0	U
106-47-8	4-Chloroaniline	1	210	210	8.6	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.1	U
91-58-7	2-Chloronaphthalene	1	210	210	2.6	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	4.9	21	4.2	J
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.4	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	210	210	30	U
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.1	U
84-66-2	Diethyl Phthalate	1	210	210	4.2	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	400	400	130	U VJ,c
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	33	210	5.7	J B,Z
206-44-0	Fluoranthene	1	8.1	21	0.93	J
86-73-7	Fluorene	1	40	40	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: 0908228-06.D

Sampled: 08/12/09 11:00 Prepared: 08/18/09 07:41 Analyzed: 08/22/09 01:00

Solids: 82.00 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909647 Sequence: 9H24008 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.55	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.5	U
88-74-4	2-Nitroaniline	1	210	210	8.6	U
99-09-2	3-Nitroaniline	1	210	210	8.6	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.8	U
87-86-5	Pentachlorophenol	1	400	400	54	U
85-01-8	Phenanthrene	1	4.9	21	1.3	J
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	8.5	21	1.5	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	813	842	104	35 - 105	
Phenol-d6	817	813	100	40 - 100	
Nitrobenzene-d5	404	413	102	35 - 100	*
2-Fluorobiphenyl	411	384	93	45 - 105	
2,4,6-Tribromophenol	813	773	95	35 - 125	
o-Terphenyl	407	379	93	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	167972	7.944	162142	8.052	
Naphthalene-d8	671206	10.678	631706	10.803	
Acenaphthene-d10	349750	14.811	345886	14.941	
Phenanthrene-d10	471162	18.185	512675	18.281	
Chrysene-d12	447817	21.717	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-07 File ID: 0908228-07.D

Sampled: 08/12/09 11:15 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 14:35

Solids: 81.42 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.1	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U R,1
56-55-3	Benzo(a)anthracene	1	1.6	21	1.4	J
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	210	210	6.0	U
105-60-2	Caprolactam	1	410	410	15	U
86-74-8	Carbazole	1	410	410	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.1	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.3	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.5	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	59	210	30	JB B,7
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.2	U
84-66-2	Diethyl Phthalate	1	210	210	4.3	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	410	410	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	7.0	210	5.7	J B,7
206-44-0	Fluoranthene	1	21	21	0.94	U
86-73-7	Fluorene	1	41	41	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-07 File ID: 0908228-07.D

Sampled: 08/12/09 11:15 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 14:35

Solids: 81.42 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.6	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	410	410	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	21	21	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	819	699	85	35 - 105	
Phenol-d6	823	689	84	40 - 100	
Nitrobenzene-d5	407	334	82	35 - 100	
2-Fluorobiphenyl	413	298	72	45 - 105	
2,4,6-Tribromophenol	819	583	71	35 - 125	
o-Terphenyl	409	303	74	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	205463	7.734	162142	8.052	
Naphthalene-d8	821352	10.45	631706	10.803	
Acenaphthene-d10	447772	14.565	345886	14.941	
Phenanthrene-d10	633585	17.986	512675	18.281	
Chrysene-d12	751846	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: 0908228-08.D

Sampled: 08/12/09 11:35 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 15:10

Solids: 84.77 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.92	U
208-96-8	Acenaphthylene	1	20	20	2.0	U
98-86-2	Acetophenone	1	200	200	4.4	U
120-12-7	Anthracene	1	20	20	3.0	U
1912-24-9	Atrazine	1	200	200	5.3	U
100-52-7	Benzaldehyde	1	200	200	7.3	U R1
56-55-3	Benzo(a)anthracene	1	3.5	20	1.3	J
50-32-8	Benzo(a)pyrene	1	2.0	20	1.7	J
205-99-2	Benzo(b)fluoranthene	1	5.5	20	3.4	J
207-08-9	Benzo(k)fluoranthene	1	2.8	20	1.5	J
191-24-2	Benzo(g,h,i)perylene	1	79	79	1.1	U
92-52-4	1,1'-Biphenyl	1	200	200	0.98	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	6.3	200	5.8	J
105-60-2	Caprolactam	1	390	390	15	U
86-74-8	Carbazole	1	390	390	99	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.9	U
106-47-8	4-Chloroaniline	1	200	200	8.3	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.8	U
91-58-7	2-Chloronaphthalene	1	200	200	2.6	U
95-57-8	2-Chlorophenol	1	200	200	4.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	4.0	U
218-01-9	Chrysene	1	5.5	20	4.1	J
53-70-3	Dibenz(a,h)anthracene	1	79	79	9.1	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	53	200	29	JB B2
91-94-1	3,3'-Dichlorobenzidine	1	280	280	33	U
120-83-2	2,4-Dichlorophenol	1	200	200	4.0	U
84-66-2	Diethyl Phthalate	1	200	200	4.1	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.8	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	390	390	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.7	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.3	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	15	200	5.5	J B2
206-44-0	Fluoranthene	1	10	20	0.90	J
86-73-7	Fluorene	1	39	39	8.1	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: 0908228-08.D

Sampled: 08/12/09 11:35 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 15:10

Solids: 84.77 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	5.0	U
87-68-3	Hexachlorobutadiene	1	200	200	4.1	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.4	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	79	79	4.3	U
78-59-1	Isophorone	1	200	200	7.3	U
91-57-6	2-Methylnaphthalene	1	200	200	0.53	U
95-48-7	2-Methylphenol	1	200	200	5.6	U
106-44-5	4-Methylphenol	1	200	200	5.2	U
91-20-3	Naphthalene	1	20	20	2.5	U
88-74-4	2-Nitroaniline	1	200	200	8.4	U
99-09-2	3-Nitroaniline	1	200	200	8.4	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.1	U
100-02-7	4-Nitrophenol	1	790	790	160	U
88-75-5	2-Nitrophenol	1	200	200	7.8	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.6	U
87-86-5	Pentachlorophenol	1	390	390	52	U
85-01-8	Phenanthrene	1	2.8	20	1.2	J
108-95-2	Phenol	1	200	200	53	U
129-00-0	Pyrene	1	9.4	20	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	786	707	90	35 - 105	
Phenol-d6	790	696	88	40 - 100	
Nitrobenzene-d5	391	339	87	35 - 100	
2-Fluorobiphenyl	397	306	77	45 - 105	
2,4,6-Tribromophenol	786	606	77	35 - 125	
o-Terphenyl	393	305	78	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	197436	7.728	162142	8.052	
Naphthalene-d8	778156	10.45	631706	10.803	
Acenaphthene-d10	421580	14.565	345886	14.941	
Phenanthrene-d10	581111	17.986	512675	18.281	
Chrysene-d12	596690	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: 0908228-09.D

Sampled: 08/12/09 11:40 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 15:44

Solids: 81.36 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.1	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U R1
56-55-3	Benzo(a)anthracene	1	7.4	21	1.4	J
50-32-8	Benzo(a)pyrene	1	5.3	21	1.7	J
205-99-2	Benzo(b)fluoranthene	1	6.6	21	3.6	J
207-08-9	Benzo(k)fluoranthene	1	3.3	21	1.6	J
191-24-2	Benzo(g,h,i)perylene	1	2.9	82	1.1	J
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	210	210	6.0	U
105-60-2	Caprolactam	1	410	410	15	U
86-74-8	Carbazole	1	410	410	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.1	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	6.1	21	4.3	J
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.5	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	38	210	30	JB B,Z
91-94-1	3,3´-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.2	U
84-66-2	Diethyl Phthalate	1	210	210	4.3	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	410	410	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	10	210	5.7	J B,Z
206-44-0	Fluoranthene	1	15	21	0.94	J
86-73-7	Fluorene	1	41	41	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: 0908228-09.D

Sampled: 08/12/09 11:40 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 15:44

Solids: 81.36 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.9	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.6	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	410	410	54	U
85-01-8	Phenanthrene	1	9.0	21	1.3	J
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	12	21	1.5	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	819	682	83	35 - 105	
Phenol-d6	824	684	83	40 - 100	
Nitrobenzene-d5	408	334	82	35 - 100	
2-Fluorobiphenyl	414	298	72	45 - 105	
2,4,6-Tribromophenol	819	611	75	35 - 125	
o-Terphenyl	410	314	77	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	200056	7.734	162142	8.052	
Naphthalene-d8	784822	10.45	631706	10.803	
Acenaphthene-d10	430216	14.565	345886	14.941	
Phenanthrene-d10	598132	17.987	512675	18.281	
Chrysene-d12	647526	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: 0908228-10.D

Sampled: 08/12/09 11:55 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 16:19

Solids: 86.40 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.90	U
208-96-8	Acenaphthylene	1	3.5	20	1.9	J
98-86-2	Acetophenone	1	200	200	4.3	U
120-12-7	Anthracene	1	20	20	3.0	U
1912-24-9	Atrazine	1	200	200	5.2	U
100-52-7	Benzaldehyde	1	200	200	7.2	U R,1
56-55-3	Benzo(a)anthracene	1	6.6	20	1.3	J
50-32-8	Benzo(a)pyrene	1	6.9	20	1.6	J
205-99-2	Benzo(b)fluoranthene	1	8.5	20	3.4	J
207-08-9	Benzo(k)fluoranthene	1	3.5	20	1.5	J
191-24-2	Benzo(g,h,i)perylene	1	4.6	78	1.1	J
92-52-4	1,1'-Biphenyl	1	200	200	0.96	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	200	200	5.7	U
105-60-2	Caprolactam	1	380	380	15	U
86-74-8	Carbazole	1	380	380	97	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.8	U
106-47-8	4-Chloroaniline	1	200	200	8.2	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.7	U
91-58-7	2-Chloronaphthalene	1	200	200	2.5	U
95-57-8	2-Chlorophenol	1	200	200	4.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	3.9	U
218-01-9	Chrysene	1	6.6	20	4.0	J
53-70-3	Dibenz(a,h)anthracene	1	78	78	8.9	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	200	200	29	U
91-94-1	3,3'-Dichlorobenzidine	1	280	280	32	U
120-83-2	2,4-Dichlorophenol	1	200	200	3.9	U
84-66-2	Diethyl Phthalate	1	200	200	4.0	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.7	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	23	U
51-28-5	2,4-Dinitrophenol	1	380	380	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.6	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.2	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	65	200	5.4	J B,X
206-44-0	Fluoranthene	1	4.6	20	0.88	J
86-73-7	Fluorene	1	38	38	8.0	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: 0908228-10.D

Sampled: 08/12/09 11:55 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 16:19

Solids: 86.40 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	4.9	U
87-68-3	Hexachlorobutadiene	1	200	200	4.0	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.3	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	78	78	4.2	U
78-59-1	Isophorone	1	200	200	7.2	U
91-57-6	2-Methylnaphthalene	1	200	200	0.52	U
95-48-7	2-Methylphenol	1	200	200	5.5	U
106-44-5	4-Methylphenol	1	200	200	5.1	U
91-20-3	Naphthalene	1	20	20	2.4	U
88-74-4	2-Nitroaniline	1	200	200	8.2	U
99-09-2	3-Nitroaniline	1	200	200	8.2	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.0	U
100-02-7	4-Nitrophenol	1	780	780	150	U
88-75-5	2-Nitrophenol	1	200	200	7.7	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.5	U
87-86-5	Pentachlorophenol	1	380	380	51	U
85-01-8	Phenanthrene	1	20	20	1.2	U
108-95-2	Phenol	1	200	200	52	U
129-00-0	Pyrene	1	8.1	20	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	772	624	81	35 - 105	
Phenol-d6	775	621	80	40 - 100	
Nitrobenzene-d5	384	310	81	35 - 100	
2-Fluorobiphenyl	390	284	73	45 - 105	
2,4,6-Tribromophenol	772	542	70	35 - 125	
o-Terphenyl	386	285	74	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	192867	7.734	162142	8.052	
Naphthalene-d8	759090	10.45	631706	10.803	
Acenaphthene-d10	407521	14.565	345886	14.941	
Phenanthrene-d10	578954	17.986	512675	18.281	
Chrysene-d12	638686	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: 0908228-11.D

Sampled: 08/12/09 12:00 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 16:53

Solids: 81.59 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.0	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U R,J
56-55-3	Benzo(a)anthracene	1	21	21	1.4	U
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	27	210	6.0	J
105-60-2	Caprolactam	1	400	400	15	U
86-74-8	Carbazole	1	400	400	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.0	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.3	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.4	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	93	210	30	JB B,Z
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.1	U
84-66-2	Diethyl Phthalate	1	210	210	4.3	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	400	400	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	660	210	5.7	
206-44-0	Fluoranthene	1	21	21	0.93	U
86-73-7	Fluorene	1	40	40	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: 0908228-11.D

Sampled: 08/12/09 12:00 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 16:53

Solids: 81.59 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.5	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	400	400	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	21	21	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	817	677	83	35 - 105	
Phenol-d6	821	692	84	40 - 100	
Nitrobenzene-d5	406	338	83	35 - 100	
2-Fluorobiphenyl	413	301	73	45 - 105	
2,4,6-Tribromophenol	817	610	75	35 - 125	
o-Terphenyl	409	317	78	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	203484	7.734	162142	8.052	
Naphthalene-d8	802664	10.45	631706	10.803	
Acenaphthene-d10	438993	14.565	345886	14.941	
Phenanthrene-d10	620242	17.986	512675	18.281	
Chrysene-d12	704131	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: 0908228-12.D

Sampled: 08/12/09 13:05 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 17:28

Solids: 88.22 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	19	19	0.88	U
208-96-8	Acenaphthylene	1	19	19	1.9	U
98-86-2	Acetophenone	1	190	190	4.2	U
120-12-7	Anthracene	1	19	19	2.9	U
1912-24-9	Atrazine	1	190	190	5.1	U
100-52-7	Benzaldehyde	1	190	190	7.0	U B1
56-55-3	Benzo(a)anthracene	1	3.4	19	1.3	J
50-32-8	Benzo(a)pyrene	1	2.6	19	1.6	J
205-99-2	Benzo(b)fluoranthene	1	4.5	19	3.3	J
207-08-9	Benzo(k)fluoranthene	1	19	19	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	2.3	76	1.1	J
92-52-4	1,1'-Biphenyl	1	190	190	0.94	U
101-55-3	4-Bromophenyl Phenyl Ether	1	190	190	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	26	190	5.6	J
105-60-2	Caprolactam	1	370	370	14	U
86-74-8	Carbazole	1	370	370	95	U
59-50-7	4-Chloro-3-methylphenol	1	190	190	3.7	U
106-47-8	4-Chloroaniline	1	190	190	8.0	U
111-91-1	Bis(2-chloroethoxy)methane	1	190	190	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	190	190	2.1	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	190	190	7.5	U
91-58-7	2-Chloronaphthalene	1	190	190	2.5	U
95-57-8	2-Chlorophenol	1	190	190	4.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	190	190	3.8	U
218-01-9	Chrysene	1	19	19	3.9	U
53-70-3	Dibenz(a,h)anthracene	1	76	76	8.7	U
132-64-9	Dibenzofuran	1	190	190	9.9	U
84-74-2	Di-n-butyl Phthalate	1	140	190	28	JB B2
91-94-1	3,3'-Dichlorobenzidine	1	270	270	32	U
120-83-2	2,4-Dichlorophenol	1	190	190	3.8	U
84-66-2	Diethyl Phthalate	1	190	190	3.9	U
105-67-9	2,4-Dimethylphenol	1	190	190	1.7	U
131-11-3	Dimethyl Phthalate	1	190	190	0.98	U
534-52-1	4,6-Dinitro-2-methylphenol	1	190	190	23	U
51-28-5	2,4-Dinitrophenol	1	370	370	120	U
121-14-2	2,4-Dinitrotoluene	1	190	190	21	U
606-20-2	2,6-Dinitrotoluene	1	190	190	2.6	U
117-84-0	Di-n-octyl Phthalate	1	190	190	6.0	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	110	190	5.3	J
206-44-0	Fluoranthene	1	3.0	19	0.86	J
86-73-7	Fluorene	1	37	37	7.8	U

: 026232

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: 0908228-12.D

Sampled: 08/12/09 13:05 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 17:28

Solids: 88.22 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	190	190	4.8	U
87-68-3	Hexachlorobutadiene	1	190	190	3.9	U
77-47-4	Hexachlorocyclopentadiene	1	190	190	2.3	U
67-72-1	Hexachloroethane	1	190	190	2.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	76	76	4.2	U
78-59-1	Isophorone	1	190	190	7.0	U
91-57-6	2-Methylnaphthalene	1	0.76	190	0.51	J
95-48-7	2-Methylphenol	1	190	190	5.4	U
106-44-5	4-Methylphenol	1	190	190	5.0	U
91-20-3	Naphthalene	1	19	19	2.4	U
88-74-4	2-Nitroaniline	1	190	190	8.0	U
99-09-2	3-Nitroaniline	1	190	190	8.0	U
100-01-6	4-Nitroaniline	1	190	190	1.8	U
98-95-3	Nitrobenzene	1	190	190	5.8	U
100-02-7	4-Nitrophenol	1	760	760	150	U
88-75-5	2-Nitrophenol	1	190	190	7.5	U
86-30-6	N-Nitroso-diphenylamine	1	190	190	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	190	190	6.4	U
87-86-5	Pentachlorophenol	1	370	370	50	U
85-01-8	Phenanthrene	1	2.3	19	1.2	J
108-95-2	Phenol	1	190	190	51	U
129-00-0	Pyrene	1	5.7	19	1.3	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	190	190	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	190	190	11	U
88-06-2	2,4,6-Trichlorophenol	1	190	190	2.3	U
95-95-4	2,4,5-Trichlorophenol	1	190	190	2.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	756	623	82	35 - 105	
Phenol-d6	759	620	82	40 - 100	
Nitrobenzene-d5	376	309	82	35 - 100	
2-Fluorobiphenyl	382	277	73	45 - 105	
2,4,6-Tribromophenol	756	547	72	35 - 125	
o-Terphenyl	378	262	69	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	192296	7.734	162142	8.052	
Naphthalene-d8	746693	10.45	631706	10.803	
Acenaphthene-d10	402447	14.565	345886	14.941	
Phenanthrene-d10	555855	17.986	512675	18.281	
Chrysene-d12	490694	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: 0908228-13.D

Sampled: 08/12/09 13:20 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 18:03

Solids: 82.12 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.95	U
208-96-8	Acenaphthylene	1	21	21	2.0	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.4	U
100-52-7	Benzaldehyde	1	210	210	7.5	U K,J
56-55-3	Benzo(a)anthracene	1	21	21	1.4	U
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	17	210	6.0	J
105-60-2	Caprolactam	1	400	400	15	U
86-74-8	Carbazole	1	400	400	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.0	U
106-47-8	4-Chloroaniline	1	210	210	8.6	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.1	U
91-58-7	2-Chloronaphthalene	1	210	210	2.6	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.2	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.4	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	190	210	30	JB B,Z
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.1	U
84-66-2	Diethyl Phthalate	1	210	210	4.2	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	400	400	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	13	210	5.7	J B,Z
206-44-0	Fluoranthene	1	21	21	0.93	U
86-73-7	Fluorene	1	40	40	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: 0908228-13.D

Sampled: 08/12/09 13:20 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 18:03

Solids: 82.12 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.4	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.55	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.5	U
88-74-4	2-Nitroaniline	1	210	210	8.6	U
99-09-2	3-Nitroaniline	1	210	210	8.6	U
100-01-6	4-Nitroaniline	1	210	210	1.9	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.0	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.8	U
87-86-5	Pentachlorophenol	1	400	400	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	54	U
129-00-0	Pyrene	1	21	21	1.4	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	812	707	87	35 - 105	
Phenol-d6	816	716	88	40 - 100	
Nitrobenzene-d5	404	346	86	35 - 100	
2-Fluorobiphenyl	410	304	74	45 - 105	
2,4,6-Tribromophenol	812	640	79	35 - 125	
o-Terphenyl	406	331	81	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	193900	7.734	162142	8.052	
Naphthalene-d8	764665	10.45	631706	10.803	
Acenaphthene-d10	423801	14.565	345886	14.941	
Phenanthrene-d10	589771	17.986	512675	18.281	
Chrysene-d12	716391	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: 0908228-14.D

Sampled: 08/12/09 00:00 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 18:37

Solids: 82.34 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.95	U
208-96-8	Acenaphthylene	1	21	21	2.0	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.4	U
100-52-7	Benzaldehyde	1	210	210	7.5	U R,1
56-55-3	Benzo(a)anthracene	1	21	21	1.4	U
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.5	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	81	81	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	12	210	6.0	J
105-60-2	Caprolactam	1	400	400	15	U
86-74-8	Carbazole	1	400	400	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.0	U
106-47-8	4-Chloroaniline	1	210	210	8.6	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.1	U
91-58-7	2-Chloronaphthalene	1	210	210	2.6	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.2	U
53-70-3	Dibenz(a,h)anthracene	1	81	81	9.4	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	210	210	30	B B,1
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.1	U
84-66-2	Diethyl Phthalate	1	210	210	4.2	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	400	400	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	9.3	210	5.6	J B,1
206-44-0	Fluoranthene	1	21	21	0.93	U
86-73-7	Fluorene	1	40	40	8.3	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: 0908228-14.D

Sampled: 08/12/09 00:00 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 18:37

Solids: 82.34 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.4	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	81	81	4.5	U
78-59-1	Isophorone	1	210	210	7.5	U
91-57-6	2-Methylnaphthalene	1	210	210	0.55	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.5	U
88-74-4	2-Nitroaniline	1	210	210	8.6	U
99-09-2	3-Nitroaniline	1	210	210	8.6	U
100-01-6	4-Nitroaniline	1	210	210	1.9	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	810	810	160	U
88-75-5	2-Nitrophenol	1	210	210	8.0	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.8	U
87-86-5	Pentachlorophenol	1	400	400	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	54	U
129-00-0	Pyrene	1	21	21	1.4	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	810	594	73	35 - 105	
Phenol-d6	814	591	73	40 - 100	
Nitrobenzene-d5	403	291	72	35 - 100	
2-Fluorobiphenyl	409	263	64	45 - 105	
2,4,6-Tribromophenol	810	540	67	35 - 125	
o-Terphenyl	405	277	68	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	214056	7.734	162142	8.052	
Naphthalene-d8	824754	10.45	631706	10.803	
Acenaphthene-d10	454359	14.565	345886	14.941	
Phenanthrene-d10	643971	17.986	512675	18.281	
Chrysene-d12	764157	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: 0908228-15.D

Sampled: 08/12/09 13:40 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 19:12

Solids: 84.57 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.92	U
208-96-8	Acenaphthylene	1	20	20	2.0	U
98-86-2	Acetophenone	1	200	200	4.4	U
120-12-7	Anthracene	1	20	20	3.0	U
1912-24-9	Atrazine	1	200	200	5.3	U
100-52-7	Benzaldehyde	1	200	200	7.3	U RJ
56-55-3	Benzo(a)anthracene	1	2.4	20	1.3	J
50-32-8	Benzo(a)pyrene	1	20	20	1.7	U
205-99-2	Benzo(b)fluoranthene	1	20	20	3.5	U
207-08-9	Benzo(k)fluoranthene	1	20	20	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	79	79	1.1	U
92-52-4	1,1'-Biphenyl	1	200	200	0.98	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	200	200	5.8	U
105-60-2	Caprolactam	1	390	390	15	U
86-74-8	Carbazole	1	390	390	99	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.9	U
106-47-8	4-Chloroaniline	1	200	200	8.4	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.9	U
91-58-7	2-Chloronaphthalene	1	200	200	2.6	U
95-57-8	2-Chlorophenol	1	200	200	4.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	4.0	U
218-01-9	Chrysene	1	20	20	4.1	U
53-70-3	Dibenz(a,h)anthracene	1	79	79	9.1	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	190	200	29	JB BZ
91-94-1	3,3'-Dichlorobenzidine	1	280	280	33	U
120-83-2	2,4-Dichlorophenol	1	200	200	4.0	U
84-66-2	Diethyl Phthalate	1	200	200	4.1	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.8	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	390	390	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.7	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.3	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	11	200	5.5	J BZ
206-44-0	Fluoranthene	1	1.2	20	0.90	J
86-73-7	Fluorene	1	39	39	8.1	U

: 022674

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: 0908228-15.D

Sampled: 08/12/09 13:40 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 19:12

Solids: 84.57 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	5.0	U
87-68-3	Hexachlorobutadiene	1	200	200	4.1	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.4	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	79	79	4.3	U
78-59-1	Isophorone	1	200	200	7.3	U
91-57-6	2-Methylnaphthalene	1	200	200	0.54	U
95-48-7	2-Methylphenol	1	200	200	5.6	U
106-44-5	4-Methylphenol	1	200	200	5.2	U
91-20-3	Naphthalene	1	20	20	2.5	U
88-74-4	2-Nitroaniline	1	200	200	8.4	U
99-09-2	3-Nitroaniline	1	200	200	8.4	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.1	U
100-02-7	4-Nitrophenol	1	790	790	160	U
88-75-5	2-Nitrophenol	1	200	200	7.8	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.6	U
87-86-5	Pentachlorophenol	1	390	390	52	U
85-01-8	Phenanthrene	1	20	20	1.2	U
108-95-2	Phenol	1	200	200	53	U
129-00-0	Pyrene	1	1.6	20	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	788	653	83	35 - 105	
Phenol-d6	792	651	82	40 - 100	
Nitrobenzene-d5	392	322	82	35 - 100	
2-Fluorobiphenyl	398	296	74	45 - 105	
2,4,6-Tribromophenol	788	530	67	35 - 125	
o-Terphenyl	394	302	76	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	199923	7.728	162142	8.052	
Naphthalene-d8	783400	10.45	631706	10.803	
Acenaphthene-d10	429709	14.565	345886	14.941	
Phenanthrene-d10	608170	17.986	512675	18.281	
Chrysene-d12	719066	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: 0908228-16.D

Sampled: 08/12/09 13:55 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 19:46

Solids: 81.98 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.95	U
208-96-8	Acenaphthylene	1	21	21	2.0	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.4	U
100-52-7	Benzaldehyde	1	210	210	7.5	U R,1
56-55-3	Benzo(a)anthracene	1	21	21	1.4	U
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	210	210	6.0	U
105-60-2	Caprolactam	1	400	400	15	U
86-74-8	Carbazole	1	400	400	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.0	U
106-47-8	4-Chloroaniline	1	210	210	8.6	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.1	U
91-58-7	2-Chloronaphthalene	1	210	210	2.6	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.2	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.4	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	210	210	30	U
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.1	U
84-66-2	Diethyl Phthalate	1	210	210	4.2	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	400	400	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	6.1	210	5.7	J B,Z
206-44-0	Fluoranthene	1	21	21	0.93	U
86-73-7	Fluorene	1	40	40	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: 0908228-16.D

Sampled: 08/12/09 13:55 Prepared: 08/20/09 08:09 Analyzed: 08/26/09 19:46

Solids: 81.98 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H26032 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.55	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	210	210	5.4	U
91-20-3	Naphthalene	1	21	21	2.5	U
88-74-4	2-Nitroaniline	1	210	210	8.6	U
99-09-2	3-Nitroaniline	1	210	210	8.6	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.8	U
87-86-5	Pentachlorophenol	1	400	400	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	21	21	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	813	658	81	35 - 105	
Phenol-d6	817	657	80	40 - 100	
Nitrobenzene-d5	405	319	79	35 - 100	
2-Fluorobiphenyl	411	292	71	45 - 105	
2,4,6-Tribromophenol	813	526	65	35 - 125	
o-Terphenyl	407	300	74	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	203892	7.734	162142	8.052	
Naphthalene-d8	815443	10.45	631706	10.803	
Acenaphthene-d10	443480	14.565	345886	14.941	
Phenanthrene-d10	627342	17.986	512675	18.281	
Chrysene-d12	751928	21.583	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: 0908228-17.D

Sampled: 08/12/09 10:30 Prepared: 08/14/09 08:51 Analyzed: 08/18/09 05:53

Solids: Preparation: 3510C Liquid-Liquid Ext Initial/Final: 990 mL / 1 mL

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
83-32-9	Acenaphthene	1	0.50	0.50	0.030	U
208-96-8	Acenaphthylene	1	0.50	0.50	0.020	U
98-86-2	Acetophenone	1	5.0	5.0	0.068	U
120-12-7	Anthracene	1	0.50	0.50	0.036	U
1912-24-9	Atrazine	1	5.0	5.0	0.051	U
100-52-7	Benzaldehyde	1	5.0	5.0	0.22	U
56-55-3	Benzo(a)anthracene	1	0.50	0.50	0.022	U
50-32-8	Benzo(a)pyrene	1	0.50	0.50	0.042	U
205-99-2	Benzo(b)fluoranthene	1	0.50	0.50	0.11	U
207-08-9	Benzo(k)fluoranthene	1	0.50	0.50	0.12	U
191-24-2	Benzo(g,h,i)perylene	1	0.50	0.50	0.098	U
92-52-4	1,1'-Biphenyl	1	5.0	5.0	0.10	U
101-55-3	4-Bromophenyl Phenyl Ether	1	5.0	5.0	0.036	U
85-68-7	Butyl Benzyl Phthalate	1	0.51	5.0	0.058	J B,Z
105-60-2	Caprolactam	1	5.0	5.0	0.21	U R,J
86-74-8	Carbazole	1	5.0	5.0	0.047	U
59-50-7	4-Chloro-3-methylphenol	1	5.0	5.0	0.031	U
106-47-8	4-Chloroaniline	1	5.0	5.0	0.15	U
111-91-1	Bis(2-chloroethoxy)methane	1	5.0	5.0	0.035	U
111-44-4	Bis(2-chloroethyl) Ether	1	5.0	5.0	0.035	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	5.0	5.0	0.059	U
91-58-7	2-Chloronaphthalene	1	5.0	5.0	0.029	U
95-57-8	2-Chlorophenol	1	5.0	5.0	0.080	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	5.0	5.0	0.031	U
218-01-9	Chrysene	1	0.50	0.50	0.036	U
53-70-3	Dibenz(a,h)anthracene	1	0.50	0.50	0.070	U
132-64-9	Dibenzofuran	1	5.0	5.0	0.039	U
84-74-2	Di-n-butyl Phthalate	1	0.66	5.0	0.27	J B,Z
91-94-1	3,3'-Dichlorobenzidine	1	5.0	5.0	0.64	U
120-83-2	2,4-Dichlorophenol	1	5.0	5.0	0.056	U
84-66-2	Diethyl Phthalate	1	0.081	5.0	0.043	J B,Z
105-67-9	2,4-Dimethylphenol	1	5.0	5.0	0.24	U
131-11-3	Dimethyl Phthalate	1	5.0	5.0	0.045	U
534-52-1	4,6-Dinitro-2-methylphenol	1	5.0	5.0	0.17	U
51-28-5	2,4-Dinitrophenol	1	10	10	2.2	U
121-14-2	2,4-Dinitrotoluene	1	5.0	5.0	0.096	U
606-20-2	2,6-Dinitrotoluene	1	5.0	5.0	0.13	U
117-84-0	Di-n-octyl Phthalate	1	5.0	5.0	0.064	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	0.26	5.0	0.24	J
206-44-0	Fluoranthene	1	0.50	0.50	0.030	U
86-73-7	Fluorene	1	0.50	0.50	0.031	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: 0908228-17.D

Sampled: 08/12/09 10:30 Prepared: 08/14/09 08:51 Analyzed: 08/18/09 05:53

Solids: Preparation: 3510C Liquid-Liquid Extr Initial/Final: 990 mL / 1 mL

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	5.0	5.0	0.062	U
87-68-3	Hexachlorobutadiene	1	5.0	5.0	0.057	U
77-47-4	Hexachlorocyclopentadiene	1	5.0	5.0	0.057	U
67-72-1	Hexachloroethane	1	5.0	5.0	0.035	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	0.50	0.038	U
78-59-1	Isophorone	1	5.0	5.0	0.056	U
91-57-6	2-Methylnaphthalene	1	5.0	5.0	0.024	U
95-48-7	2-Methylphenol	1	5.0	5.0	0.044	U
106-44-5	4-Methylphenol	1	5.0	5.0	0.18	U
91-20-3	Naphthalene	1	0.50	0.50	0.024	U
88-74-4	2-Nitroaniline	1	5.0	5.0	0.16	U
99-09-2	3-Nitroaniline	1	5.0	5.0	0.050	U
100-01-6	4-Nitroaniline	1	5.0	5.0	0.070	U
98-95-3	Nitrobenzene	1	5.0	5.0	0.076	U
100-02-7	4-Nitrophenol	1	5.0	5.0	0.19	U
88-75-5	2-Nitrophenol	1	5.0	5.0	0.071	U
86-30-6	N-Nitroso-diphenylamine	1	5.0	5.0	0.042	U
621-64-7	N-Nitroso-di-n-propylamine	1	5.0	5.0	0.044	U
87-86-5	Pentachlorophenol	1	5.0	5.0	0.11	U
85-01-8	Phenanthrene	1	0.50	0.50	0.031	U
108-95-2	Phenol	1	5.0	5.0	0.49	U
129-00-0	Pyrene	1	0.50	0.50	0.022	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	5.0	5.0	0.018	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	5.0	5.0	0.29	U
88-06-2	2,4,6-Trichlorophenol	1	5.0	5.0	0.059	U
95-95-4	2,4,5-Trichlorophenol	1	5.0	5.0	0.099	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
2-Fluorophenol	20.2	12.7	63	20 - 110	
Phenol-d6	20.3	8.42	41	10 - 115	
Nitrobenzene-d5	10.1	9.86	98	40 - 110	
2-Fluorobiphenyl	10.2	8.23	81	50 - 110	
2,4,6-Tribromophenol	20.2	19.2	95	40 - 125	
o-Terphenyl	10.1	10.0	99	50 - 135	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	122034	8.052	162142	8.052	
Naphthalene-d8	455294	10.797	631706	10.803	
Acenaphthene-d10	243657	14.93	345886	14.941	
Phenanthrene-d10	353549	18.275	512675	18.281	
Chrysene-d12	391153	21.784	651471	21.79	

ANALYSIS DATA SHEET

72SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-01 File ID: A85_243-0

Sampled: 08/12/09 08:55 Prepared: 08/17/09 08:13 Analyzed: 08/28/09 04:36

Solids: 88.43 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.019	0.019	0.00025	U
319-85-7	beta-BHC	1	0.019	0.019	0.00032	U
58-89-9	gamma-BHC (Lindane)	1	0.019	0.019	0.00029	U
319-86-8	delta-BHC	1	0.019	0.019	0.00030	U
5103-71-9	alpha-Chlordane	1	0.019	0.019	0.00045	U
5103-74-2	gamma-Chlordane	1	0.019	0.019	0.00032	U
72-54-8	4,4'-DDD	1	0.019	0.019	0.00034	U
72-55-9	4,4'-DDE	1	0.019	0.019	0.00028	U
50-29-3	4,4'-DDT	1	0.019	0.019	0.00029	U
309-00-2	Aldrin	1	0.019	0.019	0.0014	U
60-57-1	Dieldrin	1	0.019	0.019	0.00028	U
959-98-8	Endosulfan I	1	0.019	0.019	0.00029	U
33213-65-9	Endosulfan II	1	0.019	0.019	0.00031	U
1031-07-8	Endosulfan Sulfate	1	0.019	0.019	0.00037	U
72-20-8	Endrin	1	0.019	0.019	0.00031	U
7421-93-4	Endrin Aldehyde	1	0.019	0.019	0.0010	U
53494-70-5	Endrin Ketone	1	0.019	0.019	0.00041	U
76-44-8	Heptachlor	1	0.019	0.019	0.00049	U
1024-57-3	Heptachlor Epoxide	1	0.019	0.019	0.00024	U
72-43-5	Methoxychlor	1	0.019	0.019	0.00041	U
8001-35-2	Toxaphene	1	0.19	0.19	0.0033	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0377	0.0435	116	70 - 125	
Decachlorobiphenyl	0.0377	0.0410	109	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: A85_196-0

Sampled: 08/12/09 09:10 Prepared: 08/17/09 08:13 Analyzed: 08/26/09 22:39

Solids: 81.03 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9H27089 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00033	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00034	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00045	U
76-44-8	Heptachlor	1	0.021	0.021	0.00054	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0411	0.0374	91	70 - 125	
Decachlorobiphenyl	0.0411	0.0342	83	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: A85_195-0

Sampled: 08/12/09 00:00 Prepared: 08/17/09 08:13 Analyzed: 08/26/09 22:01

Solids: 81.56 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9H27089 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00032	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0409	0.0394	97	70 - 125	
Decachlorobiphenyl	0.0409	0.0363	89	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: A85_194-0

Sampled: 08/12/09 10:00 Prepared: 08/17/09 08:13 Analyzed: 08/26/09 21:24

Solids: 83.74 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909442 Sequence: 9H27089 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00034	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00031	U
319-86-8	delta-BHC	1	0.020	0.020	0.00032	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00048	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00034	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00036	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00030	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00031	U
309-00-2	Aldrin	1	0.020	0.020	0.0015	U
60-57-1	Dieldrin	1	0.020	0.020	0.00030	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00040	U
72-20-8	Endrin	1	0.020	0.020	0.00033	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0011	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00043	U
76-44-8	Heptachlor	1	0.020	0.020	0.00052	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00044	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0035	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0398	0.0383	96	70 - 125	
Decachlorobiphenyl	0.0398	0.0345	87	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-05 File ID: A85_209-0

Sampled: 08/12/09 10:10 Prepared: 08/19/09 08:06 Analyzed: 08/27/09 06:46

Solids: 83.60 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9H27093 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00034	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00031	U
319-86-8	delta-BHC	1	0.020	0.020	0.00032	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00048	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00034	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00036	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00030	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00031	U
309-00-2	Aldrin	1	0.020	0.020	0.0015	U
60-57-1	Dieldrin	1	0.020	0.020	0.00030	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00031	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00040	U
72-20-8	Endrin	1	0.020	0.020	0.00033	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0011	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00043	U
76-44-8	Heptachlor	1	0.020	0.020	0.00052	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00044	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0035	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0399	0.0348	87	70 - 125	
Decachlorobiphenyl	0.0399	0.0322	81	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: A85_208-0

Sampled: 08/12/09 11:00 Prepared: 08/19/09 08:06 Analyzed: 08/27/09 06:08

Solids: 82.00 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9H27093 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00031	U
319-86-8	delta-BHC	1	0.021	0.021	0.00032	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00036	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00030	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00040	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0035	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0407	0.0357	88	70 - 125	
Decachlorobiphenyl	0.0407	0.0334	82	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-07 File ID: A85_207-0

Sampled: 08/12/09 11:15 Prepared: 08/19/09 08:06 Analyzed: 08/27/09 05:31

Solids: 81.42 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9H27093 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00033	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00034	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0409	0.0350	85	70 - 125	
Decachlorobiphenyl	0.0409	0.0335	82	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: A85_206-0

Sampled: 08/12/09 11:35 Prepared: 08/19/09 08:06 Analyzed: 08/27/09 04:54

Solids: 84.77 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9H27093 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00034	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00047	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00034	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00035	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00029	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00031	U
309-00-2	Aldrin	1	0.020	0.020	0.0015	U
60-57-1	Dieldrin	1	0.020	0.020	0.00030	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00039	U
72-20-8	Endrin	1	0.020	0.020	0.00032	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0011	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00043	U
76-44-8	Heptachlor	1	0.020	0.020	0.00051	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00043	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0393	0.0369	94	70 - 125	
Decachlorobiphenyl	0.0393	0.0350	89	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: A85_205-0

Sampled: 08/12/09 11:40 Prepared: 08/19/09 08:06 Analyzed: 08/27/09 04:16

Solids: 81.36 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9H27093 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00033	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.0012	0.021	0.00032	J
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00034	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.0023	0.021	0.0011	J J,g
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0410	0.0355	87	70 - 125	
Decachlorobiphenyl	0.0410	0.0344	84	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: A85_204-0

Sampled: 08/12/09 11:55 Prepared: 08/19/09 08:06 Analyzed: 08/27/09 03:39

Solids: 86.40 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9H27093 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00046	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00033	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00034	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00029	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00030	U
309-00-2	Aldrin	1	0.020	0.020	0.0014	U
60-57-1	Dieldrin	1	0.020	0.020	0.00029	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00038	U
72-20-8	Endrin	1	0.020	0.020	0.00032	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0010	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00042	U
76-44-8	Heptachlor	1	0.020	0.020	0.00050	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00042	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0386	0.0312	81	70 - 125	
Decachlorobiphenyl	0.0386	0.0284	74	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: A85_203-0

Sampled: 08/12/09 12:00 Prepared: 08/19/09 08:06 Analyzed: 08/27/09 03:01

Solids: 81.59 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9H27093 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00031	U
319-86-8	delta-BHC	1	0.021	0.021	0.00032	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0409	0.0357	87	70 - 125	
Decachlorobiphenyl	0.0409	0.0341	83	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: A85_378-0

Sampled: 08/12/09 13:05 Prepared: 08/19/09 08:06 Analyzed: 09/01/09 12:33

Solids: 88.22 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.019	0.019	0.00025	U
319-85-7	beta-BHC	1	0.019	0.019	0.00032	U
58-89-9	gamma-BHC (Lindane)	1	0.019	0.019	0.00029	U
319-86-8	delta-BHC	1	0.019	0.019	0.00030	U
5103-71-9	alpha-Chlordane	1	0.019	0.019	0.00045	U
5103-74-2	gamma-Chlordane	1	0.019	0.019	0.00032	U
72-54-8	4,4'-DDD	1	0.019	0.019	0.00034	U
72-55-9	4,4'-DDE	1	0.019	0.019	0.00028	U
50-29-3	4,4'-DDT	1	0.019	0.019	0.00029	U
309-00-2	Aldrin	1	0.019	0.019	0.0014	U
60-57-1	Dieldrin	1	0.019	0.019	0.00029	U
959-98-8	Endosulfan I	1	0.019	0.019	0.00029	U
33213-65-9	Endosulfan II	1	0.019	0.019	0.00031	U
1031-07-8	Endosulfan Sulfate	1	0.019	0.019	0.00038	U
72-20-8	Endrin	1	0.00053	0.019	0.00031	J
7421-93-4	Endrin Aldehyde	1	0.019	0.019	0.0010	U
53494-70-5	Endrin Ketone	1	0.019	0.019	0.00041	U
76-44-8	Heptachlor	1	0.019	0.019	0.00049	U
1024-57-3	Heptachlor Epoxide	1	0.019	0.019	0.00024	U
72-43-5	Methoxychlor	1	0.019	0.019	0.00041	U
8001-35-2	Toxaphene	1	0.19	0.19	0.0033	U VJC

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0378	0.0346	92	70 - 125	
Decachlorobiphenyl	0.0378	0.0357	95	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: A85_377-0

Sampled: 08/12/09 13:20 Prepared: 08/19/09 08:06 Analyzed: 09/01/09 11:55

Solids: 82.12 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00031	U
319-86-8	delta-BHC	1	0.021	0.021	0.00032	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00036	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00030	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00040	U
72-20-8	Endrin	1	0.021	0.021	0.00033	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0035	U UJc

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0406	0.0299	74	70 - 125	
Decachlorobiphenyl	0.0406	0.0334	82	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: A85_376-0

Sampled: 08/12/09 00:00 Prepared: 08/19/09 08:06 Analyzed: 09/01/09 11:17

Solids: 82.34 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00031	U
319-86-8	delta-BHC	1	0.021	0.021	0.00032	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00048	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00034	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00036	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00030	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00031	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00040	U
72-20-8	Endrin	1	0.021	0.021	0.00033	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00044	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0035	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0405	0.0348	86	70 - 125	
Decachlorobiphenyl	0.0405	0.0352	87	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: A85_375-0

Sampled: 08/12/09 13:40 Prepared: 08/19/09 08:06 Analyzed: 09/01/09 10:40

Solids: 84.57 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00034	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00047	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00034	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00035	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00030	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00031	U
309-00-2	Aldrin	1	0.020	0.020	0.0015	U
60-57-1	Dieldrin	1	0.020	0.020	0.00030	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00039	U
72-20-8	Endrin	1	0.020	0.020	0.00033	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0011	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00043	U
76-44-8	Heptachlor	1	0.020	0.020	0.00051	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00043	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U VJ,c

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0394	0.0281	71	70 - 125	
Decachlorobiphenyl	0.0394	0.0293	74	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: A85_379-0

Sampled: 08/12/09 13:55 Prepared: 08/19/09 08:06 Analyzed: 09/01/09 13:10

Solids: 81.98 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909721 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00031	U
319-86-8	delta-BHC	1	0.021	0.021	0.00032	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00036	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00030	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00040	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0035	U VJc

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0407	0.0335	82	70 - 125	
Decachlorobiphenyl	0.0407	0.0370	91	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: A85_248-0

Sampled: 08/12/09 10:30 Prepared: 08/17/09 09:24 Analyzed: 08/28/09 07:43

Solids: Preparation: 3510C Liquid-Liquid Ex Initial/Final: 990 mL / 2 mL

QC Batch: 0909501 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.050	0.050	0.00063	U
319-85-7	beta-BHC	1	0.050	0.050	0.00052	U
58-89-9	gamma-BHC (Lindane)	1	0.050	0.050	0.00064	U
319-86-8	delta-BHC	1	0.10	0.10	0.0011	U
5103-71-9	alpha-Chlordane	1	0.050	0.050	0.00052	U
5103-74-2	gamma-Chlordane	1	0.050	0.050	0.00046	U
72-54-8	4,4'-DDD	1	0.10	0.10	0.00072	U
72-55-9	4,4'-DDE	1	0.10	0.10	0.00058	U
50-29-3	4,4'-DDT	1	0.10	0.10	0.00065	U
309-00-2	Aldrin	1	0.050	0.050	0.00080	U
60-57-1	Dieldrin	1	0.050	0.050	0.00048	U
959-98-8	Endosulfan I	1	0.10	0.10	0.00046	U
33213-65-9	Endosulfan II	1	0.10	0.10	0.00045	U
1031-07-8	Endosulfan Sulfate	1	0.10	0.10	0.00076	U
72-20-8	Endrin	1	0.10	0.10	0.0062	U
7421-93-4	Endrin Aldehyde	1	0.10	0.10	0.0039	U
53494-70-5	Endrin Ketone	1	0.050	0.050	0.00093	U
76-44-8	Heptachlor	1	0.050	0.050	0.00043	U
1024-57-3	Heptachlor Epoxide	1	0.050	0.050	0.00056	U
72-43-5	Methoxychlor	1	0.50	0.50	0.0014	U
8001-35-2	Toxaphene	1	5.0	5.0	0.0087	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.202	0.141	70	25 - 140	
Decachlorobiphenyl	0.202	0.181	90	30 - 135	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-01 File ID: A41_221-0

Sampled: 08/12/09 08:55 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 22:52

Solids: 88.43 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	37	37	4.7	U
11104-28-2	PCB-1221	1	37	37	8.8	U
11141-16-5	PCB-1232	1	37	37	5.1	U
53469-21-9	PCB-1242	1	76	76	5.2	U
12672-29-6	PCB-1248	1	37	37	7.4	U
11097-69-1	PCB-1254	1	37	37	6.7	U
11096-82-5	PCB-1260	1	76	76	5.7	U
37324-23-5	PCB-1262	1	37	37	5.9	U
11100-14-4	PCB-1268	1	37	37	7.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	37.7	44.0	117	60 - 125	
Tetrachloro-m-xylene	37.7	40.3	107	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: A41_222-0

Sampled: 08/12/09 09:10 Prepared: 08/17/09 08:11 Analyzed: 08/19/09 23:16

Solids: 81.03 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	41	41	5.2	U
11104-28-2	PCB-1221	1	41	41	9.6	U
11141-16-5	PCB-1232	1	41	41	5.6	U
53469-21-9	PCB-1242	1	83	83	5.7	U
12672-29-6	PCB-1248	1	41	41	8.0	U
11097-69-1	PCB-1254	1	41	41	7.3	U
11096-82-5	PCB-1260	1	83	83	6.2	U
37324-23-5	PCB-1262	1	41	41	6.4	U
11100-14-4	PCB-1268	1	41	41	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	41.1	47.8	116	60 - 125	
Tetrachloro-m-xylene	41.1	42.0	102	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: A41_224-0

Sampled: 08/12/09 00:00 Prepared: 08/17/09 08:11 Analyzed: 08/20/09 00:05

Solids: 81.56 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	40	40	5.1	U
11104-28-2	PCB-1221	1	40	40	9.6	U
11141-16-5	PCB-1232	1	40	40	5.5	U
53469-21-9	PCB-1242	1	82	82	5.6	U
12672-29-6	PCB-1248	1	40	40	8.0	U
11097-69-1	PCB-1254	1	40	40	7.2	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	40	40	6.4	U
11100-14-4	PCB-1268	1	40	40	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.9	45.9	112	60 - 125	
Tetrachloro-m-xylene	40.9	40.3	99	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: A41_225-0

Sampled: 08/12/09 10:00 Prepared: 08/17/09 08:11 Analyzed: 08/20/09 00:29

Solids: 83.74 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909440 Sequence: 9H21024 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	39	39	5.0	U
11104-28-2	PCB-1221	1	39	39	9.3	U
11141-16-5	PCB-1232	1	39	39	5.4	U
53469-21-9	PCB-1242	1	80	80	5.5	U
12672-29-6	PCB-1248	1	39	39	7.8	U
11097-69-1	PCB-1254	1	39	39	7.0	U
11096-82-5	PCB-1260	1	80	80	6.0	U
37324-23-5	PCB-1262	1	39	39	6.2	U
11100-14-4	PCB-1268	1	39	39	7.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	39.8	43.4	109	60 - 125	
Tetrachloro-m-xylene	39.8	41.6	104	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-05 File ID: A41_329-0

Sampled: 08/12/09 10:10 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 15:34

Solids: 83.60 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	39	39	5.0	U
11104-28-2	PCB-1221	1	39	39	9.3	U
11141-16-5	PCB-1232	1	39	39	5.4	U
53469-21-9	PCB-1242	1	80	80	5.5	U
12672-29-6	PCB-1248	1	39	39	7.8	U
11097-69-1	PCB-1254	1	39	39	7.1	U
11096-82-5	PCB-1260	1	80	80	6.0	U
37324-23-5	PCB-1262	1	39	39	6.2	U
11100-14-4	PCB-1268	1	39	39	7.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	39.9	48.4	121	60 - 125	
Tetrachloro-m-xylene	39.9	42.9	108	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: A41_328-0

Sampled: 08/12/09 11:00 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 15:10

Solids: 82.00 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	40	40	5.1	U
11104-28-2	PCB-1221	1	40	40	9.5	U
11141-16-5	PCB-1232	1	40	40	5.5	U
53469-21-9	PCB-1242	1	82	82	5.6	U
12672-29-6	PCB-1248	1	40	40	7.9	U
11097-69-1	PCB-1254	1	40	40	7.2	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	40	40	6.3	U
11100-14-4	PCB-1268	1	40	40	7.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.7	49.3	121	60 - 125	
Tetrachloro-m-xylene	40.7	43.7	108	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-07 File ID: A41_327-0

Sampled: 08/12/09 11:15 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 14:46

Solids: 81.42 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	41	41	5.2	U
11104-28-2	PCB-1221	1	41	41	9.6	U
11141-16-5	PCB-1232	1	41	41	5.5	U
53469-21-9	PCB-1242	1	82	82	5.6	U
12672-29-6	PCB-1248	1	41	41	8.0	U
11097-69-1	PCB-1254	1	41	41	7.2	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	41	41	6.4	U
11100-14-4	PCB-1268	1	41	41	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.9	49.4	121	60 - 125	
Tetrachloro-m-xylene	40.9	44.1	108	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: A42_093-0

Sampled: 08/12/09 11:35 Prepared: 08/19/09 08:04 Analyzed: 08/27/09 12:52

Solids: 84.77 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H27094 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	39	39	5.0	U
11104-28-2	PCB-1221	1	39	39	9.2	U
11141-16-5	PCB-1232	1	39	39	5.3	U
53469-21-9	PCB-1242	1	79	79	5.4	U
12672-29-6	PCB-1248	1	39	39	7.7	U
11097-69-1	PCB-1254	1	39	39	7.0	U
11096-82-5	PCB-1260	1	79	79	5.9	U
37324-23-5	PCB-1262	1	39	39	6.1	U
11100-14-4	PCB-1268	1	39	39	7.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	39.3	38.6	98	60 - 125	
Tetrachloro-m-xylene	39.3	36.5	93	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: A41_325-0

Sampled: 08/12/09 11:40 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 13:57

Solids: 81.36 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	41	41	5.2	U
11104-28-2	PCB-1221	1	41	41	9.6	U
11141-16-5	PCB-1232	1	41	41	5.5	U
53469-21-9	PCB-1242	1	82	82	5.7	U
12672-29-6	PCB-1248	1	41	41	8.0	U
11097-69-1	PCB-1254	1	41	41	7.3	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	41	41	6.4	U
11100-14-4	PCB-1268	1	41	41	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	41.0	43.9	107	60 - 125	
Tetrachloro-m-xylene	41.0	42.5	104	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: A41_324-0

Sampled: 08/12/09 11:55 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 13:33

Solids: 86.40 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	38	38	4.9	U
11104-28-2	PCB-1221	1	38	38	9.0	U
11141-16-5	PCB-1232	1	38	38	5.2	U
53469-21-9	PCB-1242	1	78	78	5.3	U
12672-29-6	PCB-1248	1	38	38	7.5	U
11097-69-1	PCB-1254	1	38	38	6.8	U
11096-82-5	PCB-1260	1	8.4	78	5.8	J
37324-23-5	PCB-1262	1	38	38	6.0	U
11100-14-4	PCB-1268	1	38	38	7.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.6	42.8	111	60 - 125	
Tetrachloro-m-xylene	38.6	39.7	103	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: A41_323-0

Sampled: 08/12/09 12:00 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 13:09

Solids: 81.59 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	40	40	5.1	U
11104-28-2	PCB-1221	1	40	40	9.6	U
11141-16-5	PCB-1232	1	40	40	5.5	U
53469-21-9	PCB-1242	1	82	82	5.6	U
12672-29-6	PCB-1248	1	40	40	8.0	U
11097-69-1	PCB-1254	1	40	40	7.2	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	40	40	6.4	U
11100-14-4	PCB-1268	1	40	40	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.9	44.4	109	60 - 125	
Tetrachloro-m-xylene	40.9	41.1	101	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: A41_322-0

Sampled: 08/12/09 13:05 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 12:45

Solids: 88.22 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	37	37	4.8	U
11104-28-2	PCB-1221	1	37	37	8.8	U
11141-16-5	PCB-1232	1	37	37	5.1	U
53469-21-9	PCB-1242	1	76	76	5.2	U
12672-29-6	PCB-1248	1	37	37	7.4	U
11097-69-1	PCB-1254	1	37	37	6.7	U
11096-82-5	PCB-1260	1	8.3	76	5.7	J
37324-23-5	PCB-1262	1	37	37	5.9	U
11100-14-4	PCB-1268	1	37	37	7.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	37.8	43.0	114	60 - 125	
Tetrachloro-m-xylene	37.8	38.8	103	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: A41_339-0

Sampled: 08/12/09 13:20 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 19:37

Solids: 82.12 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	40	40	5.1	U
11104-28-2	PCB-1221	1	40	40	9.5	U
11141-16-5	PCB-1232	1	40	40	5.5	U
53469-21-9	PCB-1242	1	82	82	5.6	U
12672-29-6	PCB-1248	1	40	40	7.9	U
11097-69-1	PCB-1254	1	40	40	7.2	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	40	40	6.3	U
11100-14-4	PCB-1268	1	40	40	7.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.6	44.9	111	60 - 125	
Tetrachloro-m-xylene	40.6	38.7	95	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: A41_338-0

Sampled: 08/12/09 00:00 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 19:13

Solids: 82.34 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	40	40	5.1	U
11104-28-2	PCB-1221	1	40	40	9.5	U
11141-16-5	PCB-1232	1	40	40	5.5	U
53469-21-9	PCB-1242	1	81	81	5.6	U
12672-29-6	PCB-1248	1	40	40	7.9	U
11097-69-1	PCB-1254	1	40	40	7.2	U
11096-82-5	PCB-1260	1	81	81	6.1	U
37324-23-5	PCB-1262	1	40	40	6.3	U
11100-14-4	PCB-1268	1	40	40	7.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.5	46.6	115	60 - 125	
Tetrachloro-m-xylene	40.5	43.4	107	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: A41_337-0

Sampled: 08/12/09 13:40 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 18:48

Solids: 84.57 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	39	39	5.0	U
11104-28-2	PCB-1221	1	39	39	9.2	U
11141-16-5	PCB-1232	1	39	39	5.3	U
53469-21-9	PCB-1242	1	79	79	5.4	U
12672-29-6	PCB-1248	1	39	39	7.7	U
11097-69-1	PCB-1254	1	39	39	7.0	U
11096-82-5	PCB-1260	1	79	79	5.9	U
37324-23-5	PCB-1262	1	39	39	6.1	U
11100-14-4	PCB-1268	1	39	39	7.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	39.4	42.8	109	60 - 125	
Tetrachloro-m-xylene	39.4	39.7	101	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: A41_336-0

Sampled: 08/12/09 13:55 Prepared: 08/19/09 08:04 Analyzed: 08/22/09 18:24

Solids: 81.98 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909719 Sequence: 9H26042 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	40	40	5.1	U
11104-28-2	PCB-1221	1	40	40	9.5	U
11141-16-5	PCB-1232	1	40	40	5.5	U
53469-21-9	PCB-1242	1	82	82	5.6	U
12672-29-6	PCB-1248	1	40	40	7.9	U
11097-69-1	PCB-1254	1	40	40	7.2	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	40	40	6.3	U
11100-14-4	PCB-1268	1	40	40	7.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.7	45.5	112	60 - 125	
Tetrachloro-m-xylene	40.7	41.1	101	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: A41_163-0

Sampled: 08/12/09 10:30 Prepared: 08/17/09 08:19 Analyzed: 08/18/09 04:18

Solids: Preparation: 3510C Liquid-Liquid Ex Initial/Final: 990 mL / 2 mL

QC Batch: 0909445 Sequence: 9H18074 Calibration: 9I04021 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
12674-11-2	PCB-1016	1	0.20	0.20	0.025	U
11104-28-2	PCB-1221	1	0.20	0.20	0.029	U
11141-16-5	PCB-1232	1	0.20	0.20	0.032	U
53469-21-9	PCB-1242	1	0.20	0.20	0.040	U
12672-29-6	PCB-1248	1	0.20	0.20	0.030	U
11097-69-1	PCB-1254	1	0.20	0.20	0.033	U
11096-82-5	PCB-1260	1	0.20	0.20	0.026	U
37324-23-5	PCB-1262	1	0.20	0.20	0.033	U
11100-14-4	PCB-1268	1	0.20	0.20	0.026	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% Rec.	QC Limits	Q
Decachlorobiphenyl	0.202	0.196	97	40 - 135	
Tetrachloro-m-xylene	0.202	0.142	70	36 - 114	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: expa005-0

Sampled: 08/12/09 09:10 Prepared: 08/19/09 08:32 Analyzed: 08/26/09 12:20

Solids: 81.03 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H25035 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.26	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: expa014-0

Sampled: 08/12/09 00:00 Prepared: 08/19/09 08:32 Analyzed: 08/27/09 23:06

Solids: 81.56 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H28027 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,C
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.27	91	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: expa015-0

Sampled: 08/12/09 10:00 Prepared: 08/19/09 08:32 Analyzed: 08/27/09 23:48

Solids: 83.74 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H28027 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U 15,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.31	92	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-05 File ID: expa008-0

Sampled: 08/12/09 10:10 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 14:27

Solids: 83.60 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	1.96	78	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: expa016-0

Sampled: 08/12/09 11:00 Prepared: 08/19/09 08:32 Analyzed: 08/28/09 00:30

Solids: 82.00 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909626 Sequence: 9H28027 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.19	88	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-07 File ID: expa009-0

Sampled: 08/12/09 11:15 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 15:10

Solids: 81.42 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.58	103	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: expa010-0

Sampled: 08/12/09 11:35 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 15:53

Solids: 84.77 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.32	93	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: expa011-0

Sampled: 08/12/09 11:40 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 16:36

Solids: 81.36 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U UJ,c

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.48	99	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: expa012-0

Sampled: 08/12/09 11:55 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 18:02

Solids: 86.40 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.19	88	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: expa013-0

Sampled: 08/12/09 12:00 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 18:44

Solids: 81.59 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.33	93	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: expa014-0

Sampled: 08/12/09 13:05 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 19:26

Solids: 88.22 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJc
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJc
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.20	88	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: expa015-0

Sampled: 08/12/09 13:20 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 20:09

Solids: 82.12 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,C
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,C
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.24	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: expa016-0

Sampled: 08/12/09 00:00 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 20:51

Solids: 82.34 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,C
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,C
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.30	92	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: expa017-0

Sampled: 08/12/09 13:40 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 21:33

Solids: 84.57 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ,c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.28	91	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: expa018-0

Sampled: 08/12/09 13:55 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 22:15

Solids: 81.98 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U UJ, c
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ, c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	1.81	73	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: expa007-0

Sampled: 08/12/09 10:30 Prepared: 08/18/09 07:37 Analyzed: 08/25/09 13:49

Solids: Preparation: 8330 Extraction Initial/Final: 770 mL / 10 mL

QC Batch: 0909645 Sequence: 9H25052 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	5.0	5.0	0.086	U
99-65-0	1,3-Dinitrobenzene	1	5.0	5.0	0.080	U
118-96-7	2,4,6-Trinitrotoluene	1	5.0	5.0	0.082	U
121-14-2	2,4-Dinitrotoluene	1	5.0	5.0	0.12	U
606-20-2	2,6-Dinitrotoluene	1	5.0	5.0	0.29	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	5.0	5.0	0.22	U
88-72-2	2-Nitrotoluene	1	0.35	5.0	0.22	J J,q
99-08-1	3-Nitrotoluene	1	5.0	5.0	0.28	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	5.0	5.0	0.31	U UJ,c
99-99-0	4-Nitrotoluene	1	5.0	5.0	0.38	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	5.0	5.0	0.16	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	0.22	5.0	0.084	J UJ,c
98-95-3	Nitrobenzene	1	5.0	5.0	0.12	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	5.0	5.0	0.17	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
4-Nitroaniline	3.25	2.68	83	29 - 138	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17RE1 File ID: expa005-0

Sampled: 08/12/09 10:30 Prepared: 08/18/09 07:37 Analyzed: 08/28/09 18:36

Solids: Preparation: 8330 Extraction Initial/Final: 770 mL / 10 mL

QC Batch: 0909645 Sequence: 9I03030 Calibration: 9F26006 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	5.0	5.0	0.086	U
99-65-0	1,3-Dinitrobenzene	1	5.0	5.0	0.080	U
118-96-7	2,4,6-Trinitrotoluene	1	5.0	5.0	0.082	U
121-14-2	2,4-Dinitrotoluene	1	5.0	5.0	0.12	U
606-20-2	2,6-Dinitrotoluene	1	5.0	5.0	0.29	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	5.0	5.0	0.22	U
88-72-2	2-Nitrotoluene	1	1.2	5.0	0.22	J
99-08-1	3-Nitrotoluene	1	5.0	5.0	0.28	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	5.0	5.0	0.31	U
99-99-0	4-Nitrotoluene	1	5.0	5.0	0.38	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	5.0	5.0	0.16	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	0.35	5.0	0.084	J
98-95-3	Nitrobenzene	1	5.0	5.0	0.12	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	5.0	5.0	0.17	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
4-Nitroaniline	3.25	2.57	79	29 - 138	

* Values outside of QC limits

1° column Confirmation

Use 1° column.

AB 11/5/09

03257

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

72SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-02 File ID: expa033-0

Sampled: 08/12/09 09:10 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 05:40

Solids: 81.03 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.43	97	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

DUP-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-03 File ID: expa034-0

Sampled: 08/12/09 00:00 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 05:54

Solids: 81.56 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.41	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB2A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-04 File ID: expa035-0

Sampled: 08/12/09 10:00 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 06:09

Solids: 83.74 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.35	94	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908228-05
File ID: NGa006-0
Sampled: 08/12/09 10:10
Prepared: 08/20/09 13:59
Analyzed: 08/25/09 17:24
Solids: 83.60
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909681
Sequence: 9H26052
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.36	94	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB4A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-06 File ID: expa036-0

Sampled: 08/12/09 11:00 Prepared: 08/19/09 08:36 Analyzed: 08/20/09 06:23

Solids: 82.00 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909627 Sequence: 9H21034 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.43	97	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB4B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-07 File ID: NGa007-0

Sampled: 08/12/09 11:15 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 17:38

Solids: 81.42 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.39	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB3A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-08 File ID: NGa008-0

Sampled: 08/12/09 11:35 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 17:52

Solids: 84.77 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.38	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-09 File ID: NGa009-0

Sampled: 08/12/09 11:40 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 18:06

Solids: 81.36 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.35	94	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB1A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-10 File ID: NGa010-0

Sampled: 08/12/09 11:55 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 18:21

Solids: 86.40 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.41	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-11 File ID: expa010-0

Sampled: 08/12/09 12:00 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 18:35

Solids: 81.59 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.45	98	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB5A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-12 File ID: expa012-0

Sampled: 08/12/09 13:05 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 19:04

Solids: 88.22 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.36	94	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB5B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-13 File ID: expa013-0

Sampled: 08/12/09 13:20 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 19:18

Solids: 82.12 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.39	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

DUP-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-14 File ID: expa014-0

Sampled: 08/12/09 00:00 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 19:32

Solids: 82.34 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.39	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB6A

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-15 File ID: expa015-0

Sampled: 08/12/09 13:40 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 19:46

Solids: 84.57 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.40	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

18SB6B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908228-16 File ID: expa016-0

Sampled: 08/12/09 13:55 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 20:01

Solids: 81.98 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.37	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

EQBK-2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908228-17 File ID: NGa007-0

Sampled: 08/12/09 10:30 Prepared: 08/18/09 07:36 Analyzed: 08/19/09 12:26

Solids: Preparation: 8330 Extraction Initial/Final: 770 mL / 10 mL

QC Batch: 0909644 Sequence: 9H25048 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.46	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.18	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
1-Nitronaphthalene	3.25	3.26	100	50 - 150	

* Values outside of QC limits

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

72SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 09:10
Solids: 81.03
Laboratory ID: 0908228-02

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5026 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L, M	1.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 11:57
7440-50-8	Copper, Total	17	mg/kg dry wt.	1	0.20	0.043		08/17/09 11:57
7439-92-1	Lead, Total L, M	15	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:57
7440-02-0	Nickel, Total	15	mg/kg dry wt.	1	0.10	0.025		08/17/09 11:57
7782-49-2	Selenium, Total B, X	0.21	mg/kg dry wt.	1	0.20	0.049		08/17/09 11:57
7440-22-4	Silver, Total B, O	0.052	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 11:57
7440-28-0	Thallium, Total	0.21	mg/kg dry wt.	1	0.10	0.0061		08/17/09 11:57
7440-62-2	Vanadium, Total	68	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:20

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

72SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 09:10
Solids: 81.03
Laboratory ID: 0908228-02

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5135 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.12	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 15:56

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 81.56
Laboratory ID: 0908228-03

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5107 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:00
7440-50-8	Copper, Total	17	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:00
7439-92-1	Lead, Total L,M	16	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:00
7440-02-0	Nickel, Total	15	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:00
7782-49-2	Selenium, Total B,X	0.28	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:00
7440-22-4	Silver, Total B,O	0.041	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:00
7440-28-0	Thallium, Total	0.21	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:00
7440-62-2	Vanadium, Total	67	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:23

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 81.56
Laboratory ID: 0908228-03

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5003 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.13	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:02

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:00
Solids: 83.74
Laboratory ID: 0908228-04

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5079 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.6	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:03
7440-50-8	Copper, Total	15	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:03
7439-92-1	Lead, Total L,M	26	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:03
7440-02-0	Nickel, Total	16	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:03
7782-49-2	Selenium, Total B,X	0.27	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:03
7440-22-4	Silver, Total B,O	0.047	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:03
7440-28-0	Thallium, Total	0.25	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:03
7440-62-2	Vanadium, Total	56	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:26

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:00
Solids: 83.74
Laboratory ID: 0908228-04

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5084 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.14	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:04

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:10
Solids: 83.60
Laboratory ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.503 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.6	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:06
7440-50-8	Copper, Total	14	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:06
7439-92-1	Lead, Total L,M	18	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:06
7440-02-0	Nickel, Total	15	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:06
7782-49-2	Selenium, Total B,X	0.15	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 12:06
7440-22-4	Silver, Total B,O	0.045	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:06
7440-28-0	Thallium, Total	0.27	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:06
7440-62-2	Vanadium, Total	54	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:29

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:10
Solids: 83.60
Laboratory ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5047 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.11	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:06

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB4A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:00
Solids: 82.00
Laboratory ID: 0908228-06

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5035 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.0	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:28
7440-50-8	Copper, Total	19	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:28
7439-92-1	Lead, Total L,M	17	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:28
7440-02-0	Nickel, Total	16	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:28
7782-49-2	Selenium, Total B,X	0.18	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 12:28
7440-22-4	Silver, Total B,O	0.069	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:28
7440-28-0	Thallium, Total	0.28	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:28
7440-62-2	Vanadium, Total	53	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:49

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB4A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:00
Solids: 82.00
Laboratory ID: 0908228-06

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.505 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.18	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:23

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:15
Solids: 81.42
Laboratory ID: 0908228-07

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5049 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.0	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:31
7440-50-8	Copper, Total	11	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:31
7439-92-1	Lead, Total L,M	11	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:31
7440-02-0	Nickel, Total	16	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:31
7782-49-2	Selenium, Total B,X	0.21	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:31
7440-22-4	Silver, Total B,O	0.041	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:31
7440-28-0	Thallium, Total	0.18	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:31
7440-62-2	Vanadium, Total	52	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:52

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:15
Solids: 81.42
Laboratory ID: 0908228-07

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5083 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.062	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:26

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:35
Solids: 84.77
Laboratory ID: 0908228-08

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5016 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.6	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:34
7440-50-8	Copper, Total	12	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:34
7439-92-1	Lead, Total L,M	15	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:34
7440-02-0	Nickel, Total	13	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:34
7782-49-2	Selenium, Total B,X	0.20	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:34
7440-22-4	Silver, Total B,O	0.048	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:34
7440-28-0	Thallium, Total	0.23	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:34
7440-62-2	Vanadium, Total	49	mg/kg dry wt.	1	0.10	0.032		08/17/09 12:34

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:35
Solids: 84.77
Laboratory ID: 0908228-08

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5002 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.46	mg/kg dry wt.	1	0.20	0.037		08/18/09 16:28

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:40
Solids: 81.36
Laboratory ID: 0908228-09

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5047 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:37
7440-50-8	Copper, Total	14	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:37
7439-92-1	Lead, Total L,M	15	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:37
7440-02-0	Nickel, Total	15	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:37
7782-49-2	Selenium, Total B,X	0.16	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 12:37
7440-22-4	Silver, Total B,O	0.047	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:37
7440-28-0	Thallium, Total	0.25	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:37
7440-62-2	Vanadium, Total	54	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:55

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:40
Solids: 81.36
Laboratory ID: 0908228-09

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.501 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.15	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:30

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:55
Solids: 86.40
Laboratory ID: 0908228-10

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5028 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.6	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:40
7440-50-8	Copper, Total	11	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:40
7439-92-1	Lead, Total L,M	14	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:40
7440-02-0	Nickel, Total	12	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:40
7782-49-2	Selenium, Total B,X	0.36	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:40
7440-22-4	Silver, Total B,O	0.047	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:40
7440-28-0	Thallium, Total	0.21	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:40
7440-62-2	Vanadium, Total	50	mg/kg dry wt.	1	0.10	0.032		08/17/09 12:40

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:55
Solids: 86.40
Laboratory ID: 0908228-10

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5129 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.19	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:32

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 12:00
Solids: 81.59
Laboratory ID: 0908228-11

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5015 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,m	2.1	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:43
7440-50-8	Copper, Total	15	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:43
7439-92-1	Lead, Total L,m	17	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:43
7440-02-0	Nickel, Total	18	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:43
7782-49-2	Selenium, Total B,x	0.073	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 12:43
7440-22-4	Silver, Total B,o	0.049	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:43
7440-28-0	Thallium, Total	0.24	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:43
7440-62-2	Vanadium, Total	62	mg/kg dry wt.	2	0.20	0.065		08/17/09 14:58

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 12:00
Solids: 81.59
Laboratory ID: 0908228-11

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5021 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.14	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:34

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB5A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:05
Solids: 88.22
Laboratory ID: 0908228-12

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5127 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L1M	1.6	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:45
7440-50-8	Copper, Total	11	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:45
7439-92-1	Lead, Total L1M	15	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:45
7440-02-0	Nickel, Total	9.3	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:45
7782-49-2	Selenium, Total B,X	0.29	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:45
7440-22-4	Silver, Total B,O	0.043	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:45
7440-28-0	Thallium, Total	0.17	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:45
7440-62-2	Vanadium, Total	32	mg/kg dry wt.	1	0.10	0.032		08/17/09 12:45

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB5A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:05
Solids: 88.22
Laboratory ID: 0908228-12

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5014 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.13	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:36

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB5B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:20
Solids: 82.12
Laboratory ID: 0908228-13

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5024 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.1	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:48
7440-50-8	Copper, Total	14	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:48
7439-92-1	Lead, Total L,M	14	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:48
7440-02-0	Nickel, Total	16	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:48
7782-49-2	Selenium, Total B,X	0.27	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:48
7440-22-4	Silver, Total B,O	0.046	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:48
7440-28-0	Thallium, Total	0.24	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:48
7440-62-2	Vanadium, Total	60	mg/kg dry wt.	2	0.20	0.065		08/17/09 15:01

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB5B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:20
Solids: 82.12
Laboratory ID: 0908228-13

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5043 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.16	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:38

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 82.34
Laboratory ID: 0908228-14

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5083 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.1	mg/kg dry wt.	1	0.10	0.030		08/17/09 12:57
7440-50-8	Copper, Total	14	mg/kg dry wt.	1	0.20	0.043		08/17/09 12:57
7439-92-1	Lead, Total L,M	13	mg/kg dry wt.	1	0.20	0.049		08/17/09 12:57
7440-02-0	Nickel, Total	17	mg/kg dry wt.	1	0.10	0.025		08/17/09 12:57
7782-49-2	Selenium, Total B,X	0.17	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 12:57
7440-22-4	Silver, Total B,O	0.051	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 12:57
7440-28-0	Thallium, Total	0.25	mg/kg dry wt.	1	0.10	0.0061		08/17/09 12:57
7440-62-2	Vanadium, Total	59	mg/kg dry wt.	2	0.20	0.065		08/17/09 15:04

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 82.34
Laboratory ID: 0908228-14

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5098 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.17	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:45

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB6A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:40
Solids: 84.57
Laboratory ID: 0908228-15

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5093 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.5	mg/kg dry wt.	1	0.10	0.030		08/17/09 13:00
7440-50-8	Copper, Total	14	mg/kg dry wt.	1	0.20	0.043		08/17/09 13:00
7439-92-1	Lead, Total L,M	14	mg/kg dry wt.	1	0.20	0.049		08/17/09 13:00
7440-02-0	Nickel, Total	14	mg/kg dry wt.	1	0.10	0.025		08/17/09 13:00
7782-49-2	Selenium, Total B,X	0.26	mg/kg dry wt.	1	0.20	0.049		08/17/09 13:00
7440-22-4	Silver, Total B,C	0.045	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 13:00
7440-28-0	Thallium, Total	0.23	mg/kg dry wt.	1	0.10	0.0061		08/17/09 13:00
7440-62-2	Vanadium, Total	56	mg/kg dry wt.	2	0.20	0.065		08/17/09 15:07

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB6A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:40
Solids: 84.57
Laboratory ID: 0908228-15

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.5024 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.14	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:47

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB6B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:55
Solids: 81.98
Laboratory ID: 0908228-16

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.503 g / 250 mL
QC Batch: 0909503

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	1.8	mg/kg dry wt.	1	0.10	0.030		08/17/09 13:03
7440-50-8	Copper, Total	15	mg/kg dry wt.	1	0.20	0.043		08/17/09 13:03
7439-92-1	Lead, Total L,M	12	mg/kg dry wt.	1	0.20	0.049		08/17/09 13:03
7440-02-0	Nickel, Total	16	mg/kg dry wt.	1	0.10	0.025		08/17/09 13:03
7782-49-2	Selenium, Total B,X	0.18	mg/kg dry wt.	1	0.20	0.049	J	08/17/09 13:03
7440-22-4	Silver, Total B,C	0.051	mg/kg dry wt.	1	0.10	0.011	J	08/17/09 13:03
7440-28-0	Thallium, Total	0.26	mg/kg dry wt.	1	0.10	0.0061		08/17/09 13:03
7440-62-2	Vanadium, Total	52	mg/kg dry wt.	2	0.20	0.065		08/17/09 15:10

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

18SB6B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:55
Solids: 81.98
Laboratory ID: 0908228-16

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 10:46
Initial/Final: 0.509 g / 250 mL
QC Batch: 0909587

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.12	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:50

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

EQBK-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/12/09 10:30
Solids: 0.00
Laboratory ID: 0908228-17

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3020A Digestion
Prepared: 08/18/09 07:00
Initial/Final: 25 mL / 125 mL
QC Batch: 0909625

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	3.0	ug/L	1	3.0	0.40	U	08/19/09 10:01
7440-38-2	Arsenic, Total	2.0	ug/L	1	2.0	0.39	U	08/19/09 10:01
7440-39-3	Barium, Total	2.0	ug/L	1	2.0	0.32	U	08/19/09 10:01
7440-41-7	Beryllium, Total	2.0	ug/L	1	2.0	0.31	U	08/19/09 11:39
7440-43-9	Cadmium, Total	0.20	ug/L	1	0.20	0.060	U	08/19/09 10:01
7440-47-3	Chromium, Total	0.58	ug/L	1	2.0	0.34	J	08/19/09 10:01
7440-48-4	Cobalt, Total VL,O	1.0	ug/L	1	1.0	0.036	U	08/19/09 10:01
7440-50-8	Copper, Total	1.0	ug/L	1	1.0	0.26	U	08/19/09 10:01
7439-92-1	Lead, Total	1.0	ug/L	1	1.0	0.26	U	08/19/09 10:01
7439-96-5	Manganese, Total	3.0	ug/L	1	3.0	0.58	U	08/19/09 10:01
7440-02-0	Nickel, Total	2.0	ug/L	1	2.0	0.46	U	08/19/09 10:01
7782-49-2	Selenium, Total L,O	0.74	ug/L	1	3.0	0.40	J	08/19/09 11:39
7440-22-4	Silver, Total	0.50	ug/L	1	0.50	0.053	U	08/19/09 10:01
7440-28-0	Thallium, Total	0.20	ug/L	1	0.20	0.050	U	08/19/09 10:01
7440-62-2	Vanadium, Total	1.0	ug/L	1	1.0	0.30	U	08/19/09 10:01
7440-66-6	Zinc, Total B,P	6.9	ug/L	1	6.0	2.0		08/19/09 10:01

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

72SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 09:10
Solids: 81.03
Laboratory ID: 0908228-02

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5085 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	26000	mg/kg dry wt.	1	10	1.8		08/18/09 11:43
7440-39-3	Barium, Total	100	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:43
7440-41-7	Beryllium, Total	1.5	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:43
7440-43-9	Cadmium, Total	0.73	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:43
7440-70-2	Calcium, Total JF	1000	mg/kg dry wt.	1	50	8.7		08/18/09 11:43
7440-47-3	Chromium, Total JS	32	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:43
7440-48-4	Cobalt, Total LM	16	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:43
7439-89-6	Iron, Total	38000	mg/kg dry wt.	1	10	0.47		08/18/09 11:43
7439-95-4	Magnesium, Total	3100	mg/kg dry wt.	1	50	4.4		08/18/09 11:43
7439-96-5	Manganese, Total	650	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:43
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 11:43
7440-23-5	Sodium, Total	35	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:43
7440-66-6	Zinc, Total	66	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:43

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

DUP-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 81.56
Laboratory ID: 0908228-03

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5052 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	24000	mg/kg dry wt.	1	10	1.8		08/18/09 11:47
7440-39-3	Barium, Total	98	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:47
7440-41-7	Beryllium, Total	1.5	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:47
7440-43-9	Cadmium, Total	0.59	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:47
7440-70-2	Calcium, Total JF	2800	mg/kg dry wt.	1	50	8.7		08/18/09 11:47
7440-47-3	Chromium, Total JS	31	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:47
7440-48-4	Cobalt, Total LM	15	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:47
7439-89-6	Iron, Total	38000	mg/kg dry wt.	1	10	0.47		08/18/09 11:47
7439-95-4	Magnesium, Total	3600	mg/kg dry wt.	1	50	4.4		08/18/09 11:47
7439-96-5	Manganese, Total	610	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:47
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 11:47
7440-23-5	Sodium, Total	36	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:47
7440-66-6	Zinc, Total	64	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:47

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:00
Solids: 83.74
Laboratory ID: 0908228-04

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5011 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	23000	mg/kg dry wt.	1	10	1.8		08/18/09 11:51
7440-39-3	Barium, Total	110	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:51
7440-41-7	Beryllium, Total	1.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:51
7440-43-9	Cadmium, Total	1.3	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:51
7440-70-2	Calcium, Total	18000	mg/kg dry wt.	1	50	8.7		08/18/09 11:51
7440-47-3	Chromium, Total J,S	34	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:51
7440-48-4	Cobalt, Total L,M	13	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:51
7439-89-6	Iron, Total	30000	mg/kg dry wt.	1	10	0.47		08/18/09 11:51
7439-95-4	Magnesium, Total	11000	mg/kg dry wt.	1	50	4.4		08/18/09 11:51
7439-96-5	Manganese, Total	660	mg/kg dry wt.	1	1.0	0.21		08/18/09 11:51
7440-09-7	Potassium, Total	2100	mg/kg dry wt.	1	50	6.8		08/18/09 11:51
7440-23-5	Sodium, Total	43	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:51
7440-66-6	Zinc, Total	69	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:51

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:10
Solids: 83.60
Laboratory ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5101 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	24000	mg/kg dry wt.	100	1000	180		08/18/09 16:30
7440-39-3	Barium, Total	130	mg/kg dry wt.	1	1.0	0.28		08/18/09 11:54
7440-41-7	Beryllium, Total	1.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 11:54
7440-43-9	Cadmium, Total	0.62	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 11:54
7440-70-2	Calcium, Total	1200	mg/kg dry wt.	1	50	8.7		08/18/09 11:54
7440-47-3	Chromium, Total J,S	37	mg/kg dry wt.	1	5.0	0.74		08/18/09 11:54
7440-48-4	Cobalt, Total L,M	32	mg/kg dry wt.	1	2.0	0.44		08/18/09 11:54
7439-89-6	Iron, Total	33000	mg/kg dry wt.	500	5000	230		08/18/09 16:13
7439-95-4	Magnesium, Total	3300	mg/kg dry wt.	1	50	4.4		08/18/09 11:54
7439-96-5	Manganese, Total	2300	mg/kg dry wt.	100	100	21		08/18/09 16:30
7440-09-7	Potassium, Total	1600	mg/kg dry wt.	1	50	6.8		08/18/09 11:54
7440-23-5	Sodium, Total	31	mg/kg dry wt.	1	100	5.4	J	08/18/09 11:54
7440-66-6	Zinc, Total	75	mg/kg dry wt.	1	5.0	0.79		08/18/09 11:54

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB4A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:00
Solids: 82.00
Laboratory ID: 0908228-06

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5063 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	23000	mg/kg dry wt.	1	10	1.8		08/18/09 12:25
7440-39-3	Barium, Total	110	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:25
7440-41-7	Beryllium, Total	1.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 12:25
7440-43-9	Cadmium, Total	1.1	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:25
7440-70-2	Calcium, Total	23000	mg/kg dry wt.	1	50	8.7		08/18/09 12:25
7440-47-3	Chromium, Total	38	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:25
7440-48-4	Cobalt, Total	15	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:25
7439-89-6	Iron, Total	31000	mg/kg dry wt.	1	10	0.47		08/18/09 12:25
7439-95-4	Magnesium, Total	15000	mg/kg dry wt.	1	50	4.4		08/18/09 12:25
7439-96-5	Manganese, Total	690	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:25
7440-09-7	Potassium, Total	2500	mg/kg dry wt.	1	50	6.8		08/18/09 12:25
7440-23-5	Sodium, Total	92	mg/kg dry wt.	1	100	5.4	J	08/18/09 12:25
7440-66-6	Zinc, Total	71	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:25

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:15
Solids: 81.42
Laboratory ID: 0908228-07

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5044 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	19000	mg/kg dry wt.	1	10	1.8		08/18/09 12:29
7440-39-3	Barium, Total	110	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:29
7440-41-7	Beryllium, Total	1.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 12:29
7440-43-9	Cadmium, Total	0.71	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:29
7440-70-2	Calcium, Total	1100	mg/kg dry wt.	1	50	8.7		08/18/09 12:29
7440-47-3	Chromium, Total J,S	26	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:29
7440-48-4	Cobalt, Total L,M	9.7	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:29
7439-89-6	Iron, Total	27000	mg/kg dry wt.	1	10	0.47		08/18/09 12:29
7439-95-4	Magnesium, Total	3600	mg/kg dry wt.	1	50	4.4		08/18/09 12:29
7439-96-5	Manganese, Total	480	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:29
7440-09-7	Potassium, Total	2000	mg/kg dry wt.	1	50	6.8		08/18/09 12:29
7440-23-5	Sodium, Total	51	mg/kg dry wt.	1	100	5.4	J	08/18/09 12:29
7440-66-6	Zinc, Total	62	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:29

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:35
Solids: 84.77
Laboratory ID: 0908228-08

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5066 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	24000	mg/kg dry wt.	1	10	1.8		08/18/09 12:32
7440-39-3	Barium, Total	140	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:32
7440-41-7	Beryllium, Total	1.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 12:32
7440-43-9	Cadmium, Total	0.81	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:32
7440-70-2	Calcium, Total	4600	mg/kg dry wt.	1	50	8.7		08/18/09 12:32
7440-47-3	Chromium, Total J,S	35	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:32
7440-48-4	Cobalt, Total L/M	13	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:32
7439-89-6	Iron, Total	29000	mg/kg dry wt.	1	10	0.47		08/18/09 12:32
7439-95-4	Magnesium, Total	4500	mg/kg dry wt.	1	50	4.4		08/18/09 12:32
7439-96-5	Manganese, Total	790	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:32
7440-09-7	Potassium, Total	1700	mg/kg dry wt.	1	50	6.8		08/18/09 12:32
7440-23-5	Sodium, Total	30	mg/kg dry wt.	1	100	5.4	J	08/18/09 12:32
7440-66-6	Zinc, Total	69	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:32

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:40
Solids: 81.36
Laboratory ID: 0908228-09

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5087 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	24000	mg/kg dry wt.	1	10	1.8		08/18/09 12:36
7440-39-3	Barium, Total	150	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:36
7440-41-7	Beryllium, Total	1.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 12:36
7440-43-9	Cadmium, Total	0.66	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:36
7440-70-2	Calcium, Total	2100	mg/kg dry wt.	1	50	8.7		08/18/09 12:36
7440-47-3	Chromium, Total J,S	37	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:36
7440-48-4	Cobalt, Total L,M	14	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:36
7439-89-6	Iron, Total	31000	mg/kg dry wt.	1	10	0.47		08/18/09 12:36
7439-95-4	Magnesium, Total	3800	mg/kg dry wt.	1	50	4.4		08/18/09 12:36
7439-96-5	Manganese, Total	910	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:36
7440-09-7	Potassium, Total	2000	mg/kg dry wt.	1	50	6.8		08/18/09 12:36
7440-23-5	Sodium, Total	31	mg/kg dry wt.	1	100	5.4	J	08/18/09 12:36
7440-66-6	Zinc, Total	73	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:36

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:55
Solids: 86.40
Laboratory ID: 0908228-10

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5076 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	21000	mg/kg dry wt.	1	10	1.8		08/18/09 12:39
7440-39-3	Barium, Total	150	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:39
7440-41-7	Beryllium, Total	0.79	mg/kg dry wt.	1	1.0	0.035	J	08/18/09 12:39
7440-43-9	Cadmium, Total	1.1	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:39
7440-70-2	Calcium, Total	24000	mg/kg dry wt.	1	50	8.7		08/18/09 12:39
7440-47-3	Chromium, Total J,S	30	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:39
7440-48-4	Cobalt, Total L,M	11	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:39
7439-89-6	Iron, Total	24000	mg/kg dry wt.	1	10	0.47		08/18/09 12:39
7439-95-4	Magnesium, Total	13000	mg/kg dry wt.	1	50	4.4		08/18/09 12:39
7439-96-5	Manganese, Total	600	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:39
7440-09-7	Potassium, Total	1300	mg/kg dry wt.	1	50	6.8		08/18/09 12:39
7440-23-5	Sodium, Total	96	mg/kg dry wt.	1	100	5.4	J	08/18/09 12:39
7440-66-6	Zinc, Total	54	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:39

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 12:00
Solids: 81.59
Laboratory ID: 0908228-11

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5151 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	32000	mg/kg dry wt.	1	10	1.8		08/18/09 12:43
7440-39-3	Barium, Total	120	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:43
7440-41-7	Beryllium, Total	1.3	mg/kg dry wt.	1	1.0	0.035		08/18/09 12:43
7440-43-9	Cadmium, Total	1.0	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:43
7440-70-2	Calcium, Total	15000	mg/kg dry wt.	1	50	8.7		08/18/09 12:43
7440-47-3	Chromium, Total L,S	43	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:43
7440-48-4	Cobalt, Total L,M	15	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:43
7439-89-6	Iron, Total	37000	mg/kg dry wt.	1	10	0.47		08/18/09 12:43
7439-95-4	Magnesium, Total	12000	mg/kg dry wt.	1	50	4.4		08/18/09 12:43
7439-96-5	Manganese, Total	610	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:43
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 12:43
7440-23-5	Sodium, Total	150	mg/kg dry wt.	1	100	5.4		08/18/09 12:43
7440-66-6	Zinc, Total	72	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB5A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:05
Solids: 88.22
Laboratory ID: 0908228-12

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5161 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	14000	mg/kg dry wt.	1	10	1.8		08/18/09 12:46
7440-39-3	Barium, Total	140	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:46
7440-41-7	Beryllium, Total	0.95	mg/kg dry wt.	1	1.0	0.035	J	08/18/09 12:46
7440-43-9	Cadmium, Total	0.64	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:46
7440-70-2	Calcium, Total	1200	mg/kg dry wt.	1	50	8.7		08/18/09 12:46
7440-47-3	Chromium, Total J,S	26	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:46
7440-48-4	Cobalt, Total L,M	14	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:46
7439-89-6	Iron, Total	18000	mg/kg dry wt.	1	10	0.47		08/18/09 12:46
7439-95-4	Magnesium, Total	1900	mg/kg dry wt.	1	50	4.4		08/18/09 12:46
7439-96-5	Manganese, Total	980	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:46
7440-09-7	Potassium, Total	1200	mg/kg dry wt.	1	50	6.8		08/18/09 12:46
7440-23-5	Sodium, Total	20	mg/kg dry wt.	1	100	5.4	J	08/18/09 12:46
7440-66-6	Zinc, Total	55	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:46

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB5B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:20
Solids: 82.12
Laboratory ID: 0908228-13

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5013 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	32000	mg/kg dry wt.	1	10	1.8		08/18/09 12:50
7440-39-3	Barium, Total	150	mg/kg dry wt.	1	1.0	0.28		08/18/09 12:50
7440-41-7	Beryllium, Total	1.5	mg/kg dry wt.	1	1.0	0.035		08/18/09 12:50
7440-43-9	Cadmium, Total	0.83	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 12:50
7440-70-2	Calcium, Total	1200	mg/kg dry wt.	1	50	8.7		08/18/09 12:50
7440-47-3	Chromium, Total J/S	47	mg/kg dry wt.	1	5.0	0.74		08/18/09 12:50
7440-48-4	Cobalt, Total L/M	13	mg/kg dry wt.	1	2.0	0.44		08/18/09 12:50
7439-89-6	Iron, Total	38000	mg/kg dry wt.	1	10	0.47		08/18/09 12:50
7439-95-4	Magnesium, Total	4100	mg/kg dry wt.	1	50	4.4		08/18/09 12:50
7439-96-5	Manganese, Total	760	mg/kg dry wt.	1	1.0	0.21		08/18/09 12:50
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 12:50
7440-23-5	Sodium, Total	65	mg/kg dry wt.	1	100	5.4	J	08/18/09 12:50
7440-66-6	Zinc, Total	82	mg/kg dry wt.	1	5.0	0.79		08/18/09 12:50

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

DUP-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 82.34
Laboratory ID: 0908228-14

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5027 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	33000	mg/kg dry wt.	1	10	1.8		08/18/09 13:11
7440-39-3	Barium, Total	150	mg/kg dry wt.	1	1.0	0.28		08/18/09 13:11
7440-41-7	Beryllium, Total	1.3	mg/kg dry wt.	1	1.0	0.035		08/18/09 13:11
7440-43-9	Cadmium, Total	0.74	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 13:11
7440-70-2	Calcium, Total	1300	mg/kg dry wt.	1	50	8.7		08/18/09 13:11
7440-47-3	Chromium, Total	45	mg/kg dry wt.	1	5.0	0.74		08/18/09 13:11
7440-48-4	Cobalt, Total	11	mg/kg dry wt.	1	2.0	0.44		08/18/09 13:11
7439-89-6	Iron, Total	37000	mg/kg dry wt.	1	10	0.47		08/18/09 13:11
7439-95-4	Magnesium, Total	4200	mg/kg dry wt.	1	50	4.4		08/18/09 13:11
7439-96-5	Manganese, Total	590	mg/kg dry wt.	1	1.0	0.21		08/18/09 13:11
7440-09-7	Potassium, Total	1800	mg/kg dry wt.	1	50	6.8		08/18/09 13:11
7440-23-5	Sodium, Total	65	mg/kg dry wt.	1	100	5.4	J	08/18/09 13:11
7440-66-6	Zinc, Total	85	mg/kg dry wt.	1	5.0	0.79		08/18/09 13:11

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB6A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:40
Solids: 84.57
Laboratory ID: 0908228-15

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5078 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	23000	mg/kg dry wt.	1	10	1.8		08/18/09 13:14
7440-39-3	Barium, Total	110	mg/kg dry wt.	1	1.0	0.28		08/18/09 13:14
7440-41-7	Beryllium, Total	1.2	mg/kg dry wt.	1	1.0	0.035		08/18/09 13:14
7440-43-9	Cadmium, Total	0.70	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 13:14
7440-70-2	Calcium, Total	1800	mg/kg dry wt.	1	50	8.7		08/18/09 13:14
7440-47-3	Chromium, Total J,S	36	mg/kg dry wt.	1	5.0	0.74		08/18/09 13:14
7440-48-4	Cobalt, Total L,M	13	mg/kg dry wt.	1	2.0	0.44		08/18/09 13:14
7439-89-6	Iron, Total	32000	mg/kg dry wt.	1	10	0.47		08/18/09 13:14
7439-95-4	Magnesium, Total	3400	mg/kg dry wt.	1	50	4.4		08/18/09 13:14
7439-96-5	Manganese, Total	690	mg/kg dry wt.	1	1.0	0.21		08/18/09 13:14
7440-09-7	Potassium, Total	1900	mg/kg dry wt.	1	50	6.8		08/18/09 13:14
7440-23-5	Sodium, Total	25	mg/kg dry wt.	1	100	5.4	J	08/18/09 13:14
7440-66-6	Zinc, Total	68	mg/kg dry wt.	1	5.0	0.79		08/18/09 13:14

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

18SB6B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:55
Solids: 81.98
Laboratory ID: 0908228-16

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/14/09 07:30
Initial/Final: 0.5287 g / 50 mL
QC Batch: 0909502

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	25000	mg/kg dry wt.	1	10	1.8		08/18/09 13:18
7440-39-3	Barium, Total	120	mg/kg dry wt.	1	1.0	0.28		08/18/09 13:18
7440-41-7	Beryllium, Total	1.1	mg/kg dry wt.	1	1.0	0.035		08/18/09 13:18
7440-43-9	Cadmium, Total	0.74	mg/kg dry wt.	1	2.0	0.24	J	08/18/09 13:18
7440-70-2	Calcium, Total	1300	mg/kg dry wt.	1	50	8.7		08/18/09 13:18
7440-47-3	Chromium, Total J,S	43	mg/kg dry wt.	1	5.0	0.74		08/18/09 13:18
7440-48-4	Cobalt, Total L,M	8.7	mg/kg dry wt.	1	2.0	0.44		08/18/09 13:18
7439-89-6	Iron, Total	32000	mg/kg dry wt.	1	10	0.47		08/18/09 13:18
7439-95-4	Magnesium, Total	4400	mg/kg dry wt.	1	50	4.4		08/18/09 13:18
7439-96-5	Manganese, Total	430	mg/kg dry wt.	1	1.0	0.21		08/18/09 13:18
7440-09-7	Potassium, Total	1600	mg/kg dry wt.	1	50	6.8		08/18/09 13:18
7440-23-5	Sodium, Total	35	mg/kg dry wt.	1	100	5.4	J	08/18/09 13:18
7440-66-6	Zinc, Total	74	mg/kg dry wt.	1	5.0	0.79		08/18/09 13:18

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

EQBK-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/12/09 10:30
Solids: 0.00
Laboratory ID: 0908228-17

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3010A Digestion
Prepared: 08/18/09 07:00
Initial/Final: 25 mL / 25 mL
QC Batch: 0909623

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total VL,o	50	ug/L	1	50	24	U	08/20/09 09:13
7440-70-2	Calcium, Total	500	ug/L	1	500	58	U	08/20/09 09:13
7439-89-6	Iron, Total	9.4	ug/L	1	25	8.0	J	08/20/09 09:13
7439-95-4	Magnesium, Total	500	ug/L	1	500	44	U	08/20/09 09:13
7440-09-7	Potassium, Total	500	ug/L	1	500	98	U	08/20/09 09:13
7440-23-5	Sodium, Total	500	ug/L	1	500	82	U	08/20/09 09:13

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

72SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 09:10
Solids: 81.03
Laboratory ID: 0908228-02

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3161 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.014	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 10:17

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

DUP-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 81.56
Laboratory ID: 0908228-03

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3012 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.014	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 10:22

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:00
Solids: 83.74
Laboratory ID: 0908228-04

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.306 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.032	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 10:27

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:10
Solids: 83.60
Laboratory ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.046	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 10:32

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB4A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:00
Solids: 82.00
Laboratory ID: 0908228-06

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3157 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.027	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 10:47

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:15
Solids: 81.42
Laboratory ID: 0908228-07

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3031 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.018	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 10:52

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:35
Solids: 84.77
Laboratory ID: 0908228-08

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3034 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.039	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 11:06

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:40
Solids: 81.36
Laboratory ID: 0908228-09

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3023 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.040	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 11:11

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:55
Solids: 86.40
Laboratory ID: 0908228-10

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3023 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.033	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 11:16

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 12:00
Solids: 81.59
Laboratory ID: 0908228-11

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3054 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.032	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 11:21

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB5A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:05
Solids: 88.22
Laboratory ID: 0908228-12

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/18/09 09:30
Initial/Final: 0.3023 g / 50 mL
QC Batch: 0909653

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.017	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 13:44

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB5B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:20
Solids: 82.12
Laboratory ID: 0908228-13

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3034 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.053	mg/kg dry wt.	1	0.050	0.0093		08/18/09 11:27

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

DUP-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 82.34
Laboratory ID: 0908228-14

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3076 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.053	mg/kg dry wt.	1	0.050	0.0093		08/18/09 11:32

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB6A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:40
Solids: 84.57
Laboratory ID: 0908228-15

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3093 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.036	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 11:37

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

18SB6B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:55
Solids: 81.98
Laboratory ID: 0908228-16

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3178 g / 50 mL
QC Batch: 0909545

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.031	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 11:42

INORGANIC ANALYSIS DATA SHEET
USEPA-7470A

EQBK-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/12/09 10:30
Solids: 0.00
Laboratory ID: 0908228-17

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7470A Digestion - Total
Prepared: 08/19/09 14:00
Initial/Final: 30 mL / 30 mL
QC Batch: 0909446

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.20	ug/L	1	0.20	0.043	U	08/20/09 10:24

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

72SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 09:10
Solids: 81.03
Laboratory ID: 0908228-02

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 24.56 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.16	mg/kg dry	1	0.37	0.082	J	08/14/09 14:12

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

DUP-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 81.56
Laboratory ID: 0908228-03

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 24.57 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.29	mg/kg dry	1	0.37	0.082	J	08/14/09 14:12

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:00
Solids: 83.74
Laboratory ID: 0908228-04

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 25.34 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.36	mg/kg dry	1	0.36	0.080	U	08/14/09 14:12

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:10
Solids: 83.60
Laboratory ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 07:30
Initial/Final: 25.13 g / 250 mL
QC Batch: 0909426

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.084	mg/kg dry	1	0.36	0.080	J	08/14/09 12:38

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB4A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:00
Solids: 82.00
Laboratory ID: 0908228-06

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 25.41 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.10	mg/kg dry	1	0.37	0.081	J	08/19/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:15
Solids: 81.42
Laboratory ID: 0908228-07

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 26 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.37	mg/kg dry	1	0.37	0.082	U	08/19/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB3A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:35
Solids: 84.77
Laboratory ID: 0908228-08

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 24.65 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.31	mg/kg dry	1	0.35	0.079	J	08/19/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:40
Solids: 81.36
Laboratory ID: 0908228-09

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 24.93 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.16	mg/kg dry	1	0.37	0.082	J	08/19/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:55
Solids: 86.40
Laboratory ID: 0908228-10

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 24.67 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	1.8	mg/kg dry	1	0.35	0.077		08/19/09 12:51

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 12:00
Solids: 81.59
Laboratory ID: 0908228-11

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 24.67 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.11	mg/kg dry	1	0.37	0.082	J	08/19/09 12:51

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB5A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:05
Solids: 88.22
Laboratory ID: 0908228-12

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 25.3 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.11	mg/kg dry	1	0.34	0.076	J	08/19/09 12:51

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB5B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:20
Solids: 82.12
Laboratory ID: 0908228-13

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 24.84 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.37	mg/kg dry	1	0.37	0.081	U	08/19/09 12:51

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

DUP-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 00:00
Solids: 82.34
Laboratory ID: 0908228-14

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 25.04 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.11	mg/kg dry	1	0.36	0.081	J	08/19/09 12:51

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB6A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:40
Solids: 84.57
Laboratory ID: 0908228-15

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 24.76 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.10	mg/kg dry	1	0.35	0.079	J	08/19/09 12:51

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

18SB6B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 13:55
Solids: 81.98
Laboratory ID: 0908228-16

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 24.68 g / 250 mL
QC Batch: 0909551

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.37	mg/kg dry	1	0.37	0.081	U	08/19/09 12:51

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

EQBK-2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/12/09 10:30
Solids: 0.00
Laboratory ID: 0908228-17

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/14/09 06:30
Initial/Final: 50 mL / 50 mL
QC Batch: 0909427

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	10.0	ug/L	1	10.0	2.30	U	08/14/09 10:23

INORGANIC ANALYSIS DATA SHEET
MSA 29-3.5.2

18SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 10:00
Solids: 83.74
Laboratory ID: 0908228-04

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/25/09 12:30
Initial/Final: 1.59 g / 1.59 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.28	%	1	0.20	0.0062		08/25/09 13:15

INORGANIC ANALYSIS DATA SHEET
MSA 29-3.5.2

18SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 12:00
Solids: 81.59
Laboratory ID: 0908228-11

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/26/09 07:00
Initial/Final: 10.13 g / 10.13 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.12	%	1	0.20	0.0062	J	08/26/09 07:25

DATA VALIDATION WORKSHEET

Volatile Organic Analysis by GC/MS

Reviewer: Andrea Sansom
Date: November 3, 2009
DV Level: II III IV
Review Document:
X NFG - Region III Modifications
X Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809B
Test Name: 8260B
Method No.: VOC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If the temperature of the cooler was elevated (> 10 ^{O}C) or bubble size in aqueous sample was too big (tiny bubble is OK.), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous unpreserved - 7 days for aromatic compounds All others - 14 days.		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per GCMS, 20 samples, batch, matrix, and level)?	X		
3.2	Do any method blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common volatile lab contaminants - methylene chloride, acetone, and 2-butanone) the amount in the associated blank.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If Yes, use same rules above.	X		
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 15% and %D < ± 20%		X	
	For initial Calibration: for %RSD > ± 15%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < control limit? Control limits: >0.10 for chloromethane, 1,1-dichloroethane, & bromoform or >0.30 for chlorobenzene & 1,1,2,2-tetrachloroethane. If yes, L(+)/R(-).		X	

Notes:

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	X		
5.2	Are BFB enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
5.3	Have all samples been analyzed within twelve hours of the BFB tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for BFB been met for each instrument used?	X		
	If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
6.2	Are surrogate recoveries within acceptance criteria (not to exceed 50-150%) for all samples and method blanks?		X	
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?		X	
	If any system monitoring compound(s) in the volatile fraction is out of specification, there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? DV report should indicate that extraction efficiency/ method accuracy cannot be verified.		X	
	1 or more <10% / 1 high/low / 2 or 3 high/low / 2 or 3 all low / 2 or 3 all high			
	Positives: L / J / J / L / K			
	Non-detects: R / UJ / UJ / UL / NONE			
	Note: The B qualifier remains over surrogate flagging.			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 50-150%?		X	
7.4	Are there any RPD outside the QC limits not to exceed 50%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 50-150%?		X	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?			X
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).	X		
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Was a field duplicate prepared and analyzed at the correct frequency (one per 20 samples, matrix, and level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted to reflect all sample dilutions and dry weight factors?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".			X

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 17			
	Number of target compounds in each analysis: 50			
	Number of results rejected and not reported: 0			
	% Completeness = 100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17
Trip Blank	0908228-18

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18051
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H12016

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
18SB6A (0908228-15)		**Lab File ID: 0908228-15.D**		**Analyzed: 08/17/09 11:56**			
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	98	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	99	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	97	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	90	85 - 120	
18SB6B (0908228-16)		**Lab File ID: 0908228-16.D**		**Analyzed: 08/17/09 12:28**			
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	100	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	99	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	96	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	95	85 - 120	
18SB3B (0908228-09)		**Lab File ID: 0908228-09A.D**		**Analyzed: 08/17/09 13:01**			
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	98	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	100	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	96	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	93	85 - 120	
18SB5A (0908228-12)		**Lab File ID: 0908228-12A.D**		**Analyzed: 08/17/09 13:33**			
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	97	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	95	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	96	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	87	85 - 120	
Matrix Spike (0909662-MS1)		**Lab File ID: 22805MS.D**		**Analyzed: 08/17/09 14:05**			
Dibromofluoromethane	3.61	3.60	0.01	+/-1.0	93	78 - 121	
1,2-Dichloroethane-d4	3.95	3.94	0.01	+/-1.0	83	66 - 124	
Toluene-d8	5.87	5.86	0.01	+/-1.0	94	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	84	85 - 120	*
Matrix Spike Dup (0909662-MSD1)		**Lab File ID: 22805MD.D**		**Analyzed: 08/17/09 14:37**			
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	98	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	95	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	96	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	94	85 - 120	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 5 g / 5 mL

Laboratory ID: 0909662-MS1

QC Batch: 0909662

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acetone	47.8	ND	41.0	86	20 - 160	ug/kg dry
Benzene	47.8	ND	39.0	81	75 - 125	ug/kg dry
Bromochloromethane	47.8	ND	43.5	91	70 - 125	ug/kg dry
Bromodichloromethane	47.8	ND	42.0	88	70 - 130	ug/kg dry
Bromoform	47.8	ND	33.6	70	55 - 135	ug/kg dry
Bromomethane	47.8	ND	41.7	87	30 - 160	ug/kg dry
Carbon Disulfide	47.8	ND	39.0	82	45 - 160	ug/kg dry
Carbon Tetrachloride	47.8	ND	36.8	77	65 - 135	ug/kg dry
Chlorobenzene	47.8	ND	46.8	98	75 - 125	ug/kg dry
Chloroethane	47.8	ND	43.9	92	40 - 155	ug/kg dry
Chloroform	47.8	0.611	43.4	89	70 - 125	ug/kg dry
Chloromethane	47.8	ND	41.8	87	50 - 130	ug/kg dry
Cyclohexane	47.8	ND	39.0	81	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	47.8	ND	43.5	91	40 - 135	ug/kg dry
Dibromochloromethane	47.8	ND	39.1	82	65 - 130	ug/kg dry
1,2-Dibromoethane	47.8	ND	47.6	99	70 - 125	ug/kg dry
1,2-Dichlorobenzene	47.8	ND	49.0	102	75 - 120	ug/kg dry
1,3-Dichlorobenzene	47.8	ND	47.3	99	70 - 125	ug/kg dry
1,4-Dichlorobenzene	47.8	ND	46.9	98	70 - 125	ug/kg dry
Dichlorodifluoromethane	47.8	ND	44.8	94	35 - 135	ug/kg dry
1,1-Dichloroethane	47.8	ND	42.6	89	75 - 125	ug/kg dry
1,2-Dichloroethane	47.8	ND	39.1	82	70 - 135	ug/kg dry
1,1-Dichloroethene	47.8	ND	45.3	95	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	47.8	ND	45.1	94	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	47.8	ND	44.8	94	65 - 135	ug/kg dry
1,2-Dichloropropane	47.8	ND	42.2	88	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	47.8	ND	36.4	76	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	47.8	ND	33.9	71	65 - 125	ug/kg dry
Ethylbenzene	47.8	ND	48.1	101	75 - 125	ug/kg dry
2-Hexanone	47.8	ND	42.8	90	45 - 145	ug/kg dry
Isopropylbenzene	47.8	ND	41.7	87	75 - 130	ug/kg dry
Methyl Acetate	47.8	ND	42.3	88	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	47.8	ND	38.7	81	63 - 127	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 5 g / 5 mL

Laboratory ID: 0909662-MS1

QC Batch: 0909662

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Methylcyclohexane	47.8	ND	43.4	91	70 - 130	ug/kg dry
Methylene Chloride	47.8	4.71	42.5	79	55 - 140	ug/kg dry
2-Butanone (MEK)	47.8	ND	40.4	84	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	47.8	ND	39.4	82	45 - 145	ug/kg dry
Styrene	47.8	ND	45.7	96	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	47.8	ND	44.2	92	55 - 130	ug/kg dry
Tetrachloroethene	47.8	ND	47.3	99	65 - 140	ug/kg dry
Toluene	47.8	ND	42.7	89	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	47.8	ND	42.4	89	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	47.8	ND	40.9	86	65 - 130	ug/kg dry
1,1,1-Trichloroethane	47.8	ND	42.7	89	70 - 135	ug/kg dry
1,1,2-Trichloroethane	47.8	ND	44.7	93	60 - 125	ug/kg dry
Trichloroethene	47.8	ND	44.0	92	75 - 125	ug/kg dry
Trichlorofluoromethane	47.8	ND	45.7	95	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	47.8	ND	45.2	94	80 - 120	ug/kg dry
Vinyl Chloride	47.8	ND	43.5	91	60 - 125	ug/kg dry
Xylene (Total)	144	ND	142	99	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 5035 Soil Purge & Trap - MS
Initial/Final: 4.3 g / 5 mL

Laboratory ID: 0909662-MSD1
QC Batch: 0909662

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acetone	55.6	44.0	79	7	30	20 - 160	ug/kg dry
Benzene	55.6	45.5	82	15	30	75 - 125	ug/kg dry
Bromochloromethane	55.6	44.5	80	2	30	70 - 125	ug/kg dry
Bromodichloromethane	55.6	45.1	81	7	30	70 - 130	ug/kg dry
Bromoform	55.6	40.7	73	19	30	55 - 135	ug/kg dry
Bromomethane	55.6	43.9	79	5	30	30 - 160	ug/kg dry
Carbon Disulfide	55.6	41.8	75	7	30	45 - 160	ug/kg dry
Carbon Tetrachloride	55.6	42.1	76	14	30	65 - 135	ug/kg dry
Chlorobenzene	55.6	47.3	85	1	30	75 - 125	ug/kg dry
Chloroethane	55.6	44.9	81	2	30	40 - 155	ug/kg dry
Chloroform	55.6	45.4	81	5	30	70 - 125	ug/kg dry
Chloromethane	55.6	41.8	75	0.02	30	50 - 130	ug/kg dry
Cyclohexane	55.6	44.9	81	14	30	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	55.6	45.3	81	4	30	40 - 135	ug/kg dry
Dibromochloromethane	55.6	42.1	76	7	30	65 - 130	ug/kg dry
1,2-Dibromoethane	55.6	50.2	90	5	30	70 - 125	ug/kg dry
1,2-Dichlorobenzene	55.6	49.9	90	2	30	75 - 120	ug/kg dry
1,3-Dichlorobenzene	55.6	48.5	87	3	30	70 - 125	ug/kg dry
1,4-Dichlorobenzene	55.6	48.7	88	4	30	70 - 125	ug/kg dry
Dichlorodifluoromethane	55.6	46.8	84	4	30	35 - 135	ug/kg dry
1,1-Dichloroethane	55.6	44.0	79	3	30	75 - 125	ug/kg dry
1,2-Dichloroethane	55.6	46.9	84	18	30	70 - 135	ug/kg dry
1,1-Dichloroethene	55.6	46.4	83	2	30	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	55.6	46.4	83	3	30	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	55.6	45.9	83	3	30	65 - 135	ug/kg dry
1,2-Dichloropropane	55.6	43.5	78	3	30	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	55.6	39.2	70	7	30	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	55.6	37.6	68	10	30	65 - 125	ug/kg dry
Ethylbenzene	55.6	47.7	86	0.9	30	75 - 125	ug/kg dry
2-Hexanone	55.6	44.6	80	4	30	45 - 145	ug/kg dry
Isopropylbenzene	55.6	51.3	92	21	30	75 - 130	ug/kg dry
Methyl Acetate	55.6	42.5	76	0.5	30	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	55.6	43.9	79	13	30	63 - 127	ug/kg dry
Methylcyclohexane	55.6	45.6	82	5	30	70 - 130	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 4.3 g / 5 mL

Laboratory ID: 0909662-MSD1

QC Batch: 0909662

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Methylene Chloride	55.6	40.9	65	4	30	55 - 140	ug/kg dry
2-Butanone (MEK)	55.6	42.9	77	6	30	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	55.6	43.4	78	10	30	45 - 145	ug/kg dry
Styrene	55.6	49.7	89	8	30	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	55.6	51.6	93	16	30	55 - 130	ug/kg dry
Tetrachloroethene	55.6	47.1	85	0.3	30	65 - 140	ug/kg dry
Toluene	55.6	44.6	80	4	30	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	55.6	45.2	81	6	30	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	55.6	42.6	77	4	30	65 - 130	ug/kg dry
1,1,1-Trichloroethane	55.6	44.6	80	4	30	70 - 135	ug/kg dry
1,1,2-Trichloroethane	55.6	47.3	85	6	30	60 - 125	ug/kg dry
Trichloroethene	55.6	46.7	84	6	30	75 - 125	ug/kg dry
Trichlorofluoromethane	55.6	45.3	81	0.7	30	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	55.6	46.5	84	3	30	80 - 120	ug/kg dry
Vinyl Chloride	55.6	44.5	80	2	30	60 - 125	ug/kg dry
Xylene (Total)	167	149	89	5	30	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909662-BLK1
File ID: BLK0817.D
Prepared: 08/17/09 02:00
Preparation: 5035 Soil Purge & Trap -
Initial/Final: 5 g / 5 mL
Analyzed: 08/17/09 04:23
Instrument: 323
QC Batch: 0909662
Sequence: 9H18051
Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
67-64-1	Acetone	3.1	20	20	ug/kg wet	U
71-43-2	Benzene	0.21	5.0	5.0	ug/kg wet	U
74-97-5	Bromochloromethane	0.44	20	20	ug/kg wet	U
75-27-4	Bromodichloromethane	0.87	5.0	5.0	ug/kg wet	U
75-25-2	Bromoform	0.46	5.0	5.0	ug/kg wet	U
74-83-9	Bromomethane	0.96	5.0	1.0	ug/kg wet	J
75-15-0	Carbon Disulfide	0.34	5.0	5.0	ug/kg wet	U
56-23-5	Carbon Tetrachloride	0.68	5.0	5.0	ug/kg wet	U
108-90-7	Chlorobenzene	0.79	5.0	5.0	ug/kg wet	U
75-00-3	Chloroethane	0.79	20	20	ug/kg wet	U
67-66-3	Chloroform	0.23	5.0	5.0	ug/kg wet	U
74-87-3	Chloromethane	0.42	5.0	5.0	ug/kg wet	U
110-82-7	Cyclohexane	0.83	10	10	ug/kg wet	U
96-12-8	1,2-Dibromo-3-chloropropane	2.1	10	10	ug/kg wet	U
124-48-1	Dibromochloromethane	0.47	5.0	5.0	ug/kg wet	U
106-93-4	1,2-Dibromoethane	0.82	5.0	5.0	ug/kg wet	U
95-50-1	1,2-Dichlorobenzene	0.26	5.0	5.0	ug/kg wet	U
541-73-1	1,3-Dichlorobenzene	0.38	5.0	5.0	ug/kg wet	U
106-46-7	1,4-Dichlorobenzene	0.47	5.0	5.0	ug/kg wet	U
75-71-8	Dichlorodifluoromethane	0.35	5.0	5.0	ug/kg wet	U
75-34-3	1,1-Dichloroethane	0.31	5.0	5.0	ug/kg wet	U
107-06-2	1,2-Dichloroethane	0.36	5.0	5.0	ug/kg wet	U
75-35-4	1,1-Dichloroethene	0.71	5.0	5.0	ug/kg wet	U
156-59-2	cis-1,2-Dichloroethene	0.28	5.0	5.0	ug/kg wet	U
156-60-5	trans-1,2-Dichloroethene	0.81	5.0	5.0	ug/kg wet	U
78-87-5	1,2-Dichloropropane	0.37	5.0	5.0	ug/kg wet	U
10061-01-5	cis-1,3-Dichloropropene	0.42	5.0	5.0	ug/kg wet	U
10061-02-6	trans-1,3-Dichloropropene	0.30	5.0	5.0	ug/kg wet	U
100-41-4	Ethylbenzene	0.15	5.0	5.0	ug/kg wet	U
591-78-6	2-Hexanone	1.0	10	1.5	ug/kg wet	J

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909662-BLK1
File ID: BLK0817.D
Prepared: 08/17/09 02:00
Preparation: 5035 Soil Purge & Trap -
Initial/Final: 5 g / 5 mL
Analyzed: 08/17/09 04:23
Instrument: 323
QC Batch: 0909662
Sequence: 9H18051
Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	0.20	5.0	5.0	ug/kg wet	U
79-20-9	Methyl Acetate	2.4	20	20	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	0.49	5.0	5.0	ug/kg wet	U
108-87-2	Methylcyclohexane	0.88	10	10	ug/kg wet	U
75-09-2	Methylene Chloride	1.2	20	7.8	ug/kg wet	J
78-93-3	2-Butanone (MEK)	2.3	20	20	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.18	10	10	ug/kg wet	U
100-42-5	Styrene	0.78	5.0	5.0	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	0.78	5.0	5.0	ug/kg wet	U
127-18-4	Tetrachloroethene	0.75	5.0	5.0	ug/kg wet	U
108-88-3	Toluene	0.60	5.0	5.0	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	0.39	20	2.3	ug/kg wet	J
120-82-1	1,2,4-Trichlorobenzene	0.71	5.0	5.0	ug/kg wet	U
71-55-6	1,1,1-Trichloroethane	0.84	5.0	5.0	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	0.92	5.0	5.0	ug/kg wet	U
79-01-6	Trichloroethene	0.43	5.0	5.0	ug/kg wet	U
75-69-4	Trichlorofluoromethane	0.31	5.0	5.0	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.52	5.0	5.0	ug/kg wet	U
75-01-4	Vinyl Chloride	0.26	5.0	5.0	ug/kg wet	U
1330-20-7	Xylene (Total)	1.0	5.0	5.0	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	40.5	101	78 - 121	
1,2-Dichloroethane-d4	40.0	43.8	110	66 - 124	
Toluene-d8	40.0	38.6	97	85 - 115	
4-Bromofluorobenzene	40.0	39.4	98	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	876052	4.28	947725	4.28	
Chlorobenzene-d5	594971	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	304827	9.55	350029	9.55	

INITIAL CALIBRATION STANDARDS
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H12068

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H12016

Standard ID	Description	Lab Sample ID	Lab File ID	Analysis Date/Time
9050385	8260 Tune Working Standard 05-11-09	9H12068-TUN1	BFB0812.D	08/12/09 09:26
9080030	1 UG/L A	9H12068-CAL1	1P.D	08/12/09 09:58
9080031	5 UG/L A	9H12068-CAL2	5P.D	08/12/09 10:29
9080032	10 UG/L A	9H12068-CAL3	10P.D	08/12/09 11:01
9080033	20 UG/L A	9H12068-CAL4	20P.D	08/12/09 11:33
9080034	40 UG/L A	9H12068-CAL5	40P.D	08/12/09 12:15
9080035	100 UG/L A	9H12068-CAL6	100PA.D	08/12/09 18:11
9080036	200 UG/L A	9H12068-CAL7	200PA.D	08/12/09 18:42
9080037	LCS B	9H12068-SCV1	LCSA.D	08/12/09 19:14

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
Acetone	6.424628E-02	15.19881	1.67	1.342167E-02	0.99487		0.99	
Acrolein	3.332432E-02	15.41244	1.578571	0.2394121	0.99929		0.99	
Acrylonitrile	8.579943E-02	7.940297	2.14	1.710302E-02			15	
Benzene	1.048783	8.738591	3.97	1.414435E-02			15	
Bromobenzene	1.255768	4.556176	8.55	1.934973E-02			15	
Bromochloromethane	0.167315	6.210289	3.331428	0.1140421			15	
Bromodichloromethane	0.2757909	14.49003	5.18	1.818596E-02			15	
Bromoform	0.1279605	28.52738	8.11	7.339563E-03	0.99491		SPCC (0.1)	
Bromomethane	0.2627686	12.10728	1.151667	0.3548961			15	
n-Butylbenzene	2.699252	13.17827	9.953333	5.013233E-02			15	
sec-Butylbenzene	3.231684	10.3913	9.401428	0.0400841			15	
tert-Butylbenzene	2.139395	10.56846	9.182857	5.509415E-02			15	
Carbon Disulfide	0.7367744	18.14396	1.76	8.063699E-03	0.99973		0.99	
Carbon Tetrachloride	0.3188406	16.54904	3.74	1.458965E-02	0.99852		0.99	
Chlorobenzene	1.037954	6.456103	7.298572	0.0485216			SPCC (0.3)	
Chloroethane	0.2006062	7.913097	1.201429	0.3140202			15	
2-Chloroethyl Vinyl Ether	0.1393426	11.19955	5.52	5.142069E-03	0.99656		0.99	
Chloroform	0.4924529	6.093642	3.432857	0.141167			CCC (30)	
1-Chlorohexane	0.372404	6.390304	7.31	1.356388E-02			15	
Chloromethane	0.3899552	19.21217	0.9385714	0.4026685	0.99546		SPCC (0.1)	
2-Chlorotoluene	0.7419214	5.463293	8.752857	5.505134E-02			15	
4-Chlorotoluene	2.566468	5.747223	8.87	2.047888E-02			15	
Cyclohexane	0.397842	12.4901	3.611428	0.1026366			15	
1,2-Dibromo-3-chloropropane	9.030228E-02	24.26994	10.72	1.480693E-02	0.99366		0.99	
Dibromochloromethane	0.2417435	26.11093	6.73	6.642194E-03	0.99761		0.99	
1,2-Dibromoethane	0.269869	9.085845	6.82	0.0138128			15	
Dibromomethane	0.1409882	5.33706	4.995714	0.1062259			15	
trans-1,4-Dichloro-2-butene	0.1927455	10.52385	8.68	1.728173E-02			15	
1,2-Dichlorobenzene	1.306222	10.33924	9.94	1.815323E-02			15	
1,3-Dichlorobenzene	1.469138	5.426032	9.485714	5.731533E-02			15	
1,4-Dichlorobenzene	1.550268	3.709424	9.58	1.029116E-02			15	
Dichlorodifluoromethane	0.2502128	7.293222	0.85	1.519848E-02			15	

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Calibration: 9H12016

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
1,1-Dichloroethane	0.4620446	5.584198	2.491429	0.1511609			SPCC (0.1)	
1,2-Dichloroethane	0.325603	7.729069	4.02	1.981697E-02			15	
1,1-Dichloroethene	0.2510643	9.450979	1.628571	0.2314767			CCC (30)	
cis-1,2-Dichloroethene	0.3129545	4.863966	3.074286	0.1749913			15	
trans-1,2-Dichloroethene	0.2948184	6.741025	2.14	1.710302E-02			15	
1,2-Dichloroethene (Total)	0.3038864	5.665859	3.074286	0.1749913			15	
1,2-Dichloropropane	0.2633842	5.103919	4.88	1.580108E-02			CCC (30)	
1,3-Dichloropropane	0.5547215	3.595162	6.52	1.559818E-02			15	
2,2-Dichloropropane	0.321017	12.33576	3.057143	0.1600342			15	
1,1-Dichloropropene	0.3685071	8.192642	3.752857	0.1300361			15	
cis-1,3-Dichloropropene	0.3335549	18.43603	5.624286	9.457427E-02	0.99926		0.99	
trans-1,3-Dichloropropene	0.2508747	24.43825	6.191429	6.216939E-02	0.99917		0.99	
Ethylbenzene	1.751759	9.543311	7.417143	6.415254E-02			CCC (30)	
Hexachlorobutadiene	0.5934141	8.525207	11.7	1.812084E-02			15	
2-Hexanone	0.2210287	14.00399	6.651667	5.888445E-02			15	
Iodomethane	0.2210404	62.57181	1.72	1.882391E-02	0.99489		0.99	
Isopropylbenzene	2.668621	7.06959	8.288571	4.365454E-02			15	
4-Isopropyltoluene	2.70552	8.817725	9.551667	0.0468877			15	
Methyl Acetate	0.2220401	10.33117	1.88	3.721705E-03			15	
Methyl tert-Butyl Ether	0.6558451	7.065166	2.14	1.710302E-02			15	
Methylcyclohexane	0.5047911	9.653485	4.794286	0.110324			15	
Methylene Chloride	0.4997852	60.87143	1.94	1.855018E-02	0.99747		0.99	
2-Butanone (MEK)	8.655697E-02	10.73504	3.141667	0.1313573			15	
4-Methyl-2-pentanone (MIBK)	0.222873	10.39145	5.826667	8.891251E-02			15	
Naphthalene	1.781598	37.50275	11.75286	4.210678E-02	0.99817		0.99	
n-Propylbenzene	0.8474714	7.283168	8.697143	5.329137E-02			15	
Styrene	1.10921	13.92827	7.94	1.414435E-02			15	
1,1,1,2-Tetrachloroethane	0.2907576	14.93152	7.393333	7.091848E-02			15	
1,1,2,2-Tetrachloroethane	0.7625957	5.057506	8.627143	5.249606E-02			SPCC (0.3)	
Tetrachloroethene	0.4230979	6.841499	6.445714	8.362781E-02			15	
Toluene	1.293069	23.97872	5.928571	6.404898E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8154561	23.63279	11.99143	3.830023E-02	0.99941		0.99	

See raw data

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Calibration: 9H12016

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
1,2,4-Trichlorobenzene	0.8218828	26.07176	11.52	2.499122E-02	0.99895		0.99	
1,1,1-Trichloroethane	0.3973068	9.327424	3.58	1.047524E-02			15	
1,1,2-Trichloroethane	0.1807208	6.935919	6.362857	7.363401E-02			15	
Trichloroethene	0.2784474	6.85249	4.641428	0.0801597			15	
Trichlorofluoromethane	0.4502826	7.018871	1.33	1.661705E-02			15	
1,2,3-Trichloropropane	0.222409	5.946853	8.641429	4.225466E-02			15	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.2809214	7.921664	1.621429	0.2320896			15	
1,2,4-Trimethylbenzene	2.526946	9.523444	9.24	1.557894E-02			15	
1,3,5-Trimethylbenzene	2.615547	8.45434	8.875714	5.769917E-02			15	
Vinyl Acetate	0.2290406	12.7415	2.56	1.527404E-02			15	
Vinyl Chloride	0.3366321	6.349935	0.99	1.413496E-02			CCC (30)	
Xylene, Meta + Para	0.6857348	10.20848	7.54	0.0158372			15	
Xylene, Ortho	0.6421923	12.75123	7.918571	4.911035E-02			15	
Xylene (Total)	0.6712206	10.93234	7.918571	4.911035E-02			15	
Dibromofluoromethane	0.255222	3.490241	3.604286	0.1472892			15	
1,2-Dichloroethane-d4	0.1379543	6.287033	3.944286	0.1352273			15	
Toluene-d8	0.9292636	2.191105	5.861429	6.822314E-02			15	
4-Bromofluorobenzene	0.4792863	1.685846	8.43	1.759605E-02			15	

Method Path : C:\MSDCHEM\1\METHODS\
Method File : 8260B-LL01.M
Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
Last Update : Thu Aug 13 08:41:36 2009
Response Via : Initial Calibration

40)		dibromomethane	0.140	0.137	0.133	0.132	0.150	0.148	0.147	0.141	5.34
41)		bromodichlorome	0.256	0.236	0.242	0.248	0.292	0.331	0.325	0.276	14.49
42)		methylcyclohexa	0.489	0.462	0.461	0.461	0.528	0.580	0.552	0.505	9.65
43)		2-chloroehtyl v	0.127		0.134	0.153	0.164	0.127	0.130	-----	
								L M= 0.128 R=0.997			
								B= 0.010			
44)		cis-1,3-dichlor	0.301	0.266	0.280	0.302	0.361	0.412	0.412	-----	
								L M= 0.418 R=0.999			
								B= -0.030			
45)		4-methyl-2-pent	0.203	0.178	0.220	0.238	0.260	0.198	0.217	0.216	12.56
46)	s	#Toluene-d8	0.925	0.914	0.916	0.923	0.957	0.959	0.911	0.929	2.19
47)	C	toluene	1.166		1.213	1.060	1.177	1.262	1.192	1.178	5.71#
48)		trans-1,3-dichl	0.220	0.182	0.188	0.229	0.283	0.323	0.330	-----	
								L M= 0.335 R=0.999			
								B= -0.030			
49)		1,1,2-trichloro	0.181	0.169	0.166	0.171	0.197	0.194	0.188	0.181	6.94
50)		Chlorobenzene-d5		----------			ISTD	----------			
51)		tetrachloroethe	0.408	0.454	0.393	0.388	0.415	0.443	0.459	0.423	6.84
52)		1,3-dichloropro	0.548	0.551	0.539	0.525	0.572	0.566	0.582	0.555	3.60
53)		2-hexanone (MBK	0.194		0.190	0.237	0.269	0.202	0.234	0.221	14.00
54)		dibromochlorome	0.216	0.168	0.185	0.215	0.265	0.308	0.336	-----	
								L M= 0.339 R=0.998			
								B= -0.040			
55)		1,2-dibromoetha	0.266	0.243	0.244	0.253	0.296	0.285	0.302	0.270	9.09
56)	P	chlorobenzene	1.010	1.057	0.981	0.943	1.036	1.105	1.133	1.038	6.46
57)		1,1,1,2-tetrach	0.278	0.238	0.264	0.284	0.321	0.360		0.291	14.93
58)		1-chlorohexane	0.372	0.366	0.341	0.346	0.388	0.408	0.387	0.372	6.39
59)	C	ethylbenzene	1.680	1.632	1.575	1.622	1.809	1.976	1.967	1.752	9.54#
60)		m+p-xylene	0.662	0.625	0.611	0.639	0.714	0.793	0.757	0.686	10.21
61)		o-xylene	0.613	0.544	0.581	0.589	0.674	0.743	0.752	0.642	12.75
62)		styrene	1.058	0.897	0.991	1.040	1.187	1.283	1.310	1.109	13.93
63)	P	bromoform	0.117	0.089	0.100	0.120	0.158	0.185		-----	
								L M= 0.189 R=0.995			
								B= -0.018			
64)	S	#4-Bromofluorob	0.481	0.474	0.477	0.469	0.484	0.477	0.494	0.479	1.69
65)	I	1,4-Dichlorobenzene-d		----------			ISTD	----------			
66)		isopropylbenzen	2.556	2.570	2.411	2.571	2.852	2.924	2.798	2.669	7.07
67)		bromobenzene	1.216	1.348	1.247	1.179	1.307	1.266	1.227	1.256	4.56
68)	P	1,1,2,2-tetrach	0.774	0.770	0.750	0.744	0.840	0.720	0.740	0.763	5.06
69)		1,4-dichloro-2-	0.183	0.170	0.170	0.192	0.224	0.201	0.210	0.193	10.52
70)		1,2,3-trichloro	0.227	0.220	0.212	0.219	0.249	0.210	0.220	0.222	5.95
71)		n-propylbenzene	0.814	0.807	0.766	0.811	0.907	0.919	0.907	0.847	7.28
72)		2-chlorotoluene	0.709	0.771	0.701	0.689	0.790	0.769	0.764	0.742	5.46
73)		1,3,5-trimethyl	2.565	2.334	2.414	2.489	2.872	2.880	2.754	2.616	8.45
74)		4-chlorotoluene	2.511	2.404	2.477	2.439	2.771	2.747	2.616	2.566	5.75
75)		tert-butylbenze	2.070	1.903	1.923	1.957	2.366	2.366	2.390	2.139	10.57
76)		1,2,4-trimethyl	2.473	2.304	2.249	2.342	2.792	2.778	2.751	2.527	9.52
77)		sec-butylbenzen	3.190	2.873	2.915	2.934	3.487	3.652	3.570	3.232	10.39
78)		4-isopropyltolu	2.674	2.440	2.567	2.578	2.887	3.086	3.072	2.758	9.36
79)		1,3-dichloroben	1.460	1.481	1.404	1.342	1.475	1.541	1.581	1.469	5.43
80)		1,4-dichloroben	1.535	1.522	1.530	1.461	1.572	1.590	1.642	1.550	3.71
81)		1,2-dichloroben	1.230	1.253	1.115	1.236	1.396	1.406	1.509	1.306	10.34
82)		n-butylbenzene	2.559		2.082	2.639	2.941	3.025	2.951	2.699	13.18
83)		1,2-dibromo-3-c	0.082	0.069	0.066	0.096	0.122	0.106		-----	
								L M= 0.109 R=0.994			
								B= -0.002			
84)		hexachloroethan	0.206	0.191	0.199	0.241	0.294	0.339	0.399	-----	
								L M= 0.400 R=0.994			
								B= -0.061			
85)		1,2,4-trichloro	0.674	0.569	0.590	0.830	0.984	1.015	1.090	-----	
								L M= 1.097 R=0.999			

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Laboratory ID: 9H12068-SCV1
Sequence: 9H12068
Standard ID: 9080037

Analyte	Expected (ug/L)	Found (ug/L)	% Rec.	QC Limit
Acetone	40.0	42.4	106	75-125
Benzene	40.0	42.1	105	75-125
Bromobenzene	40.0	40.4	101	75-125
Bromochloromethane	40.0	40.6	102	75-125
Bromodichloromethane	40.0	45.3	113	75-125
Bromoform	40.0	39.4	99	75-125
Bromomethane	40.0	38.2	96	75-125
n-Butylbenzene	40.0	44.0	110	75-125
sec-Butylbenzene	40.0	45.6	114	75-125
tert-Butylbenzene	40.0	44.0	110	75-125
Carbon Disulfide	40.0	38.0	95	75-125
Carbon Tetrachloride	40.0	39.6	99	75-125
Chlorobenzene	40.0	42.2	106	75-125
Chloroethane	40.0	41.4	104	75-125
Chloroform	40.0	39.4	99	75-125
Chloromethane	40.0	39.6	99	75-125
2-Chlorotoluene	40.0	42.7	107	75-125
4-Chlorotoluene	40.0	43.3	108	75-125
1,2-Dibromo-3-chloropropane	40.0	39.7	99	75-125
Dibromochloromethane	40.0	39.3	98	75-125
1,2-Dibromoethane	40.0	43.5	109	75-125
Dibromomethane	40.0	41.4	104	75-125
1,2-Dichlorobenzene	40.0	45.6	114	75-125
1,3-Dichlorobenzene	40.0	43.5	109	75-125
1,4-Dichlorobenzene	40.0	43.2	108	75-125
Dichlorodifluoromethane	40.0	44.0	110	75-125
1,1-Dichloroethane	40.0	40.8	102	75-125

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Laboratory ID: 9H12068-SCV1
Sequence: 9H12068
Standard ID: 9080037

1,2-Dichloroethane	40.0	42.2	106	75-125
1,1-Dichloroethene	40.0	41.4	104	75-125
cis-1,2-Dichloroethene	40.0	40.4	101	75-125
trans-1,2-Dichloroethene	40.0	42.0	105	75-125
1,2-Dichloropropane	40.0	42.0	105	75-125
1,3-Dichloropropane	40.0	42.6	107	75-125
2,2-Dichloropropane	40.0	42.8	107	75-125
1,1-Dichloropropene	40.0	42.1	105	75-125
cis-1,3-Dichloropropene	40.0	39.6	99	75-125
trans-1,3-Dichloropropene	40.0	40.7	102	75-125
Ethylbenzene	40.0	44.0	110	75-125
Hexachlorobutadiene	40.0	44.0	110	75-125
2-Hexanone	40.0	41.1	103	75-125
Isopropylbenzene	40.0	46.3	116	75-125
4-Isopropyltoluene	40.0	45.4	114	75-125
Methyl tert-Butyl Ether	40.0	44.0	110	75-125
Methylene Chloride	40.0	42.3	106	75-125
2-Butanone (MEK)	40.0	37.9	95	75-125
4-Methyl-2-pentanone (MIBK)	40.0	39.7	99	75-125
Naphthalene	40.0	43.6	109	75-125
n-Propylbenzene	40.0	42.0	105	75-125
Styrene	40.0	45.8	115	75-125
1,1,1,2-Tetrachloroethane	40.0	48.2	121	75-125
1,1,2,2-Tetrachloroethane	40.0	41.3	103	75-125
Tetrachloroethene	40.0	40.0	100	75-125
Toluene	40.0	41.8	105	75-125
1,2,3-Trichlorobenzene	40.0	41.4	104	75-125
1,2,4-Trichlorobenzene	40.0	39.2	98	75-125

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Calibration: 9H12016
Sequence: 9H12068

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Laboratory ID: 9H12068-SCV1
Standard ID: 9080037

1,1,1-Trichloroethane	40.0	41.2	103	75-125
1,1,2-Trichloroethane	40.0	42.1	105	75-125
Trichloroethene	40.0	40.9	102	75-125
Trichlorofluoromethane	40.0	40.9	102	75-125
1,2,3-Trichloropropane	40.0	42.2	106	75-125
1,2,4-Trimethylbenzene	40.0	44.4	111	75-125
1,3,5-Trimethylbenzene	40.0	43.8	110	75-125
Vinyl Chloride	40.0	40.0	100	75-125
Xylene, Meta + Para	80.0	88.4	111	75-125
Xylene, Ortho	40.0	44.7	112	75-125
Xylene (Total)	120	133	111	75-125
Dibromofluoromethane	40.0	40.2	101	75-125
1,2-Dichloroethane-d4	40.0	40.4	101	75-125
Toluene-d8	40.0	39.7	99	75-125
4-Bromofluorobenzene	40.0	40.3	101	75-125

* Values outside of QC limits

Missing cyclohexane 102%
methylacetate 106%
Methylcyclohexane 101%
Freon 112 96.4%

Quantitation Report (Not Edited)

Data Path : C:\MSDChem\1\DATA\08-12-09\
Data File : LCSA.D
InstName : 323
Acq On : 12 Aug 2009 7:14 pm
Operator : JDM
Sample : LCSA
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 13 08:43:38 2009
Quant Method : C:\MSDCHEM\1\METHODS\8260B-LL01.M
Quant Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
QLast Update : Thu Aug 13 08:43:22 2009
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min) Rcv(Ar)
1) Fluorobenzene	4.28	96	974894	40.00	ug/L		0.00 102.87%
50) Chlorobenzene-d5	7.27	117	673069	40.00	ug/L		0.00 100.78%
65) 1,4-Dichlorobenzene-d4	9.55	152	377565	40.00	ug/L		0.00 107.87%
System Monitoring Compounds							
30) #Dibromofluoromethane	3.60	111	250039	40.20	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.50%				
37) #1,2-Dichloroethane-d4	3.94	67	135672	40.35	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.88%				
46) #Toluene-d8	5.86	98	899482	39.72	ug/L		0.00
Spiked Amount 40.000			Recovery = 99.30%				
64) #4-Bromofluorobenzene	8.43	95	325140	40.32	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.80%				
Target Compounds							Qvalue
2) dichlorodifluoromethane	0.85	85	268282	43.99	ug/L		98
3) chloromethane	0.94	50	346113	39.58	ug/L		99
4) vinyl chloride	0.99	62	328418	40.03	ug/L		99
5) dichlorofluoromethane	1.31	67	465960	39.80	ug/L		99
6) bromomethane	1.15	94	244693	38.21	ug/L		99
7) chloroethane	1.20	64	202262	41.37	ug/L		89
8) trichlorofluoromethane	1.33	101	448992	40.91	ug/L		100
9) acrolein	1.58	56	37818	42.34	ug/L	#	98
10) ethyl ether	1.49	74	176252	41.87	ug/L		83
11) acrylonitrile	2.14	53	85651	40.96	ug/L		97
12) 1,1,2-trichloro-1,2,2-trif	1.62	101	264055	38.57	ug/L	#	84
13) 1,1-dichloroethene	1.63	96	253622	41.45	ug/L	#	61
14) iodomethane	1.72	142	269396	36.67	ug/L		92
15) acetone	1.67	43	59924	42.38	ug/L		94
16) methyl acetate	1.88	43	229955	42.49	ug/L		94
17) carbon disulfide	1.76	76	747777	37.95	ug/L		100
18) methylene chloride	1.94	49	365961	42.29	ug/L	#	77
19) trans-1,2-dichloroethene	2.14	96	301650	41.98	ug/L	#	84
20) methyl (tert) butyl ether	2.14	73	704027	44.04	ug/L		100
21) 1,1-dichloroethane	2.49	63	459499	40.80	ug/L		99
22) vinyl acetate	2.56	43	217131	38.90	ug/L		99
23) 2,2-dichloropropane	3.06	77	334675	42.78	ug/L		95
24) cis-1,2-dichloroethene	3.07	96	308406	40.43	ug/L		93
25) 2-butanone (MEK)	3.14	43	79874	37.86	ug/L		90
26) bromochloromethane	3.33	49	165495	40.58	ug/L		98
27) chloroform	3.43	83	472577	39.37	ug/L		99
28) tetrahydrofuran	3.40	71	31436	44.00	ug/L	#	76
29) 1,1,1-trichloroethane	3.58	97	398746	41.18	ug/L		97
31) carbon tetrachloride	3.74	117	349136	39.57	ug/L		99
32) 1,1-dichloropropene	3.75	75	377882	42.07	ug/L		94
33) cyclohexane	3.61	56	396662	40.91	ug/L		96
34) benzene	3.97	78	1077047	42.14	ug/L		92
35) 1,2-dichloroethane	4.02	62	334524	42.15	ug/L		97
36) heptane	4.27	57	271608	44.87	ug/L		87

Quantitation Report (Not Edited)

Data Path : C:\MSDChem\1\DATA\08-12-09\
Data File : LCSA.D
InstName : 323
Acq On : 12 Aug 2009 7:14 pm
Operator : JDM
Sample : LCSA
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 13 08:43:38 2009
Quant Method : C:\MSDCHEM\1\METHODS\8260B-LL01.M
Quant Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
QLast Update : Thu Aug 13 08:43:22 2009
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min) Rcv(Ar)
38) trichloroethene	4.64	130	277508	40.89	ug/L		90
39) 1,2-dichloropropane	4.88	63	269562	41.99	ug/L		98
40) dibromomethane	5.00	93	142384	41.44	ug/L	#	83
41) bromodichloromethane	5.18	83	304599	45.32	ug/L		99
42) methylcyclohexane	4.80	83	496817	40.38	ug/L		91
43) 2-chloroehtyl vinyl ether	5.52	63	135820	40.48	ug/L		95
44) cis-1,3-dichloropropene	5.62	75	374242	39.58	ug/L		100
45) 4-methyl-2-pentanone (MIBK	5.83	43	209176	39.66	ug/L	#	87
47) toluene	5.93	91	1200327	41.80	ug/L		98
48) trans-1,3-dichloropropene	6.19	75	302922	40.68	ug/L		99
49) 1,1,2-trichloroethane	6.36	83	185604	42.14	ug/L		95
51) tetrachloroethene	6.45	166	284651	39.98	ug/L		93
52) 1,3-dichloropropane	6.52	76	397353	42.57	ug/L		100
53) 2-hexanone (MBK)	6.65	43	152735	41.07	ug/L		96
54) dibromochloromethane	6.73	129	197105	39.32	ug/L		99
55) 1,2-dibromoethane	6.82	109	197472	43.49	ug/L		100
56) chlorobenzene	7.30	112	737805	42.24	ug/L		89
57) 1,1,1,2-tetrachloroethane	7.39	131	235561	48.15	ug/L		98
58) 1-chlorohexane	7.31	55	261179	41.68	ug/L	#	71
59) ethylbenzene	7.41	91	1296265	43.98	ug/L		90
60) m+p-xylene	7.54	106	1020449	88.44	ug/L	#	73
61) o-xylene	7.92	106	483273	44.72	ug/L	#	78
62) styrene	7.94	104	855337	45.83	ug/L		86
63) bromoform	8.11	173	113327	39.45	ug/L		99
66) isopropylbenzene	8.28	105	1167383	46.34	ug/L		93
67) bromobenzene	8.55	77	478597	40.38	ug/L	#	70
68) 1,1,2,2-tetrachloroethane	8.62	83	297535	41.33	ug/L	#	100
69) 1,4-dichloro-2-butene	8.68	53	79419	43.65	ug/L	#	51
70) 1,2,3-trichloropropane	8.64	110	88638	42.22	ug/L	#	85
71) n-propylbenzene	8.69	120	335777	41.98	ug/L	#	57
72) 2-chlorotoluene	8.75	126	299007	42.70	ug/L	#	71
73) 1,3,5-trimethylbenzene	8.87	105	1082199	43.83	ug/L		90
74) 4-chlorotoluene	8.87	91	1049694	43.33	ug/L		86
75) tert-butylbenzene	9.18	119	888329	43.99	ug/L		89
76) 1,2,4-trimethylbenzene	9.23	105	1058906	44.39	ug/L		90
77) sec-butylbenzene	9.40	105	1391585	45.62	ug/L		92
78) 4-isopropyltoluene	9.55	119	1180778	45.36	ug/L	#	69
79) 1,3-dichlorobenzene	9.48	146	603802	43.54	ug/L		96
80) 1,4-dichlorobenzene	9.58	146	631970	43.19	ug/L		95
81) 1,2-dichlorobenzene	9.94	146	562125	45.59	ug/L		96
82) n-butylbenzene	9.95	91	1121110	44.00	ug/L		93
83) 1,2-dibromo-3-chloropropan	10.72	157	39923	39.69	ug/L	#	82
84) hexachloroethane	10.16	201	111365	35.52	ug/L	#	70
85) 1,2,4-trichlorobenzene	11.52	180	370268	39.23	ug/L		98
86) hexachlorobutadiene	11.70	225	246434	44.00	ug/L		98
87) naphthalene	11.75	128	934454	43.59	ug/L		95
88) 1,2,3-trichlorobenzene	11.99	180	373589	41.39	ug/L		97
89) 2-methylnaphthalene	12.87	142	608438	47.76	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client: UBS **Date Received:** 8-13-09 **Sheet Completed By:** LEW

Work Order: 0908228 **Date Form Completed:** 8-13-09 **Sheet Reviewed By:** DW

Low Level Soils

	Yes	No	N/A
Were Samples Received in 40 mL VOA Vials Containing a Stir Bar and Pre-Preserved with Sodium Bisulfate?		✓	
Were Samples Received Non-Preserved in Encore Samplers?	✓		
If Received in Encore Samplers, was Sample Received and Preserved Within 48 Hours of Sample Collection?	✓		

High Level Soils

Samples Collected in Which of the Following Ways?

	Yes	No	N/A
Tared 40, 60, or 120 mL Containers:			
Were Samples Received Pre-Preserved Within 4 Days After Collection?		✓	
En Core Samplers:			
Were Samples Received Within 40 Hours After Collection then Preserved Within 48 Hours of Collection?	✓		
Were Samples Shaken/Sonicated Within 8 Hours of Solvent Addition?	✓		
Was Solvent Removed Within 24 Hours of Shake/Sonication?	✓		

Equipment and Reagents

Methanol Lot Number: XJ0113

Sodium Bisulfate Lot Number: NA

Balance Number: 204

NOTE: MeOH or Bisulfate must be added within 48 hours of sample collection.

NOTE: All high level soil samples must be shaken for two minutes. Samples originating in Michigan or Wisconsin must also be sonicated (ASAP next business day when received late Friday or on the weekend).

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS

Chain-of-Custody Number 129207, 127584, 123110

Date and Time Sample(s) Received: 8-13-09, 910

Sample(s) from Wisconsin or Michigan? Yes (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0908228-02 SB1B H	Yes / No	4.7	4.7	RM	8-13-09	12:30	Yes / No	[illegible]	8-13-09	12:35	[illegible]	8-13-09	[illegible]
910 LA	Yes / No	5.0					Yes / No						
LB	Yes / No	4.5					Yes / No						
0908228-03 Dup-2 H	Yes / No	4.9	4.9				Yes / No				[illegible]	8-13-09	12:15
LA	Yes / No	4.8					Yes / No						
LB	Yes / No	4.9					Yes / No						
0908228-04 B2A H	Yes / No	5.5 J	5.5				Yes / No		[illegible] only				
(1000) LA	Yes / No	5.6					Yes / No		[illegible] 8-13-09				
LB	Yes / No	5.0					Yes / No						
0908228-05 B2B H1	Yes / No	5.1	5.1				Yes / No					[illegible] only	
(1010) H2	Yes / No	5.3	5.3				Yes / No						
LA1	Yes / No	4.8					Yes / No						
LA2	Yes / No	4.7					Yes / No						
LA3	Yes / No	5.0					Yes / No						
LB1	Yes / No	4.3					Yes / No						
LB2	Yes / No	4.8					Yes / No						
LB3	Yes / No	5.0					Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: UES **Chain-of-Custody Number** _____

Date and Time Sample(s) Received: _____ **Sample(s) from Wisconsin or Michigan?** Yes / No

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0908228-06 B4A H' (1100)	Yes / No	5.0	5.0	[illegible]	8.13.09	12:30	Yes / No	[illegible]	8.17.09	12:35	[illegible]	8.13.09	[illegible]
LA	Yes / No	4.7					Yes / No						
LB	Yes / No	5.3					Yes / No						
0908228-07 B4B H' (1115)	Yes / No	5.2	5.2				Yes / No						
LA	Yes / No	5.3					Yes / No						
LB	Yes / No	5.2					Yes / No		Weekend				
0908228-08 B3A H (1135)	Yes / No	5.2	5.2				Yes / No					8.14.09	
LA	Yes / No	4.6					Yes / No		8.17.09				
LB	Yes / No	4.9					Yes / No						
0908228-09 B3B H (1140)	Yes / No	5.1	5.1				Yes / No						
LA	Yes / No	5.4					Yes / No						
LB	Yes / No	5.1					Yes / No						
0908228-10 B1A H (1145)	Yes / No	4.6	4.6				Yes / No						
LA	Yes / No	5.0g					Yes / No						
LB	Yes / No	5.1g					Yes / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS **Chain-of-Custody Number** _____

Date and Time Sample(s) Received: _____ **Sample(s) from Wisconsin or Michigan?** Yes / No

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0908228-11 B1B H	Yes / No	4.7	4.7	[illegible]	8/13/09	12:30	Yes / No	[illegible]	8/13/09	12:35	[illegible]	8/17/09	15:15
(1200) LA	Yes / No	4.3					Yes / No						
LB	Yes / No	5.0					Yes / No						
0908228-12 B3A H	Yes / No	3.8	3.8				Yes / No						
(1305) LA	Yes / No	4.1					Yes / No						
LB	Yes / No	4.1					Yes / No						
0908228-13 B5B H	Yes / No	5.3	5.3				Yes / No						
(1320) LA	Yes / No	4.8					Yes / No						
LB	Yes / No	5.0					Yes / No						
0908228-14 Dup 3 H	Yes / No	4.7	4.7				Yes / No						
LA	Yes / No	5.1					Yes / No						
LB	Yes / No	5.1					Yes / No						
0908228-15 B6A H	Yes / No	4.7	4.7				Yes / No						
(1340) LA	Yes / No	5.0					Yes / No						
LB	Yes / No	4.8					Yes / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS **Chain-of-Custody Number** _____

Date and Time Sample(s) Received: _____ **Sample(s) from Wisconsin or Michigan?** Yes / No

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0508228-16 BLB H (1359)	Yes / No	4.8	4.8	tm	8-13-09	12:30	Yes / No	tm	8-13-09	12:35	tm	8-13-09	15:15
LA	Yes / No	4.9		tm	8-13-09	12:30	Yes / No						
LB	Yes / No	4.6		1	1	1	Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						

DATA VALIDATION WORKSHEET

Reviewer: Andrea Sansom
Date: November 4, 2009
DV Level: II III IV
Review Document:
_X_ NFG - Region III Modifications
_X_ Project QAPP/SAP

Semivolatile Organic Analysis

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809B
Test Name: SVOC
Method No.: 8270C

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{O}C), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common phthalate contaminants) the amount in the associated blank.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.	X		
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the Dv report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: $r \geq 0.99$, %RSD $\leq$ 15%, ICV %D < 30%, and CCV %D $\leq$ 20%.		X	
	For initial Calibration: for %RSD > $\pm$ 15%, but < $\pm$ 50%, J(+) only. for %RSD > $\pm$ 50%, but < $\pm$ 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < 0.05? (n-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-dinitrophenol, & 4-nitrophenol) If yes, J(+)/R(-).		X	

Notes: ICAL 9H18007

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for decafluorotriphenylphosphine (DFTPP)?	X		
5.2	Are DFTPP enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
	If DFTPP was analyzed simultaneously with any calibration standard or blank, the instrument performance check (IPC) is rejected "R" as well as all associated data.			
5.3	Have all samples been analyzed within twelve hours of the DFTPP tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for DFTPP been met for each instrument used?	X		
	If the DFTPP criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
6.2	Are surrogate recoveries within acceptance criteria not to exceed 10-150% for all samples and method blanks?		X	
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?		X	
	If any two base/neutral or acid fraction are out of specification, or if any one base/neutral or acid extractable surrogate has a recovery of less than 10%, then there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? (recoveries may be diluted out.)		X	
	1 or more <10% 2 or 3 high/low 2 or 3 all low 2 or 3 all high Positives L J L K Non-detects R UJ UL NONE			
	Note: The B qualifier remains over surrogate flagging.			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 10-150%?	X		
7.4	Are there any RPDs outside the QC limits not to exceed 60%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 10-150%?	X		
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?	X		
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).	X		
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".			X

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 16			
	Number of target compounds in each analysis: 67			
	Number of results rejected and not reported: 16			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 98.5%			

Notes:

SAMPLE ID SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17

QC BATCH SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B

Client: URS Corporation
Project: RFAAP SSP at Six Sites

QC Batch: 0909484
QC Batch Matrix: Water
Preparation: 3510C Liquid-Liquid Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
EQBK-2	0908228-17	08/14/09 08:51	
Blank	0909484-BLK1	08/14/09 08:51	
Blank	0909484-BLK2	08/17/09 08:51	
Blank	0909484-BLK3	08/17/09 08:51	aecom
LCS	0909484-BS1	08/14/09 08:51	
LCS	0909484-BS2	08/17/09 08:51	
LCS	0909484-BS3	08/17/09 08:51	aecom
LCS Dup	0909484-BSD1	08/14/09 08:51	

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0909484-BLK1 File ID: 0909484-blk1.D

Prepared: 08/14/09 08:51 Preparation: 3510C Liquid-Liquid Ext Initial/Final: 1000 mL / 1 mL

Analyzed: 08/18/09 00:45 Instrument: 308

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
83-32-9	Acenaphthene	0.030	0.50	0.50	ug/L	U
208-96-8	Acenaphthylene	0.020	0.50	0.50	ug/L	U
98-86-2	Acetophenone	0.068	5.0	5.0	ug/L	U
120-12-7	Anthracene	0.036	0.50	0.50	ug/L	U
1912-24-9	Atrazine	0.051	5.0	5.0	ug/L	U
100-52-7	Benzaldehyde	0.22	5.0	5.0	ug/L	U
56-55-3	Benzo(a)anthracene	0.022	0.50	0.50	ug/L	U
50-32-8	Benzo(a)pyrene	0.042	0.50	0.50	ug/L	U
205-99-2	Benzo(b)fluoranthene	0.11	0.50	0.50	ug/L	U
207-08-9	Benzo(k)fluoranthene	0.12	0.50	0.50	ug/L	U
191-24-2	Benzo(g,h,i)perylene	0.098	0.50	0.50	ug/L	U
92-52-4	1,1'-Biphenyl	0.10	5.0	5.0	ug/L	U
101-55-3	4-Bromophenyl Phenyl Ether	0.036	5.0	5.0	ug/L	U
85-68-7	Butyl Benzyl Phthalate	0.058	5.0	0.090	ug/L	J
105-60-2	Caprolactam	0.21	5.0	5.0	ug/L	U
86-74-8	Carbazole	0.047	5.0	5.0	ug/L	U
59-50-7	4-Chloro-3-methylphenol	0.031	5.0	5.0	ug/L	U
106-47-8	4-Chloroaniline	0.15	5.0	5.0	ug/L	U
111-91-1	Bis(2-chloroethoxy)methane	0.035	5.0	5.0	ug/L	U
111-44-4	Bis(2-chloroethyl) Ether	0.035	5.0	5.0	ug/L	U
108-60-1	Bis(2-chloroisopropyl) Ether	0.059	5.0	5.0	ug/L	U
91-58-7	2-Chloronaphthalene	0.029	5.0	5.0	ug/L	U
95-57-8	2-Chlorophenol	0.080	5.0	5.0	ug/L	U
7005-72-3	4-Chlorophenyl Phenyl Ether	0.031	5.0	5.0	ug/L	U
218-01-9	Chrysene	0.036	0.50	0.50	ug/L	U
53-70-3	Dibenz(a,h)anthracene	0.070	0.50	0.50	ug/L	U
132-64-9	Dibenzofuran	0.039	5.0	5.0	ug/L	U
84-74-2	Di-n-butyl Phthalate	0.27	5.0	0.35	ug/L	J
91-94-1	3,3'-Dichlorobenzidine	0.64	5.0	5.0	ug/L	U
120-83-2	2,4-Dichlorophenol	0.056	5.0	5.0	ug/L	U

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0909484-BLK1 File ID: 0909484-blk1.D

Prepared: 08/14/09 08:51 Preparation: 3510C Liquid-Liquid Ext Initial/Final: 1000 mL / 1 mL

Analyzed: 08/18/09 00:45 Instrument: 308

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
84-66-2	Diethyl Phthalate	0.043	5.0	0.050	ug/L	J
105-67-9	2,4-Dimethylphenol	0.24	5.0	5.0	ug/L	U
131-11-3	Dimethyl Phthalate	0.045	5.0	5.0	ug/L	U
534-52-1	4,6-Dinitro-2-methylphenol	0.17	5.0	5.0	ug/L	U
51-28-5	2,4-Dinitrophenol	2.2	10	10	ug/L	U
121-14-2	2,4-Dinitrotoluene	0.096	5.0	5.0	ug/L	U
606-20-2	2,6-Dinitrotoluene	0.13	5.0	5.0	ug/L	U
117-84-0	Di-n-octyl Phthalate	0.064	5.0	5.0	ug/L	U
117-81-7	Bis(2-ethylhexyl) Phthalate	0.24	5.0	5.0	ug/L	U
206-44-0	Fluoranthene	0.030	0.50	0.50	ug/L	U
86-73-7	Fluorene	0.031	0.50	0.50	ug/L	U
118-74-1	Hexachlorobenzene	0.062	5.0	5.0	ug/L	U
87-68-3	Hexachlorobutadiene	0.057	5.0	5.0	ug/L	U
77-47-4	Hexachlorocyclopentadiene	0.057	5.0	5.0	ug/L	U
67-72-1	Hexachloroethane	0.035	5.0	5.0	ug/L	U
193-39-5	Indeno(1,2,3-cd)pyrene	0.038	0.50	0.50	ug/L	U
78-59-1	Isophorone	0.056	5.0	5.0	ug/L	U
91-57-6	2-Methylnaphthalene	0.024	5.0	5.0	ug/L	U
95-48-7	2-Methylphenol	0.044	5.0	5.0	ug/L	U
106-44-5	4-Methylphenol	0.18	5.0	5.0	ug/L	U
91-20-3	Naphthalene	0.024	0.50	0.50	ug/L	U
88-74-4	2-Nitroaniline	0.16	5.0	5.0	ug/L	U
99-09-2	3-Nitroaniline	0.050	5.0	5.0	ug/L	U
100-01-6	4-Nitroaniline	0.070	5.0	5.0	ug/L	U
98-95-3	Nitrobenzene	0.076	5.0	5.0	ug/L	U
100-02-7	4-Nitrophenol	0.19	5.0	5.0	ug/L	U
88-75-5	2-Nitrophenol	0.071	5.0	5.0	ug/L	U
86-30-6	N-Nitroso-diphenylamine	0.042	5.0	5.0	ug/L	U
621-64-7	N-Nitroso-di-n-propylamine	0.044	5.0	5.0	ug/L	U
87-86-5	Pentachlorophenol	0.11	5.0	5.0	ug/L	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
Laboratory ID: 0909484-BS1
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	10.0	10.3	103	45 - 110	ug/L
Acenaphthylene	10.0	10.3	103	50 - 105	ug/L
Acetophenone	10.0	8.71	87	54 - 113	ug/L
Anthracene	10.0	10.4	104	55 - 110	ug/L
Atrazine	10.0	9.14	91	61 - 139	ug/L
Benzaldehyde	10.0	6.32	63	25 - 141	ug/L
Benzo(a)anthracene	10.0	10.8	108	55 - 110	ug/L
Benzo(a)pyrene	10.0	11.0	110	55 - 110	ug/L
Benzo(b)fluoranthene	10.0	10.8	108	45 - 120	ug/L
Benzo(k)fluoranthene	10.0	11.6	116	45 - 125	ug/L
Benzo(g,h,i)perylene	10.0	11.1	111	40 - 125	ug/L
1,1'-Biphenyl	10.0	8.44	84	59 - 114	ug/L
4-Bromophenyl Phenyl Ether	9.80	10.0	103	50 - 115	ug/L
Butyl Benzyl Phthalate	9.80	11.1	113	45 - 115	ug/L
Caprolactam	10.0	2.22	22 *	25 - 135	ug/L
Carbazole	10.0	13.7	137 *	50 - 115	ug/L
4-Chloro-3-methylphenol	10.0	10.7	107	45 - 110	ug/L
4-Chloroaniline	9.80	8.57	87	15 - 110	ug/L
Bis(2-chloroethoxy)methane	9.80	9.47	97	45 - 105	ug/L
Bis(2-chloroethyl) Ether	9.80	9.31	95	35 - 110	ug/L
Bis(2-chloroisopropyl) Ether	9.80	9.70	99	25 - 130	ug/L
2-Chloronaphthalene	9.60	9.65	101	50 - 105	ug/L
2-Chlorophenol	10.0	9.78	98	35 - 105	ug/L
4-Chlorophenyl Phenyl Ether	9.80	10.1	103	50 - 110	ug/L
Chrysene	10.0	10.6	106	55 - 110	ug/L
Dibenz(a,h)anthracene	10.0	11.0	110	40 - 125	ug/L
Dibenzofuran	9.80	10.4	107 *	55 - 105	ug/L
Di-n-butyl Phthalate	9.80	10.9	111	55 - 115	ug/L
3,3'-Dichlorobenzidine	20.0	16.5	83	20 - 110	ug/L
2,4-Dichlorophenol	10.0	10.6	106 *	50 - 105	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Laboratory ID: 0909484-BS1

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Diethyl Phthalate	9.80	11.0	112	40 - 120	ug/L
2,4-Dimethylphenol	10.0	7.57	76	30 - 110	ug/L
Dimethyl Phthalate	9.80	10.3	105	25 - 125	ug/L
4,6-Dinitro-2-methylphenol	10.0	10.7	107	40 - 130	ug/L
2,4-Dinitrophenol	10.0	9.14	91	15 - 140	ug/L
2,4-Dinitrotoluene	9.60	10.9	114	50 - 120	ug/L
2,6-Dinitrotoluene	9.60	10.0	105	50 - 115	ug/L
Di-n-octyl Phthalate	9.80	11.4	117	35 - 135	ug/L
Bis(2-ethylhexyl) Phthalate	9.80	10.9	111	40 - 125	ug/L
Fluoranthene	10.0	10.6	106	55 - 115	ug/L
Fluorene	10.0	10.2	102	50 - 110	ug/L
Hexachlorobenzene	9.60	9.92	103	50 - 110	ug/L
Hexachlorobutadiene	9.60	9.83	102	25 - 105	ug/L
Hexachlorocyclopentadiene	9.60	9.46	99	30 - 141	ug/L
Hexachloroethane	9.60	9.78	102 *	30 - 95	ug/L
Indeno(1,2,3-cd)pyrene	10.0	11.0	110	45 - 125	ug/L
Isophorone	9.60	9.23	96	50 - 110	ug/L
2-Methylnaphthalene	9.80	11.2	114 *	45 - 105	ug/L
2-Methylphenol	10.0	9.21	92	40 - 110	ug/L
4-Methylphenol	10.0	9.74	97	30 - 110	ug/L
Naphthalene	10.0	10.2	102 *	40 - 100	ug/L
2-Nitroaniline	9.80	11.2	114	50 - 115	ug/L
3-Nitroaniline	9.80	8.90	91	20 - 125	ug/L
4-Nitroaniline	9.80	9.62	98	35 - 120	ug/L
Nitrobenzene	9.60	10.0	104	45 - 110	ug/L
4-Nitrophenol	10.0	4.14	41	0 - 125	ug/L
2-Nitrophenol	10.0	10.8	108	40 - 115	ug/L
N-Nitroso-diphenylamine	9.80	8.48	87	50 - 110	ug/L
N-Nitroso-di-n-propylamine	9.80	10.3	105	35 - 130	ug/L
Pentachlorophenol	10.0	11.7	117 *	40 - 115	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
Laboratory ID: 0909484-BSD1
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added ug/L	LCSD Conc.	LCSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acenaphthene	10.0	10.0	100	3	30	45 - 110	ug/L
Acenaphthylene	10.0	10.1	101	1	30	50 - 105	ug/L
Acetophenone	10.0	8.63	86	0.9	30	54 - 113	ug/L
Anthracene	10.0	10.4	104	0.6	30	55 - 110	ug/L
Atrazine	10.0	9.14	91	0	30	61 - 139	ug/L
Benzaldehyde	10.0	7.23	72	13	30	25 - 141	ug/L
Benzo(a)anthracene	10.0	10.7	107	2	30	55 - 110	ug/L
Benzo(a)pyrene	10.0	11.1	111 *	0.7	30	55 - 110	ug/L
Benzo(b)fluoranthene	10.0	11.1	111	2	30	45 - 120	ug/L
Benzo(k)fluoranthene	10.0	11.1	111	5	30	45 - 125	ug/L
Benzo(g,h,i)perylene	10.0	10.8	108	3	30	40 - 125	ug/L
1,1'-Biphenyl	10.0	8.33	83	1	30	59 - 114	ug/L
4-Bromophenyl Phenyl Ether	9.80	10.0	102	0.1	30	50 - 115	ug/L
Butyl Benzyl Phthalate	9.80	11.2	114	0.4	30	45 - 115	ug/L
Caprolactam	10.0	1.49	15 *	39 *	30	25 - 135	ug/L
Carbazole	10.0	13.5	135 *	2	30	50 - 115	ug/L
4-Chloro-3-methylphenol	10.0	10.1	101	6	30	45 - 110	ug/L
4-Chloroaniline	9.80	7.99	82	7	30	15 - 110	ug/L
Bis(2-chloroethoxy)methane	9.80	8.92	91	6	30	45 - 105	ug/L
Bis(2-chloroethyl) Ether	9.80	8.90	91	5	30	35 - 110	ug/L
Bis(2-chloroisopropyl) Ether	9.80	9.10	93	6	30	25 - 130	ug/L
2-Chloronaphthalene	9.60	9.38	98	3	30	50 - 105	ug/L
2-Chlorophenol	10.0	9.43	94	4	30	35 - 105	ug/L
4-Chlorophenyl Phenyl Ether	9.80	9.87	101	3	30	50 - 110	ug/L
Chrysene	10.0	10.7	107	1	30	55 - 110	ug/L
Dibenz(a,h)anthracene	10.0	10.9	109	1	30	40 - 125	ug/L
Dibenzofuran	9.80	10.2	104	3	30	55 - 105	ug/L
Di-n-butyl Phthalate	9.80	10.7	109	2	30	55 - 115	ug/L
3,3'-Dichlorobenzidine	20.0	16.5	82	0.2	30	20 - 110	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BSD1

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added ug/L	LCSD Conc.	LCSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
2,4-Dichlorophenol	10.0	9.95	100	6	30	50 - 105	ug/L
Diethyl Phthalate	9.80	10.6	109	3	30	40 - 120	ug/L
2,4-Dimethylphenol	10.0	7.66	77	1	30	30 - 110	ug/L
Dimethyl Phthalate	9.80	10.1	103	2	30	25 - 125	ug/L
4,6-Dinitro-2-methylphenol	10.0	10.0	100	6	30	40 - 130	ug/L
2,4-Dinitrophenol	10.0	8.35	84	9	30	15 - 140	ug/L
2,4-Dinitrotoluene	9.60	10.7	111	2	30	50 - 120	ug/L
2,6-Dinitrotoluene	9.60	10.1	105	0.1	30	50 - 115	ug/L
Di-n-octyl Phthalate	9.80	11.0	113	4	30	35 - 135	ug/L
Bis(2-ethylhexyl) Phthalate	9.80	11.0	112	1	30	40 - 125	ug/L
Fluoranthene	10.0	10.4	104	2	30	55 - 115	ug/L
Fluorene	10.0	10.1	101	0.9	30	50 - 110	ug/L
Hexachlorobenzene	9.60	9.96	104	0.4	30	50 - 110	ug/L
Hexachlorobutadiene	9.60	8.81	92	11	30	25 - 105	ug/L
Hexachlorocyclopentadiene	9.60	8.85	92	7	30	30 - 141	ug/L
Hexachloroethane	9.60	8.74	91	11	30	30 - 95	ug/L
Indeno(1,2,3-cd)pyrene	10.0	10.8	108	2	30	45 - 125	ug/L
Isophorone	9.60	8.77	91	5	30	50 - 110	ug/L
2-Methylnaphthalene	9.80	10.3	105	8	30	45 - 105	ug/L
2-Methylphenol	10.0	9.02	90	2	30	40 - 110	ug/L
4-Methylphenol	10.0	9.47	95	3	30	30 - 110	ug/L
Naphthalene	10.0	9.30	93	9	30	40 - 100	ug/L
2-Nitroaniline	9.80	11.2	114	0.4	30	50 - 115	ug/L
3-Nitroaniline	9.80	8.61	88	3	30	20 - 125	ug/L
4-Nitroaniline	9.80	9.45	96	2	30	35 - 120	ug/L
Nitrobenzene	9.60	9.35	97	7	30	45 - 110	ug/L
4-Nitrophenol	10.0	3.66	37	12	30	0 - 125	ug/L
2-Nitrophenol	10.0	10.2	102	6	30	40 - 115	ug/L
N-Nitroso-diphenylamine	9.80	8.49	87	0.1	30	50 - 110	ug/L

QC BATCH SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0909647
QC Batch Matrix: Soil
Preparation: 3550B Sonication Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
72SB1B	0908228-02	08/18/09 07:41	
DUP-2	0908228-03	08/18/09 07:41	
18SB2A	0908228-04	08/18/09 07:41	
18SB4A	0908228-06	08/18/09 07:41	
Blank	0909647-BLK1	08/18/09 07:41	
LCS	0909647-BS1	08/18/09 07:41	

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909647-BLK1
File ID: 0909647-blk1.D
Prepared: 08/18/09 07:41
Preparation: 3550B Sonication Extract
Initial/Final: 30 g / 1 mL
Analyzed: 08/20/09 09:41
Instrument: 308
QC Batch: 0909647
Sequence: 9H20032
Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
84-66-2	Diethyl Phthalate	3.5	170	170	ug/kg wet	U
105-67-9	2,4-Dimethylphenol	1.5	170	170	ug/kg wet	U
131-11-3	Dimethyl Phthalate	0.87	170	170	ug/kg wet	U
534-52-1	4,6-Dinitro-2-methylphenol	20	170	170	ug/kg wet	U
51-28-5	2,4-Dinitrophenol	100	330	330	ug/kg wet	U
121-14-2	2,4-Dinitrotoluene	19	170	170	ug/kg wet	U
606-20-2	2,6-Dinitrotoluene	2.3	170	170	ug/kg wet	U
117-84-0	Di-n-octyl Phthalate	5.3	170	170	ug/kg wet	U
117-81-7	Bis(2-ethylhexyl) Phthalate	4.6	170	7.3	ug/kg wet	J
206-44-0	Fluoranthene	0.76	17	17	ug/kg wet	U
86-73-7	Fluorene	6.9	33	33	ug/kg wet	U
118-74-1	Hexachlorobenzene	4.3	170	170	ug/kg wet	U
87-68-3	Hexachlorobutadiene	3.4	170	170	ug/kg wet	U
77-47-4	Hexachlorocyclopentadiene	2.0	170	170	ug/kg wet	U
67-72-1	Hexachloroethane	2.5	170	170	ug/kg wet	U
193-39-5	Indeno(1,2,3-cd)pyrene	3.7	67	67	ug/kg wet	U
78-59-1	Isophorone	6.2	170	170	ug/kg wet	U
91-57-6	2-Methylnaphthalene	0.45	170	170	ug/kg wet	U
95-48-7	2-Methylphenol	4.8	170	170	ug/kg wet	U
106-44-5	4-Methylphenol	4.4	170	170	ug/kg wet	U
91-20-3	Naphthalene	2.1	17	17	ug/kg wet	U
88-74-4	2-Nitroaniline	7.1	170	170	ug/kg wet	U
99-09-2	3-Nitroaniline	7.1	170	170	ug/kg wet	U
100-01-6	4-Nitroaniline	1.6	170	170	ug/kg wet	U
98-95-3	Nitrobenzene	5.2	170	170	ug/kg wet	U
100-02-7	4-Nitrophenol	130	670	670	ug/kg wet	U
88-75-5	2-Nitrophenol	6.6	170	170	ug/kg wet	U
86-30-6	N-Nitroso-diphenylamine	9.7	170	170	ug/kg wet	U
621-64-7	N-Nitroso-di-n-propylamine	5.6	170	170	ug/kg wet	U
87-86-5	Pentachlorophenol	44	330	330	ug/kg wet	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
Laboratory ID: 0909647-BS1
QC Batch: 0909647
Sequence: 9H20032

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	333	300	90	45 - 110	ug/kg wet
Acenaphthylene	333	301	90	45 - 105	ug/kg wet
Acetophenone	333	229	69	50 - 150	ug/kg wet
Anthracene	333	307	92	55 - 105	ug/kg wet
Atrazine	333	307	92	61 - 146	ug/kg wet
Benzaldehyde	333	12.0	4 *	50 - 150	ug/kg wet
Benzo(a)anthracene	333	304	91	50 - 110	ug/kg wet
Benzo(a)pyrene	333	313	94	50 - 110	ug/kg wet
Benzo(b)fluoranthene	333	301	90	45 - 115	ug/kg wet
Benzo(k)fluoranthene	333	317	95	45 - 125	ug/kg wet
Benzo(g,h,i)perylene	333	314	94	40 - 125	ug/kg wet
1,1'-Biphenyl	333	279	84	60 - 131	ug/kg wet
4-Bromophenyl Phenyl Ether	327	297	91	45 - 115	ug/kg wet
Butyl Benzyl Phthalate	327	323	99	50 - 125	ug/kg wet
Caprolactam	333	293	88	62 - 112	ug/kg wet
Carbazole	333	374	112	45 - 115	ug/kg wet
4-Chloro-3-methylphenol	333	272	82	45 - 115	ug/kg wet
4-Chloroaniline	327	145	44	10 - 95	ug/kg wet
Bis(2-chloroethoxy)methane	327	280	86	45 - 110	ug/kg wet
Bis(2-chloroethyl) Ether	327	276	85	40 - 105	ug/kg wet
Bis(2-chloroisopropyl) Ether	327	294	90	20 - 115	ug/kg wet
2-Chloronaphthalene	320	304	95	45 - 105	ug/kg wet
2-Chlorophenol	333	284	85	45 - 105	ug/kg wet
4-Chlorophenyl Phenyl Ether	327	301	92	45 - 110	ug/kg wet
Chrysene	333	304	91	55 - 110	ug/kg wet
Dibenz(a,h)anthracene	333	319	96	40 - 125	ug/kg wet
Dibenzofuran	327	315	96	50 - 105	ug/kg wet
Di-n-butyl Phthalate	327	313	96	55 - 110	ug/kg wet
3,3'-Dichlorobenzidine	667	416	62	10 - 130	ug/kg wet
2,4-Dichlorophenol	333	284	85	45 - 110	ug/kg wet

QC BATCH SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0909777
QC Batch Matrix: Soil
Preparation: 3550B Sonication Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
18SB2B	0908228-05	08/20/09 08:09	
18SB4B	0908228-07	08/20/09 08:09	
18SB3A	0908228-08	08/20/09 08:09	
18SB3B	0908228-09	08/20/09 08:09	
18SB1A	0908228-10	08/20/09 08:09	
18SB1B	0908228-11	08/20/09 08:09	
18SB5A	0908228-12	08/20/09 08:09	
18SB5B	0908228-13	08/20/09 08:09	
DUP-3	0908228-14	08/20/09 08:09	
18SB6A	0908228-15	08/20/09 08:09	
18SB6B	0908228-16	08/20/09 08:09	
Blank	0909777-BLK1	08/20/09 08:09	
LCS	0909777-BS1	08/20/09 08:09	
18SB2B	0909777-MS1	08/20/09 08:09	
18SB2B	0909777-MSD1	08/20/09 08:09	

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909777-BLK1
File ID: 0909777-blk1.D
Prepared: 08/20/09 08:09
Preparation: 3550B Sonication Extract
Initial/Final: 30 g / 1 mL
Analyzed: 08/21/09 16:20
Instrument: 308
QC Batch: 0909777
Sequence: 9H24008
Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
83-32-9	Acenaphthene	0.78	17	17	ug/kg wet	U
208-96-8	Acenaphthylene	1.7	17	17	ug/kg wet	U
98-86-2	Acetophenone	3.7	170	170	ug/kg wet	U
120-12-7	Anthracene	2.6	17	17	ug/kg wet	U
1912-24-9	Atrazine	4.5	170	170	ug/kg wet	U
100-52-7	Benzaldehyde	6.2	170	170	ug/kg wet	U
56-55-3	Benzo(a)anthracene	1.1	17	17	ug/kg wet	U
50-32-8	Benzo(a)pyrene	1.4	17	17	ug/kg wet	U
205-99-2	Benzo(b)fluoranthene	2.9	17	17	ug/kg wet	U
207-08-9	Benzo(k)fluoranthene	1.3	17	17	ug/kg wet	U
191-24-2	Benzo(g,h,i)perylene	0.94	67	67	ug/kg wet	U
92-52-4	1,1'-Biphenyl	0.83	170	170	ug/kg wet	U
101-55-3	4-Bromophenyl Phenyl Ether	1.5	170	170	ug/kg wet	U
85-68-7	Butyl Benzyl Phthalate	4.9	170	170	ug/kg wet	U
105-60-2	Caprolactam	13	330	330	ug/kg wet	U
86-74-8	Carbazole	84	330	330	ug/kg wet	U
59-50-7	4-Chloro-3-methylphenol	3.3	170	170	ug/kg wet	U
106-47-8	4-Chloroaniline	7.1	170	170	ug/kg wet	U
111-91-1	Bis(2-chloroethoxy)methane	1.2	170	170	ug/kg wet	U
111-44-4	Bis(2-chloroethyl) Ether	1.9	170	170	ug/kg wet	U
108-60-1	Bis(2-chloroisopropyl) Ether	6.6	170	170	ug/kg wet	U
91-58-7	2-Chloronaphthalene	2.2	170	170	ug/kg wet	U
95-57-8	2-Chlorophenol	3.8	170	170	ug/kg wet	U
7005-72-3	4-Chlorophenyl Phenyl Ether	3.4	170	170	ug/kg wet	U
218-01-9	Chrysene	3.5	17	17	ug/kg wet	U
53-70-3	Dibenz(a,h)anthracene	7.7	67	67	ug/kg wet	U
132-64-9	Dibenzofuran	8.8	170	170	ug/kg wet	U
84-74-2	Di-n-butyl Phthalate	25	170	110	ug/kg wet	J
91-94-1	3,3'-Dichlorobenzidine	28	240	240	ug/kg wet	U
120-83-2	2,4-Dichlorophenol	3.4	170	170	ug/kg wet	U

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809B

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909777-BLK1 File ID: 0909777-blk1.D

Prepared: 08/20/09 08:09 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

Analyzed: 08/21/09 16:20 Instrument: 308

QC Batch: 0909777 Sequence: 9H24008 Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
84-66-2	Diethyl Phthalate	3.5	170	170	ug/kg wet	U
105-67-9	2,4-Dimethylphenol	1.5	170	170	ug/kg wet	U
131-11-3	Dimethyl Phthalate	0.87	170	170	ug/kg wet	U
534-52-1	4,6-Dinitro-2-methylphenol	20	170	170	ug/kg wet	U
51-28-5	2,4-Dinitrophenol	100	330	330	ug/kg wet	U
121-14-2	2,4-Dinitrotoluene	19	170	170	ug/kg wet	U
606-20-2	2,6-Dinitrotoluene	2.3	170	170	ug/kg wet	U
117-84-0	Di-n-octyl Phthalate	5.3	170	170	ug/kg wet	U
117-81-7	Bis(2-ethylhexyl) Phthalate	4.6	170	5.0	ug/kg wet	J
206-44-0	Fluoranthene	0.76	17	17	ug/kg wet	U
86-73-7	Fluorene	6.9	33	33	ug/kg wet	U
118-74-1	Hexachlorobenzene	4.3	170	170	ug/kg wet	U
87-68-3	Hexachlorobutadiene	3.4	170	170	ug/kg wet	U
77-47-4	Hexachlorocyclopentadiene	2.0	170	170	ug/kg wet	U
67-72-1	Hexachloroethane	2.5	170	170	ug/kg wet	U
193-39-5	Indeno(1,2,3-cd)pyrene	3.7	67	67	ug/kg wet	U
78-59-1	Isophorone	6.2	170	170	ug/kg wet	U
91-57-6	2-Methylnaphthalene	0.45	170	170	ug/kg wet	U
95-48-7	2-Methylphenol	4.8	170	170	ug/kg wet	U
106-44-5	4-Methylphenol	4.4	170	170	ug/kg wet	U
91-20-3	Naphthalene	2.1	17	17	ug/kg wet	U
88-74-4	2-Nitroaniline	7.1	170	170	ug/kg wet	U
99-09-2	3-Nitroaniline	7.1	170	170	ug/kg wet	U
100-01-6	4-Nitroaniline	1.6	170	170	ug/kg wet	U
98-95-3	Nitrobenzene	5.2	170	170	ug/kg wet	U
100-02-7	4-Nitrophenol	130	670	670	ug/kg wet	U
88-75-5	2-Nitrophenol	6.6	170	170	ug/kg wet	U
86-30-6	N-Nitroso-diphenylamine	9.7	170	170	ug/kg wet	U
621-64-7	N-Nitroso-di-n-propylamine	5.6	170	170	ug/kg wet	U
87-86-5	Pentachlorophenol	44	330	330	ug/kg wet	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0909777-BS1

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
QC Batch: 0909777
Sequence: 9H24008

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	333	305	92	45 - 110	ug/kg wet
Acenaphthylene	333	304	91	45 - 105	ug/kg wet
Acetophenone	333	219	66	50 - 150	ug/kg wet
Anthracene	333	310	93	55 - 105	ug/kg wet
Atrazine	333	278	84	61 - 146	ug/kg wet
Benzaldehyde	333	7.67	2 *	50 - 150	ug/kg wet
Benzo(a)anthracene	333	306	92	50 - 110	ug/kg wet
Benzo(a)pyrene	333	307	92	50 - 110	ug/kg wet
Benzo(b)fluoranthene	333	316	95	45 - 115	ug/kg wet
Benzo(k)fluoranthene	333	296	89	45 - 125	ug/kg wet
Benzo(g,h,i)perylene	333	318	95	40 - 125	ug/kg wet
1,1'-Biphenyl	333	286	86	60 - 131	ug/kg wet
4-Bromophenyl Phenyl Ether	327	303	93	45 - 115	ug/kg wet
Butyl Benzyl Phthalate	327	340	104	50 - 125	ug/kg wet
Caprolactam	333	283	85	62 - 112	ug/kg wet
Carbazole	333	439	132 *	45 - 115	ug/kg wet
4-Chloro-3-methylphenol	307	256	84	45 - 115	ug/kg wet
4-Chloroaniline	333	115	34	10 - 95	ug/kg wet
Bis(2-chloroethoxy)methane	327	277	85	45 - 110	ug/kg wet
Bis(2-chloroethyl) Ether	327	277	85	40 - 105	ug/kg wet
Bis(2-chloroisopropyl) Ether	327	287	88	20 - 115	ug/kg wet
2-Chloronaphthalene	333	312	94	45 - 105	ug/kg wet
2-Chlorophenol	307	284	93	45 - 105	ug/kg wet
4-Chlorophenyl Phenyl Ether	327	304	93	45 - 110	ug/kg wet
Chrysene	333	302	91	55 - 110	ug/kg wet
Dibenz(a,h)anthracene	333	330	99	40 - 125	ug/kg wet
Dibenzofuran	333	318	95	50 - 105	ug/kg wet
Di-n-butyl Phthalate	327	415	127 *	55 - 110	ug/kg wet
3,3'-Dichlorobenzidine	667	368	55	10 - 130	ug/kg wet
2,4-Dichlorophenol	307	277	90	45 - 110	ug/kg wet

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0909777-BS1

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
QC Batch: 0909777
Sequence: 9H24008

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Diethyl Phthalate	327	325	99	50 - 115	ug/kg wet
2,4-Dimethylphenol	307	249	81	30 - 105	ug/kg wet
Dimethyl Phthalate	327	302	92	50 - 110	ug/kg wet
4,6-Dinitro-2-methylphenol	307	256	83	30 - 135	ug/kg wet
2,4-Dinitrophenol	307	234	76	15 - 130	ug/kg wet
2,4-Dinitrotoluene	333	336	101	50 - 115	ug/kg wet
2,6-Dinitrotoluene	333	303	91	50 - 110	ug/kg wet
Di-n-octyl Phthalate	327	370	113	40 - 130	ug/kg wet
Bis(2-ethylhexyl) Phthalate	327	350	107	45 - 125	ug/kg wet
Fluoranthene	333	305	92	55 - 115	ug/kg wet
Fluorene	333	302	91	50 - 110	ug/kg wet
Hexachlorobenzene	333	287	86	45 - 120	ug/kg wet
Hexachlorobutadiene	333	288	86	40 - 115	ug/kg wet
Hexachlorocyclopentadiene	333	315	95	10 - 113	ug/kg wet
Hexachloroethane	333	309	93	35 - 110	ug/kg wet
Indeno(1,2,3-cd)pyrene	333	326	98	40 - 120	ug/kg wet
Isophorone	333	300	90	45 - 110	ug/kg wet
2-Methylnaphthalene	333	316	95	45 - 105	ug/kg wet
2-Methylphenol	333	290	87	40 - 105	ug/kg wet
4-Methylphenol	333	364	109 *	40 - 105	ug/kg wet
Naphthalene	333	292	88	40 - 105	ug/kg wet
2-Nitroaniline	333	344	103	45 - 120	ug/kg wet
3-Nitroaniline	333	190	57	25 - 110	ug/kg wet
4-Nitroaniline	333	235	71	35 - 115	ug/kg wet
Nitrobenzene	333	304	91	40 - 115	ug/kg wet
4-Nitrophenol	307	342	111	15 - 140	ug/kg wet
2-Nitrophenol	307	293	96	40 - 110	ug/kg wet
N-Nitroso-diphenylamine	327	223	68	50 - 115	ug/kg wet
N-Nitroso-di-n-propylamine	327	300	92	40 - 115	ug/kg wet
Pentachlorophenol	307	256	84	25 - 120	ug/kg wet

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\081709\
Data File : 0908228-17.D
Acq On : 18 Aug 2009 5:53
Operator : JLB
Sample : 0908228-17
Misc :
ALS Vial : 14 Sample Multiplier: 1

EQB

Quant Time: Aug 18 06:52:29 2009
Quant Method : C:\msdchem\1\METHODS\081409aBNA.M
Quant Title : 8270/625 BNA
QLast Update : Tue Aug 18 06:39:09 2009
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2,4,6-Trichlorophenol	0.000		0	N.D.	
45) 2,4,5-Trichlorophenol	0.000		0	N.D.	
47) 2-Chloronaphthalene	0.000		0	N.D.	
48) 1,1'-Biphenyl	13.607	154	836	0.01 ng/uL#	61
49) 2-Nitroaniline	0.000		0	N.D.	
50) Acenaphthylene	14.586	152	56	0.00 ng/uL#	55
51) 2,6-Dinitrotoluene	14.498	165	654	0.05 ng/uL#	12
52) Dimethyl Phthalate	14.382	163	169	0.00 ng/uL#	1
53) Acenaphthene	15.134	153	57	0.00 ng/uL#	12
54) 2,4-Dinitrophenol	0.000		0	N.D.	
55) Dibenzofuran	0.000		0	N.D.	
56) 4-Nitrophenol	15.454	65	181	0.02 ng/uL#	6
57) 2,4-Dinitrotoluene	0.000		0	N.D.	
58) 2,3,5,6-Tetrachlorophenol	0.000		0	N.D.	
59) 2,3,4,6-Tetrachlorophenol	0.000		0	N.D.	
60) Fluorene	0.000		0	N.D.	
61) Diethyl Phthalate	16.107	149	4759	0.08 ng/uL#	86
62) 4-Chlorophenyl Phenyl ...	0.000		0	N.D.	
64) 4,6-Dinitro-2-methylph...	16.818	198	581	0.70 ng/uL#	1
65) N-Nitroso-diphenylamine	16.591	169	305	0.01 ng/uL#	42
66) 1,2-Diphenylhydrazine	16.713	182	4473	0.29 ng/uL#	41
68) 4-Bromophenyl Phenyl E...	0.000		0	N.D.	
69) Hexachlorobenzene	0.000		0	N.D.	
70) Atrazine	17.932	200	480	0.03 ng/uL#	25
71) Pentachlorophenol	0.000		0	N.D.	
72) Phenanthrene	18.316	178	894	0.01 ng/uL#	89
73) Anthracene	18.409	178	182	0.00 ng/uL#	1
74) Carbazole	18.713	167	394	Below Cal #	1
76) Di-n-butyl Phthalate	19.325	149	58337	0.65 ng/uL	97
77) Fluoroanthene	20.106	202	429	0.00 ng/uL	98
79) Benzidine	20.444	184	850	0.60 ng/uL#	68
80) Pyrene	20.391	202	489	0.01 ng/uL#	90
81) Butyl Benzyl Phthalate	21.178	149	16686m	0.50 ng/uL	
82) Bis(2-ethylhexyl) adipate	21.277	129	1658	0.06 ng/uL#	100
83) Benzo(a)anthracene	21.784	228	1438	0.02 ng/uL#	1
84) 3,3'-Dichlorobenzidine	21.743	252	136	0.01 ng/uL#	19
85) Chrysene	21.813	228	237	0.00 ng/uL#	1
86) Bis(2-ethylhexyl)phtha...	21.796	149	12794	0.26 ng/uL#	78
87) Dicyclohexyl Phthalate	21.866	149	129	0.00 ng/uL#	100
88) Di-n-octyl Phthalate	22.624	149	813	0.01 ng/uL	97
90) Benzo(b)fluoroanthene	23.061	252	143	0.00 ng/uL#	1
91) Benzo(k)fluoranthene	23.102	252	554	0.01 ng/uL#	1
92) Benzo(a)pyrene	23.533	252	265	0.00 ng/uL#	1
93) Indeno(1,2,3-cd)pyrene	25.491	276	67	0.00 ng/uL#	1
94) Dibdenz(a,h)anthracene	25.538	278	66	0.00 ng/uL#	1
95) Benzo(g,h,i)Perylene	26.039	276	172	0.00 ng/uL	92

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\082609\
Data File : 0908228-10.D
Acq On : 26 Aug 2009 16:19
Operator : JLB
Sample : 0908228-10
Misc :
ALS Vial : 44 Sample Multiplier: 1

Quant Time: Aug 27 06:55:19 2009
Quant Method : C:\msdchem\1\METHODS\081409aBNA.M
Quant Title : 8270/625 BNA
QLast Update : Wed Aug 26 09:24:53 2009
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
44)	2,4,6-Trichlorophenol	0.000		0	N.D.		
45)	2,4,5-Trichlorophenol	0.000		0	N.D.		
47)	2-Chloronaphthalene	13.254	162	313	0.00	ng/uL#	64
48)	1,1'-Biphenyl	13.254	154	1595	0.01	ng/uL#	52
49)	2-Nitroaniline	0.000		0	N.D.		
50)	Acenaphthylene	14.215	152	12650	0.09	ng/uL#	80
51)	2,6-Dinitrotoluene	14.157	165	1161	0.05	ng/uL#	11
52)	Dimethyl Phthalate	0.000		0	N.D.		
53)	Acenaphthene	14.577	153	112	0.00	ng/uL#	1
54)	2,4-Dinitrophenol	0.000		0	N.D.		
55)	Dibenzofuran	15.072	168	184	0.00	ng/uL#	5
56)	4-Nitrophenol	15.014	65	127	0.01	ng/uL#	63
57)	2,4-Dinitrotoluene	15.107	165	274	0.01	ng/uL#	44
58)	2,3,5,6-Tetrachlorophenol	0.000		0	N.D.		
59)	2,3,4,6-Tetrachlorophenol	0.000		0	N.D.		
60)	Fluorene	15.906	166	1142	0.01	ng/uL#	14
61)	Diethyl Phthalate	15.772	149	4665	0.05	ng/uL	92
62)	4-Chlorophenyl Phenyl ...	15.568	204	135	0.00	ng/uL#	1
64)	4,6-Dinitro-2-methylph...	16.442	198	752	0.68	ng/uL#	80
65)	N-Nitroso-diphenylamine	16.238	169	163	0.00	ng/uL#	35
66)	1,2-Diphenylhydrazine	16.360	182	7171	0.29	ng/uL#	40
68)	4-Bromophenyl Phenyl E...	0.000		0	N.D.		
69)	Hexachlorobenzene	0.000		0	N.D.		
70)	Atrazine	17.450	200	56	0.00	ng/uL#	25
71)	Pentachlorophenol	17.765	266	111	0.01	ng/uL#	9
72)	Phenanthrene	18.033	178	3895	0.03	ng/uL#	75
73)	Anthracene	18.132	178	1994	0.01	ng/uL#	23
74)	Carbazole	18.412	167	454	Below Cal	#	63
76)	Di-n-butyl Phthalate	19.106	149	50662	0.34	ng/uL	97
77)	Fluoroanthene	19.881	202	17199	0.12	ng/uL	98
79)	Benzidine	20.114	184	149	0.55	ng/uL#	1
80)	Pyrene	20.172	202	28178	0.21	ng/uL	97
81)	Butyl Benzyl Phthalate	20.994	149	4183m	0.08	ng/uL	
82)	Bis(2-ethylhexyl) adipate	21.087	129	2006	0.04	ng/uL#	100
83)	Benzo(a)anthracene	21.571	228	20415	0.17	ng/uL#	54
84)	3,3'-Dichlorobenzidine	21.641	252	2429	0.07	ng/uL	96
85)	Chrysene	21.606	228	19485	0.17	ng/uL#	1
86)	Bis(2-ethylhexyl)phtha...	21.618	149	135630	1.68	ng/uL	93
87)	Dicyclohexyl Phthalate	21.618	149	135630	1.47	ng/uL#	100
88)	Di-n-octyl Phthalate	22.311	149	4684	0.04	ng/uL#	73
90)	Benzo(b)fluoroanthene	22.795	252	24406m	0.22	ng/uL	
91)	Benzo(k)fluoranthene	22.818	252	9615m	0.09	ng/uL	
92)	Benzo(a)pyrene	23.215	252	19183	0.18	ng/uL	99
93)	Indeno(1,2,3-cd)pyrene	24.975	276	11522	0.10	ng/uL	93
94)	Dibdenz(a,h)anthracene	25.196	278	3604	0.04	ng/uL	95
95)	Benzo(g,h,i)Perylene	25.488	276	11093	0.12	ng/uL	97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\082609\
Data File : 0908228-11.D
Acq On : 26 Aug 2009 16:53
Operator : JLB
Sample : 0908228-11
Misc :
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Aug 27 06:55:41 2009
Quant Method : C:\msdchem\1\METHODS\081409aBNA.M
Quant Title : 8270/625 BNA
QLast Update : Wed Aug 26 09:24:53 2009
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44)	2,4,6-Trichlorophenol	0.000		0	N.D.	
45)	2,4,5-Trichlorophenol	0.000		0	N.D.	
47)	2-Chloronaphthalene	13.259	162	295	0.00 ng/uL#	7
48)	1,1'-Biphenyl	13.242	154	1710	0.01 ng/uL#	72
49)	2-Nitroaniline	0.000		0	N.D.	
50)	Acenaphthylene	14.215	152	63	0.00 ng/uL#	55
51)	2,6-Dinitrotoluene	14.163	165	810	0.03 ng/uL#	1
52)	Dimethyl Phthalate	0.000		0	N.D.	
53)	Acenaphthene	14.635	153	63	0.00 ng/uL#	12
54)	2,4-Dinitrophenol	0.000		0	N.D.	
55)	Dibenzofuran	15.130	168	80	0.00 ng/uL#	18
56)	4-Nitrophenol	14.961	65	108	0.01 ng/uL#	1
57)	2,4-Dinitrotoluene	15.480	165	112	0.00 ng/uL#	1
58)	2,3,5,6-Tetrachlorophenol	0.000		0	N.D.	
59)	2,3,4,6-Tetrachlorophenol	0.000		0	N.D.	
60)	Fluorene	15.801	166	76	0.00 ng/uL#	1
61)	Diethyl Phthalate	15.766	149	2729	0.03 ng/uL#	84
62)	4-Chlorophenyl Phenyl ...	0.000		0	N.D.	
64)	4,6-Dinitro-2-methylph...	16.442	198	697	0.68 ng/uL#	37
65)	N-Nitroso-diphenylamine	16.220	169	120	0.00 ng/uL#	74
66)	1,2-Diphenylhydrazine	16.360	182	6280	0.23 ng/uL#	44
68)	4-Bromophenyl Phenyl E...	0.000		0	N.D.	
69)	Hexachlorobenzene	0.000		0	N.D.	
70)	Atrazine	17.147	200	57	0.00 ng/uL#	25
71)	Pentachlorophenol	17.660	266	151	0.01 ng/uL#	1
72)	Phenanthrene	18.039	178	1312	0.01 ng/uL	100
73)	Anthracene	18.115	178	549	0.00 ng/uL#	12
74)	Carbazole	18.394	167	977	Below Cal #	34
76)	Di-n-butyl Phthalate	19.105	149	361630	2.28 ng/uL	99
77)	Fluoroanthene	19.881	202	1129	0.01 ng/uL#	1
79)	Benzidine	20.073	184	2563	0.64 ng/uL#	1
80)	Pyrene	20.178	202	874	0.01 ng/uL#	1
81)	Butyl Benzyl Phthalate	20.994	149	39341	0.66 ng/uL	94
82)	Bis(2-ethylhexyl) adipate	21.087	129	90057	1.67 ng/uL#	100
83)	Benzo(a)anthracene	21.577	228	2886	0.02 ng/uL#	1
84)	3,3'-Dichlorobenzidine	21.489	252	4795	0.13 ng/uL	97
85)	Chrysene	21.618	228	1929	0.02 ng/uL#	1
86)	Bis(2-ethylhexyl)phtha...	21.618	149	1431841	16.10 ng/uL	94
87)	Dicyclohexyl Phthalate	21.618	149	1431841	14.09 ng/uL#	100
88)	Di-n-octyl Phthalate	22.305	149	7259	0.06 ng/uL#	89
90)	Benzo(b)fluoroanthene	22.783	252	444	0.00 ng/uL#	1
91)	Benzo(k)fluoranthene	22.818	252	551	0.00 ng/uL#	61
92)	Benzo(a)pyrene	23.226	252	522	0.00 ng/uL#	1
93)	Indeno(1,2,3-cd)pyrene	25.004	276	304	0.00 ng/uL#	1
94)	Dibdenz(a,h)anthracene	25.004	278	99	0.00 ng/uL#	1
95)	Benzo(g,h,i)Perylene	25.470	276	189	0.00 ng/uL#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\082609\
Data File : 0908228-12.D
Acq On : 26 Aug 2009 17:28
Operator : JLB
Sample : 0908228-12
Misc :
ALS Vial : 46 Sample Multiplier: 1

Quant Time: Aug 27 06:58:51 2009
Quant Method : C:\msdchem\1\METHODS\081409aBNA.M
Quant Title : 8270/625 BNA
QLast Update : Wed Aug 26 09:24:53 2009
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
44) 2,4,6-Trichlorophenol	0.000		0	N.D.	
45) 2,4,5-Trichlorophenol	0.000		0	N.D.	
47) 2-Chloronaphthalene	13.283	162	191	0.00 ng/uL	88
48) 1,1'-Biphenyl	13.242	154	1827	0.01 ng/uL#	73
49) 2-Nitroaniline	13.597	138	120	0.00 ng/uL#	76
50) Acenaphthylene	14.221	152	3626	0.03 ng/uL#	74
51) 2,6-Dinitrotoluene	14.169	165	1210	0.06 ng/uL#	4
52) Dimethyl Phthalate	14.046	163	547	0.01 ng/uL#	1
53) Acenaphthene	14.716	153	72	0.00 ng/uL#	21
54) 2,4-Dinitrophenol	0.000		0	N.D.	
55) Dibenzofuran	15.060	168	502	0.00 ng/uL	94
56) 4-Nitrophenol	15.078	65	151	0.01 ng/uL#	47
57) 2,4-Dinitrotoluene	15.136	165	160	0.01 ng/uL#	38
58) 2,3,5,6-Tetrachlorophenol	0.000		0	N.D.	
59) 2,3,4,6-Tetrachlorophenol	0.000		0	N.D.	
60) Fluorene	15.894	166	427	0.00 ng/uL#	1
61) Diethyl Phthalate	15.766	149	3656	0.04 ng/uL	92
62) 4-Chlorophenyl Phenyl ...	16.191	204	63	0.00 ng/uL#	1
64) 4,6-Dinitro-2-methylph...	16.448	198	726	0.69 ng/uL#	52
65) N-Nitroso-diphenylamine	16.273	169	278	0.00 ng/uL#	69
66) 1,2-Diphenylhydrazine	16.360	182	8917	0.37 ng/uL#	44
68) 4-Bromophenyl Phenyl E...	17.468	248	52	0.00 ng/uL#	2
69) Hexachlorobenzene	0.000		0	N.D.	
70) Atrazine	17.602	200	61	0.00 ng/uL#	46
71) Pentachlorophenol	0.000		0	N.D.	
72) Phenanthrene	18.033	178	8314	0.06 ng/uL#	71
73) Anthracene	18.126	178	1673	0.01 ng/uL#	1
74) Carbazole	18.423	167	4374	Below Cal #	84
76) Di-n-butyl Phthalate	19.105	149	520580	3.66 ng/uL	100
77) Fluoroanthene	19.886	202	11225	0.08 ng/uL#	70
79) Benzidine	20.096	184	338	0.56 ng/uL#	71
80) Pyrene	20.172	202	15712	0.15 ng/uL#	87
81) Butyl Benzyl Phthalate	20.994	149	28643m	0.69 ng/uL	
82) Bis(2-ethylhexyl) adipate	21.087	129	19361	0.52 ng/uL#	100
83) Benzo(a)anthracene	21.577	228	8055	0.09 ng/uL#	51
84) 3,3'-Dichlorobenzidine	21.822	252	2179	0.08 ng/uL	93
85) Chrysene	21.612	228	6049	0.07 ng/uL#	1
86) Bis(2-ethylhexyl)phtha...	21.618	149	185119	2.99 ng/uL	94
87) Dicyclohexyl Phthalate	21.618	149	185119	2.61 ng/uL#	100
88) Di-n-octyl Phthalate	22.305	149	1192	0.01 ng/uL#	1
90) Benzo(b)fluoroanthene	22.795	252	9499m	0.12 ng/uL	
91) Benzo(k)fluoranthene	22.818	252	2876m	0.04 ng/uL	
92) Benzo(a)pyrene	23.215	252	5202	0.07 ng/uL	96
93) Indeno(1,2,3-cd)pyrene	25.202	276	499	0.01 ng/uL	91
94) Dibdenz(a,h)anthracene	25.004	278	385	0.01 ng/uL#	1
95) Benzo(g,h,i)Perylene	25.505	276	4170	0.06 ng/uL	91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL

Laboratory ID: 0909777-MS1
QC Batch: 0909777

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acenaphthene	399	ND	285	72	45 - 110	ug/kg dry
Acenaphthylene	399	ND	289	72	45 - 105	ug/kg dry
Acetophenone	399	ND	224	56	50 - 150	ug/kg dry
Anthracene	399	ND	285	72	55 - 105	ug/kg dry
Atrazine	399	ND	278	70	61 - 146	ug/kg dry
Benzaldehyde	399	ND	7.58	2 *	50 - 150	ug/kg dry
Benzo(a)anthracene	399	ND	305	76	50 - 110	ug/kg dry
Benzo(a)pyrene	399	ND	287	72	50 - 110	ug/kg dry
Benzo(b)fluoranthene	399	ND	295	74	45 - 115	ug/kg dry
Benzo(k)fluoranthene	399	ND	287	72	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	399	ND	292	73	40 - 125	ug/kg dry
1,1'-Biphenyl	399	ND	269	67	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	391	ND	266	68	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	391	ND	350	90	50 - 125	ug/kg dry
Caprolactam	399	ND	283	71	62 - 112	ug/kg dry
Carbazole	399	ND	486	122 *	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	367	ND	264	72	45 - 115	ug/kg dry
4-Chloroaniline	399	ND	73.4	18	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	391	ND	289	74	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	391	ND	312	80	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	391	ND	310	79	20 - 115	ug/kg dry
2-Chloronaphthalene	399	ND	294	74	45 - 105	ug/kg dry
2-Chlorophenol	367	ND	283	77	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	391	ND	274	70	45 - 110	ug/kg dry
Chrysene	399	ND	297	74	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	399	ND	300	75	40 - 125	ug/kg dry
Dibenzofuran	399	ND	297	74	50 - 105	ug/kg dry
Di-n-butyl Phthalate	391	110	570	118 *	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	797	ND	300	38	10 - 130	ug/kg dry
2,4-Dichlorophenol	367	ND	255	70	45 - 110	ug/kg dry
Diethyl Phthalate	391	ND	309	79	50 - 115	ug/kg dry
2,4-Dimethylphenol	367	ND	244	67	30 - 105	ug/kg dry
Dimethyl Phthalate	391	ND	289	74	50 - 110	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
Laboratory ID: 0909777-MS1
QC Batch: 0909777

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
4,6-Dinitro-2-methylphenol	367	ND	244	66	30 - 135	ug/kg dry
2,4-Dinitrophenol	367	ND	212	58	15 - 130	ug/kg dry
2,4-Dinitrotoluene	399	ND	323	81	50 - 115	ug/kg dry
2,6-Dinitrotoluene	399	ND	297	75	50 - 110	ug/kg dry
Di-n-octyl Phthalate	391	ND	383	98	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	391	7.97	364	91	45 - 125	ug/kg dry
Fluoranthene	399	ND	275	69	55 - 115	ug/kg dry
Fluorene	399	ND	286	72	50 - 110	ug/kg dry
Hexachlorobenzene	399	ND	263	66	45 - 120	ug/kg dry
Hexachlorobutadiene	399	ND	253	63	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	399	ND	268	67	10 - 113	ug/kg dry
Hexachloroethane	399	ND	295	74	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	399	ND	297	74	40 - 120	ug/kg dry
Isophorone	399	ND	308	77	45 - 110	ug/kg dry
2-Methylnaphthalene	399	ND	313	78	45 - 105	ug/kg dry
2-Methylphenol	399	ND	315	79	40 - 105	ug/kg dry
4-Methylphenol	399	ND	348	87	40 - 105	ug/kg dry
Naphthalene	399	ND	283	71	40 - 105	ug/kg dry
2-Nitroaniline	399	ND	317	79	45 - 120	ug/kg dry
3-Nitroaniline	399	ND	162	41	25 - 110	ug/kg dry
4-Nitroaniline	399	ND	225	56	35 - 115	ug/kg dry
Nitrobenzene	399	ND	322	81	40 - 115	ug/kg dry
4-Nitrophenol	367	ND	347	95	15 - 140	ug/kg dry
2-Nitrophenol	367	ND	287	78	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	391	ND	217	56	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	391	ND	329	84	40 - 115	ug/kg dry
Pentachlorophenol	367	ND	228	62	25 - 120	ug/kg dry
Phenanthrene	399	ND	283	71	50 - 110	ug/kg dry
Phenol	367	ND	297	81	40 - 100	ug/kg dry
Pyrene	399	ND	288	72	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	199	ND	127	64	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	367	ND	230	63	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	367	ND	241	66	45 - 110	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL

Laboratory ID: 0909777-MS1
QC Batch: 0909777

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
2,4,5-Trichlorophenol	399	ND	245	61	50 - 110	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

18SB2B

USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 1 mL

Laboratory ID: 0909777-MSD1

QC Batch: 0909777

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acenaphthene	399	288	72	0.8	30	45 - 110	ug/kg dry
Acenaphthylene	399	287	72	0.7	30	45 - 105	ug/kg dry
Acetophenone	399	234	59	4	30	50 - 150	ug/kg dry
Anthracene	399	302	76	6	30	55 - 105	ug/kg dry
Atrazine	399	297	74	7	30	61 - 146	ug/kg dry
Benzaldehyde	399	7.97	2 *	5	30	50 - 150	ug/kg dry
Benzo(a)anthracene	399	317	80	4	30	50 - 110	ug/kg dry
Benzo(a)pyrene	399	304	76	6	30	50 - 110	ug/kg dry
Benzo(b)fluoranthene	399	304	76	3	30	45 - 115	ug/kg dry
Benzo(k)fluoranthene	399	310	78	8	30	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	399	310	78	6	30	40 - 125	ug/kg dry
1,1'-Biphenyl	399	273	68	1	30	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	391	278	71	4	30	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	391	357	91	2	30	50 - 125	ug/kg dry
Caprolactam	399	287	72	2	30	62 - 112	ug/kg dry
Carbazole	399	510	128 *	5	30	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	367	271	74	3	30	45 - 115	ug/kg dry
4-Chloroaniline	399	84.1	21	14	30	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	391	295	76	2	30	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	391	310	79	0.6	30	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	391	315	81	2	30	20 - 115	ug/kg dry
2-Chloronaphthalene	399	291	73	1	30	45 - 105	ug/kg dry
2-Chlorophenol	367	291	79	3	30	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	391	279	71	2	30	45 - 110	ug/kg dry
Chrysene	399	316	79	6	30	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	399	318	80	6	30	40 - 125	ug/kg dry
Dibenzofuran	399	297	74	0	30	50 - 105	ug/kg dry
Di-n-butyl Phthalate	391	562	116 *	1	30	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	797	313	39	4	30	10 - 130	ug/kg dry
2,4-Dichlorophenol	367	257	70	0.8	30	45 - 110	ug/kg dry
Diethyl Phthalate	391	314	80	2	30	50 - 115	ug/kg dry
2,4-Dimethylphenol	367	247	67	1	30	30 - 105	ug/kg dry
Dimethyl Phthalate	391	295	76	2	30	50 - 110	ug/kg dry
4,6-Dinitro-2-methylphenol	367	254	69	4	30	30 - 135	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

18SB2B

USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
Laboratory ID: 0909777-MSD1
QC Batch: 0909777

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
2,4-Dinitrophenol	367	223	61	5	30	15 - 130	ug/kg dry
2,4-Dinitrotoluene	399	332	83	3	30	50 - 115	ug/kg dry
2,6-Dinitrotoluene	399	306	77	3	30	50 - 110	ug/kg dry
Di-n-octyl Phthalate	391	402	103	5	30	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	391	377	94	3	30	45 - 125	ug/kg dry
Fluoranthene	399	292	73	6	30	55 - 115	ug/kg dry
Fluorene	399	291	73	2	30	50 - 110	ug/kg dry
Hexachlorobenzene	399	273	68	4	30	45 - 120	ug/kg dry
Hexachlorobutadiene	399	246	62	3	30	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	399	261	66	3	30	10 - 113	ug/kg dry
Hexachloroethane	399	277	69	7	30	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	399	310	78	4	30	40 - 120	ug/kg dry
Isophorone	399	312	78	1	30	45 - 110	ug/kg dry
2-Methylnaphthalene	399	315	79	0.5	30	45 - 105	ug/kg dry
2-Methylphenol	399	320	80	2	30	40 - 105	ug/kg dry
4-Methylphenol	399	349	88	0.5	30	40 - 105	ug/kg dry
Naphthalene	399	282	71	0.3	30	40 - 105	ug/kg dry
2-Nitroaniline	399	337	84	6	30	45 - 120	ug/kg dry
3-Nitroaniline	399	167	42	3	30	25 - 110	ug/kg dry
4-Nitroaniline	399	254	64	12	30	35 - 115	ug/kg dry
Nitrobenzene	399	322	81	0.1	30	40 - 115	ug/kg dry
4-Nitrophenol	367	366	100	5	30	15 - 140	ug/kg dry
2-Nitrophenol	367	287	78	0	30	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	391	226	58	4	30	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	391	333	85	1	30	40 - 115	ug/kg dry
Pentachlorophenol	367	241	66	5	30	25 - 120	ug/kg dry
Phenanthrene	399	299	75	5	30	50 - 110	ug/kg dry
Phenol	367	304	83	2	30	40 - 100	ug/kg dry
Pyrene	399	305	76	6	30	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	199	129	65	2	30	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	367	245	67	6	30	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	367	244	67	1	30	45 - 110	ug/kg dry
2,4,5-Trichlorophenol	399	271	68	10	30	50 - 110	ug/kg dry

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H24008
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 308
Calibration: 9H18007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
18SB2A (0908228-04)	**Lab File ID: 0908228-04.D Analyzed: 08/22/09 00:26**						
2-Fluorophenol	5.57	5.63	-0.07	+/-1.0	93	35 - 105	
Phenol-d6	7.25	7.32	-0.08	+/-1.0	90	40 - 100	
Nitrobenzene-d5	9.10	9.22	-0.12	+/-1.0	97	35 - 100	
2-Fluorobiphenyl	13.25	13.39	-0.13	+/-1.0	86	45 - 105	
2,4,6-Tribromophenol	16.72	16.83	-0.12	+/-1.0	81	35 - 125	
o-Terphenyl	18.89	18.99	-0.09	+/-1.0	88	30 - 125	
18SB4A (0908228-06)	**Lab File ID: 0908228-06.D Analyzed: 08/22/09 01:00**						
2-Fluorophenol	5.57	5.63	-0.06	+/-1.0	104	35 - 105	
Phenol-d6	7.25	7.32	-0.08	+/-1.0	100	40 - 100	
Nitrobenzene-d5	9.10	9.22	-0.12	+/-1.0	102	35 - 100	*
2-Fluorobiphenyl	13.25	13.39	-0.13	+/-1.0	93	45 - 105	
2,4,6-Tribromophenol	16.72	16.83	-0.12	+/-1.0	95	35 - 125	
o-Terphenyl	18.89	18.99	-0.09	+/-1.0	93	30 - 125	
18SB2B (0908228-05)	**Lab File ID: 0908228-05.D Analyzed: 08/22/09 01:35**						
2-Fluorophenol	5.57	5.63	-0.07	+/-1.0	91	35 - 105	
Phenol-d6	7.25	7.32	-0.08	+/-1.0	89	40 - 100	
Nitrobenzene-d5	9.10	9.22	-0.12	+/-1.0	90	35 - 100	
2-Fluorobiphenyl	13.25	13.39	-0.13	+/-1.0	80	45 - 105	
2,4,6-Tribromophenol	16.72	16.83	-0.12	+/-1.0	75	35 - 125	
o-Terphenyl	18.89	18.99	-0.09	+/-1.0	86	30 - 125	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H24008

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 308
Calibration: 9H18007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	9H24008-TUN1	dft0821e.D	08/21/09 14:17
Calibration Check	9H24008-CCV1	10c0821a.D	08/21/09 14:38
Calibration Check	9H24008-CCV2	10ab0821a.D	08/21/09 15:48
Blank	0909777-BLK1	0909777-blk1.D	08/21/09 16:20
LCS	0909777-BS1	0909777-bs1.D	08/21/09 16:55
72SB1B	0908228-02	0908228-02.D	08/21/09 23:16
DUP-2	0908228-03	0908228-03.D	08/21/09 23:51
18SB2A	0908228-04	0908228-04.D	08/22/09 00:26
18SB4A	0908228-06	0908228-06.D	08/22/09 01:00
18SB2B	0908228-05	0908228-05.D	08/22/09 01:35

CONTINUING CALIBRATION CHECK
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 308
Calibration: 9H18007
Lab File ID: 10c0821a.D
Calibration Date: 08/14/09 08:42
Sequence: 9H24008
Injection Date: 08/21/09
Lab Sample ID: 9H24008-CCV1
Injection Time: 14:38

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Dimethyl Phthalate	A	10.0	9.25	1.187342	1.098197		-7.5	25
4,6-Dinitro-2-methylphenol	Q	10.0	8.40	0.119859	0.1214038		-16.0	25
2,4-Dinitrophenol	Q	20.0	15.9	0.1398139	0.1286686	0.05	-20.4	40
2,4-Dinitrotoluene	A	10.0	10.3	0.3439874	0.355539		3.4	25
2,6-Dinitrotoluene	A	10.0	10.0	0.2655847	0.2655827		-0.0008	25
Di-n-octyl Phthalate	A	10.0	11.0	0.9058747	1.001138		10.5	20
Bis(2-ethylhexyl) Phthalate	A	10.0	10.2	0.6313312	0.6409301		1.5	25
Fluoranthene	A	10.0	9.63	1.230827	1.184879		-3.7	20
Fluorene	A	10.0	9.58	1.21665	1.165573		-4.2	25
Hexachlorobenzene	A	10.0	9.05	0.2556065	0.2313019		-9.5	25
Hexachlorobutadiene	A	10.0	9.72	0.1886401	0.1834088		-2.8	20
Hexachlorocyclopentadiene	A	10.0	9.37	0.384925	0.3606298	0.05	-6.3	40
Hexachloroethane	A	10.0	10.2	0.5147836	0.5264724		2.3	25
Indeno(1,2,3-cd)pyrene	A	10.0	10.1	0.8321411	0.8420675		1.2	25
Isophorone	A	10.0	10.2	0.6410301	0.6508722		1.5	25
2-Methylnaphthalene	A	10.0	9.53	0.6129402	0.5841094		-4.7	25
2-Methylphenol	A	10.0	9.53	1.142049	1.088383		-4.7	25
4-Methylphenol	A	10.0	10.1	1.327711	1.341542		1.0	25
Naphthalene	A	10.0	9.83	0.9833404	0.9661558		-1.7	25
2-Nitroaniline	A	10.0	10.1	0.3192067	0.3211022		0.6	40
Nitrobenzene	A	10.0	9.79	0.357393	0.3500381		-2.1	25
4-Nitrophenol	A	20.0	19.1	0.2088249	0.199456	0.05	-4.5	40
2-Nitrophenol	A	10.0	10.5	0.1702183	0.1790295		5.2	20
N-Nitroso-diphenylamine	A	10.0	9.78	0.6908322	0.6757065		-2.2	20
N-Nitroso-di-n-propylamine	A	10.0	9.53	0.9712971	0.9257172	0.05	-4.7	25
Pentachlorophenol	A	10.0	9.95	0.1427722	0.1421062		-0.5	20
Phenanthrene	A	10.0	9.61	1.178847	1.132926		-3.9	25
Phenol	A	10.0	10.3	1.661953	1.707032		2.7	20
Pyrene	A	10.0	9.73	1.034676	1.006542		-2.7	25

DATA VALIDATION WORKSHEET

Pesticides/PCBs

Reviewer: Andrea Sansom
Date: November 4, 2009
DV Level: II III IV
Review Document:
X SW-846 - 8081/8082
X NFG - Region III Modifications
____ CLP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809B
Test Name: PEST/PCB
Method No.: 8081A/8082

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV report.			

Notes:

2.0 Preservation/ Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{o}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampleing to date of analysis, been exceeded? If yes, J(+)/UJ(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to five times the amount in the associated blank.		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note it in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards included in the calibration curve? 1016 and 1260 need at least three peaks at five concentrations. The multi-component target compounds (the other Aroclors, Toxaphene, & Chlordane) must each be analyzed separately at a single concentration level during the initial calibration sequence.	X		
4.2	Has a continuing calibration standard been analyzed for every 12 hours or twenty samples?	X		
4.3	Are all calibration standard (IC and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r>0.99, %RSD < ± 20% and %D < ± 15%		X	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Do all standard retention times in the continuing calibration fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.	X		

Notes:

5.0 GC/ECD Instrument Performance Check for Pesticides		Yes	No	NA
5.1	Is the 4,4'-DDT breakdown </= to 15%? If No, for positive DDT results, DDT-L(+), DDD/DDE - NJ(+). For non detect DDT results, DDD/DDE - R(+).	X		
5.2	Is the endrin breakdown </= to 15%? If No, for positive endrin results, endrin-L(+), endrin aldehyde/ketone - NJ(+). For non-detect DDT results, endrin aldehyde/ketone - R(+).	X		

Notes:

6.0 Surrogate Recovery				Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?			X		
6.2	Do all surrogate retention times fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.			X		
6.3	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?			X		
6.4	If No in Section 6.3, are these sample(s) or method blank(s) reanalyzed?					X
6.5	If No in Section 6.4, is any sample dilution factor greater than 10? (recoveries may be diluted out.)					X
	# of outliers	Recovery	Sample result from column with non-conformance	Sample result from column without non-conformance		
	1 out	high/low	No action	No action		
	2 out	2 high same column	K	No action		
		2 low same column	L, UL	No action		
		mixed same column	J, UJ	No action		
		2 high diff columns	J	Not applicable		
		2 low diff columns	J, UJ	Not applicable		
		mixed diff columns	Professional judgement	Not applicable		
	3 out	All high	K	Not applicable		
		All low	L, UL	Not applicable		
		2 high, 1 low	K (2 high)	J (1 low 2nd column)		
		2 low, 1 high	L, UJ (2 low)	J (1 high 2nd column)		
		other mixed	J, UJ	Not applicable		
	4 out	All high	K	Not applicable		
		All low	L, UL	Not applicable		
		Mixed	J, UJ	Not applicable		
	If any recovery is >0% and <10% then L(+)/R(-).					
	If any recovery is 0% then R(+/-).					

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 30-150%?		X	
7.4	Are there any RPDs outside the QC limits not to exceed 60%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 30-150%?		X	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	If Yes, J(+) only.			

Notes:

9.0 Field Duplicate		Yes	No	NA
9.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
9.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

10.0 Compound Identification and Detection Limit Verification		Yes	No	NA
10.1	Is the percent difference calculated for the positive sample results on both columns < 40%? If No, J(+).		X	
10.2	Do detection limits meet those required by the project QAPP and were properly adjusted for dilution factors and moisture?	X		

Notes:

11.0 Pesticide Cleanup Checks		Yes	No	NA
11.1	Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts to reduce matrix interference caused by polar compounds.)			
	Every lot number of Florisil cartridges used for sample cleanup must be checked by spiking with 2,4,5-trichlorophenol and the midpoint concentration of Individual Standard Mixture A.			
11.2	Are all samples listed on the Pesticide Florisil cartridge Check Form?			
11.3	Are percent recoveries of pesticide and surrogate compounds within control limit, 80-120%(if the recovery of 2,4,5-trichlorophenol < 5%), for the florisil cartridge check? If No, the raw data should be examined for the presence of polar interferences and professional judgement should be used in qualifying the data.			

Notes:

CLP requirement, not provided

12.0 Data Completeness				Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	Pest	PCB	X		
	Number of samples:	17	17			
	Number of target compounds in each analysis:	21	7			
	Number of results rejected and not reported:	0	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)					
	% Completeness =	100%	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1A	0908228-01
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909721-MS1

QC Batch: 0909721

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
alpha-BHC	0.0159	ND	0.0173	108	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0159	ND	0.0168	105	60 - 125	mg/kg dry
beta-BHC	0.0159	ND	0.0167	105	60 - 125	mg/kg dry
beta-BHC [2C]	0.0159	ND	0.0167	105	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0159	ND	0.0170	107	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0159	ND	0.0166	104	60 - 125	mg/kg dry
delta-BHC	0.0159	ND	0.0173	108	55 - 130	mg/kg dry
delta-BHC [2C]	0.0159	ND	0.0171	107	55 - 130	mg/kg dry
alpha-Chlordane	0.0159	ND	0.0165	103	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0159	ND	0.0165	103	65 - 120	mg/kg dry
gamma-Chlordane	0.0159	ND	0.0163	102	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0159	ND	0.0164	103	65 - 125	mg/kg dry
4,4'-DDD	0.0159	ND	0.0166	104	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0159	ND	0.0170	107	30 - 135	mg/kg dry
4,4'-DDE	0.0159	ND	0.0163	102	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0159	ND	0.0168	105	70 - 125	mg/kg dry
4,4'-DDT	0.0159	ND	0.0161	101	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0159	ND	0.0165	104	45 - 140	mg/kg dry
Aldrin	0.0159	ND	0.0166	104	45 - 140	mg/kg dry
Aldrin [2C]	0.0159	ND	0.0163	102	45 - 140	mg/kg dry
Dieldrin	0.0159	ND	0.0167	105	65 - 125	mg/kg dry
Dieldrin [2C]	0.0159	ND	0.0171	108	65 - 125	mg/kg dry
Endosulfan I	0.0159	ND	0.0141	88	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0159	ND	0.0142	89	15 - 135	mg/kg dry
Endosulfan II	0.0159	ND	0.0150	94	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0159	ND	0.0151	95	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0159	ND	0.0166	104	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0159	ND	0.0164	103	60 - 135	mg/kg dry
Endrin	0.0159	ND	0.0166	104	60 - 135	mg/kg dry
Endrin [2C]	0.0159	ND	0.0171	108	60 - 135	mg/kg dry
Endrin Aldehyde	0.0159	ND	0.0152	95	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0159	ND	0.0158	99	35 - 145	mg/kg dry
Endrin Ketone	0.0159	ND	0.0161	101	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909721-MS1

QC Batch: 0909721

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Endrin Ketone [2C]	0.0159	ND	0.0163	102	65 - 135	mg/kg dry
Heptachlor	0.0159	ND	0.0170	107	50 - 140	mg/kg dry
Heptachlor [2C]	0.0159	ND	0.0167	104	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0159	ND	0.0166	104	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0159	ND	0.0166	104	65 - 130	mg/kg dry
Methoxychlor	0.0159	ND	0.0157	98	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0159	ND	0.0179	112	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

18SB2B

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909721-MSD1

QC Batch: 0909721

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
alpha-BHC	0.0159	0.0159	100	8	30	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0159	0.0155	97	8	30	60 - 125	mg/kg dry
beta-BHC	0.0159	0.0154	96	8	30	60 - 125	mg/kg dry
beta-BHC [2C]	0.0159	0.0157	98	6	30	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0159	0.0155	97	10	30	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0159	0.0154	97	7	30	60 - 125	mg/kg dry
delta-BHC	0.0159	0.0161	101	7	30	55 - 130	mg/kg dry
delta-BHC [2C]	0.0159	0.0158	99	8	30	55 - 130	mg/kg dry
alpha-Chlordane	0.0159	0.0150	94	9	30	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0159	0.0157	98	5	30	65 - 120	mg/kg dry
gamma-Chlordane	0.0159	0.0152	96	7	30	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0159	0.0156	98	5	30	65 - 125	mg/kg dry
4,4'-DDD	0.0159	0.0154	97	7	30	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0159	0.0165	104	3	30	30 - 135	mg/kg dry
4,4'-DDE	0.0159	0.0154	97	6	30	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0159	0.0161	101	4	30	70 - 125	mg/kg dry
4,4'-DDT	0.0159	0.0150	94	7	30	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0159	0.0163	102	1	30	45 - 140	mg/kg dry
Aldrin	0.0159	0.0154	97	7	30	45 - 140	mg/kg dry
Aldrin [2C]	0.0159	0.0156	97	5	30	45 - 140	mg/kg dry
Dieldrin	0.0159	0.0156	98	7	30	65 - 125	mg/kg dry
Dieldrin [2C]	0.0159	0.0163	102	5	30	65 - 125	mg/kg dry
Endosulfan I	0.0159	0.0131	82	7	30	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0159	0.0135	85	5	30	15 - 135	mg/kg dry
Endosulfan II	0.0159	0.0138	86	8	30	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0159	0.0147	92	3	30	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0159	0.0156	98	6	30	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0159	0.0161	101	1	30	60 - 135	mg/kg dry
Endrin	0.0159	0.0155	97	7	30	60 - 135	mg/kg dry
Endrin [2C]	0.0159	0.0163	102	5	30	60 - 135	mg/kg dry
Endrin Aldehyde	0.0159	0.0138	86	10	30	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0159	0.0153	96	3	30	35 - 145	mg/kg dry
Endrin Ketone	0.0159	0.0156	98	3	30	65 - 135	mg/kg dry
Endrin Ketone [2C]	0.0159	0.0165	104	1	30	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

18SB2B

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909721-MSD1

QC Batch: 0909721

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Heptachlor	0.0159	0.0154	97	10	30	50 - 140	mg/kg dry
Heptachlor [2C]	0.0159	0.0156	98	6	30	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0159	0.0152	95	9	30	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0159	0.0158	99	5	30	65 - 130	mg/kg dry
Methoxychlor	0.0159	0.0148	93	5	30	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0159	0.0179	112	0.4	30	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909721-MS2

QC Batch: 0909721

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Toxaphene	0.399	ND	0.318	80	40 - 150	mg/kg dry
Toxaphene [2C]	0.399	ND	0.355	89	40 - 150	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

18SB2B

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909721-MSD2

QC Batch: 0909721

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Toxaphene	0.399	0.332	83	4	30	40 - 150	mg/kg dry
Toxaphene [2C]	0.399	0.346	87	3	30	40 - 150	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27089

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H27089-CCV1	A85_187-0	08/26/09 17:02
Calibration Check	9H27089-CCV1	B85_187-0	08/26/09 17:02
Calibration Check	9H27089-CCV4	A85_188-0	08/26/09 17:39
Calibration Check	9H27089-CCV4	B85_188-0	08/26/09 17:39
18SB2A	0908228-04	A85_194-0	08/26/09 21:24
18SB2A	0908228-04	B85_194-0	08/26/09 21:24
DUP-2	0908228-03	A85_195-0	08/26/09 22:01
DUP-2	0908228-03	B85_195-0	08/26/09 22:01
72SB1B	0908228-02	A85_196-0	08/26/09 22:39
72SB1B	0908228-02	B85_196-0	08/26/09 22:39
Calibration Check	9H27089-CCV3	A85_197-0	08/26/09 23:16
Calibration Check	9H27089-CCV3	B85_197-0	08/26/09 23:16
Calibration Check	9H27089-CCV2	A85_198-0	08/26/09 23:54
Calibration Check	9H27089-CCV2	B85_198-0	08/26/09 23:54

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H27089
Instrument: 199
Matrix: Soil
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H27089-CCV1)		**Lab File ID: A85_187-0**		**Analyzed: 08/26/09 17:02**			
Tetrachloro-m-xylene	7.74	7.78	-0.04	+/-1.0	102	80 - 120	
Tetrachloro-m-xylene [2C]	8.79	8.82	-0.03	+/-1.0	98	80 - 120	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	96	80 - 120	
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	106	80 - 120	
Calibration Check (9H27089-CCV4)		**Lab File ID: A85_188-0**		**Analyzed: 08/26/09 17:39**			
Tetrachloro-m-xylene	7.72	7.78	-0.06	+/-1.0	174	80 - 120	*
Tetrachloro-m-xylene [2C]	9.00	8.82	0.18	+/-1.0	1	80 - 120	*
Decachlorobiphenyl	21.28	21.32	-0.04	+/-1.0	195	80 - 120	*
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	146	80 - 120	*
18SB2A (0908228-04)		**Lab File ID: A85_194-0**		**Analyzed: 08/26/09 21:24**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	96	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	100	70 - 125	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	87	55 - 130	
Decachlorobiphenyl [2C]	24.11	24.11	0.00	+/-1.0	102	55 - 130	
DUP-2 (0908228-03)		**Lab File ID: A85_195-0**		**Analyzed: 08/26/09 22:01**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	97	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	96	70 - 125	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	89	55 - 130	
Decachlorobiphenyl [2C]	24.12	24.11	0.01	+/-1.0	102	55 - 130	
72SB1B (0908228-02)		**Lab File ID: A85_196-0**		**Analyzed: 08/26/09 22:39**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	91	70 - 125	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	92	70 - 125	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	83	55 - 130	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	94	55 - 130	
Calibration Check (9H27089-CCV3)		**Lab File ID: A85_197-0**		**Analyzed: 08/26/09 23:16**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	100	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	89	80 - 120	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	96	80 - 120	
Calibration Check (9H27089-CCV2)		**Lab File ID: A85_198-0**		**Analyzed: 08/26/09 23:54**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	154	80 - 120	*
Tetrachloro-m-xylene [2C]	8.79	8.82	-0.03	+/-1.0	134	80 - 120	*
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	148	80 - 120	*
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	131	80 - 120	*

TOT

TOT

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: A85_188-0
Calibration Date: 08/25/09 10:09
Sequence: 9H27089
Injection Date: 08/26/09
Lab Sample ID: 9H27089-CCV4
Injection Time: 17:39

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.827	1130574	2154128		65.4	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: B85_188-0
Calibration Date: 08/25/09 10:09
Sequence: 9H27089
Injection Date: 08/26/09
Lab Sample ID: 9H27089-CCV4
Injection Time: 17:39

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.696	1494910	2066980		38.3	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: A85_197-0
Calibration Date: 08/25/09 10:09
Sequence: 9H27089
Injection Date: 08/26/09
Lab Sample ID: 9H27089-CCV3
Injection Time: 23:16

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0400	5995468	5990408		-0.08	20
beta-BHC	A	0.0400	0.0371	2149098	1994844		-7.2	20
gamma-BHC (Lindane)	A	0.0400	0.0393	5196859	5101330		-1.8	20
delta-BHC	A	0.0400	0.0390	4581752	4468070		-2.5	20
alpha-Chlordane	A	0.0400	0.0364	3932349	3582290		-8.9	20
gamma-Chlordane	A	0.0400	0.0364	4120711	3746775		-9.1	20
4,4'-DDD	A	0.0400	0.0363	2967226	2689898		-9.3	20
4,4'-DDE	A	0.0400	0.0362	3848836	3478645		-9.6	20
4,4'-DDT	A	0.0400	0.0334	2970675	2478502		-16.6	20
Aldrin	A	0.0400	0.0378	4724988	4468283		-5.4	20
Dieldrin	A	0.0400	0.0367	3824875	3508013		-8.3	20
Endosulfan I	A	0.0400	0.0368	3657648	3361003		-8.1	20
Endosulfan II	A	0.0400	0.0362	2824035	2559025		-9.4	20
Endosulfan Sulfate	A	0.0400	0.0366	2450729	2245113		-8.4	20
Endrin	A	0.0400	0.0365	3387779	3090348		-8.8	20
Endrin Aldehyde	A	0.0400	0.0362	1862380	1683222		-9.6	20
Endrin Ketone	A	0.0400	0.0359	2856336	2563495		-10.3	20
Heptachlor	A	0.0400	0.0379	5472984	5187005		-5.2	20
Heptachlor Epoxide	A	0.0400	0.0369	4140288	3814383		-7.9	20
Methoxychlor	A	0.0400	0.0325	1602837	1301630		-18.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H27093
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H27093-CCV1	A85_201-0	08/27/09 01:46
Calibration Check	9H27093-CCV1	B85_201-0	08/27/09 01:46
Calibration Check	9H27093-CCV2	A85_202-0	08/27/09 02:24
Calibration Check	9H27093-CCV2	B85_202-0	08/27/09 02:24
18SB1B	0908228-11	A85_203-0	08/27/09 03:01
18SB1B	0908228-11	B85_203-0	08/27/09 03:01
18SB1A	0908228-10	A85_204-0	08/27/09 03:39
18SB1A	0908228-10	B85_204-0	08/27/09 03:39
18SB3B	0908228-09	A85_205-0	08/27/09 04:16
18SB3B	0908228-09	B85_205-0	08/27/09 04:16
18SB3A	0908228-08	A85_206-0	08/27/09 04:54
18SB3A	0908228-08	B85_206-0	08/27/09 04:54
18SB4B	0908228-07	A85_207-0	08/27/09 05:31
18SB4B	0908228-07	B85_207-0	08/27/09 05:31
18SB4A	0908228-06	A85_208-0	08/27/09 06:08
18SB4A	0908228-06	B85_208-0	08/27/09 06:08
18SB2B	0908228-05	A85_209-0	08/27/09 06:46
18SB2B	0908228-05	B85_209-0	08/27/09 06:46
LCS	0909721-BS2	A85_210-0	08/27/09 07:23
LCS	0909721-BS2	B85_210-0	08/27/09 07:23
LCS	0909721-BS1	A85_211-0	08/27/09 08:01
LCS	0909721-BS1	B85_211-0	08/27/09 08:01
Blank	0909721-BLK1	A85_212-0	08/27/09 08:38
Blank	0909721-BLK1	B85_212-0	08/27/09 08:38
Calibration Check	9H27093-CCV3	A85_213-0	08/27/09 09:16
Calibration Check	9H27093-CCV3	B85_213-0	08/27/09 09:16
Calibration Check	9H27093-CCV4	A85_214-0	08/27/09 09:53
Calibration Check	9H27093-CCV4	B85_214-0	08/27/09 09:53
18SB2B	0909721-MSD1	A85_217-0	08/27/09 11:45
18SB2B	0909721-MSD1	B85_217-0	08/27/09 11:45
18SB2B	0909721-MS1	A85_218-0	08/27/09 12:23
18SB2B	0909721-MS1	B85_218-0	08/27/09 12:23

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27093

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H27093-CCV5	A85_224-0	08/27/09 16:08
Calibration Check	9H27093-CCV5	B85_224-0	08/27/09 16:08
Calibration Check	9H27093-CCV6	A85_225-0	08/27/09 16:45
Calibration Check	9H27093-CCV6	B85_225-0	08/27/09 16:45

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27093
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H27093-CCV1)		**Lab File ID: A85_201-0**		**Analyzed: 08/27/09 01:46**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	96	80 - 120	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	94	80 - 120	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	87	80 - 120	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	95	80 - 120	
Calibration Check (9H27093-CCV2)		**Lab File ID: A85_202-0**		**Analyzed: 08/27/09 02:24**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	110	80 - 120	
Tetrachloro-m-xylene [2C]	8.79	8.82	-0.03	+/-1.0	93	80 - 120	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	122	80 - 120	*
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	103	80 - 120	
18SB1B (0908228-11)		**Lab File ID: A85_203-0**		**Analyzed: 08/27/09 03:01**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	87	70 - 125	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	84	70 - 125	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	83	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	90	55 - 130	
18SB1A (0908228-10)		**Lab File ID: A85_204-0**		**Analyzed: 08/27/09 03:39**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	81	70 - 125	
Tetrachloro-m-xylene [2C]	8.80	8.82	-0.02	+/-1.0	81	70 - 125	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	74	55 - 130	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	78	55 - 130	
18SB3B (0908228-09)		**Lab File ID: A85_205-0**		**Analyzed: 08/27/09 04:16**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	87	70 - 125	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	88	70 - 125	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	84	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	94	55 - 130	
18SB3A (0908228-08)		**Lab File ID: A85_206-0**		**Analyzed: 08/27/09 04:54**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	94	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	91	70 - 125	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	89	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	97	55 - 130	
18SB4B (0908228-07)		**Lab File ID: A85_207-0**		**Analyzed: 08/27/09 05:31**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	85	70 - 125	
Tetrachloro-m-xylene [2C]	8.84	8.82	0.02	+/-1.0	83	70 - 125	
Decachlorobiphenyl	21.33	21.32	0.01	+/-1.0	82	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	88	55 - 130	

TOX

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27093
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
18SB4A (0908228-06)		**Lab File ID: A85_208-0**		**Analyzed: 08/27/09 06:08**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	88	70 - 125	
Tetrachloro-m-xylene [2C]	8.84	8.82	0.02	+/-1.0	87	70 - 125	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	82	55 - 130	
Decachlorobiphenyl [2C]	24.12	24.11	0.01	+/-1.0	91	55 - 130	
18SB2B (0908228-05)		**Lab File ID: A85_209-0**		**Analyzed: 08/27/09 06:46**			
Tetrachloro-m-xylene	7.81	7.78	0.03	+/-1.0	87	70 - 125	
Tetrachloro-m-xylene [2C]	8.85	8.82	0.03	+/-1.0	86	70 - 125	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	81	55 - 130	
Decachlorobiphenyl [2C]	24.11	24.11	0.00	+/-1.0	87	55 - 130	
LCS (0909721-BS2)		**Lab File ID: A85_210-0**		**Analyzed: 08/27/09 07:23**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	92	70 - 125	
Tetrachloro-m-xylene [2C]	8.80	8.82	-0.02	+/-1.0	82	70 - 125	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	90	55 - 130	
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	83	55 - 130	
LCS (0909721-BS1)		**Lab File ID: A85_211-0**		**Analyzed: 08/27/09 08:01**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	89	70 - 125	
Tetrachloro-m-xylene [2C]	8.84	8.82	0.02	+/-1.0	88	70 - 125	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	82	55 - 130	
Decachlorobiphenyl [2C]	24.12	24.11	0.01	+/-1.0	92	55 - 130	
Blank (0909721-BLK1)		**Lab File ID: A85_212-0**		**Analyzed: 08/27/09 08:38**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	94	70 - 125	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	91	70 - 125	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	82	55 - 130	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	95	55 - 130	
Calibration Check (9H27093-CCV3)		**Lab File ID: A85_213-0**		**Analyzed: 08/27/09 09:16**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	101	80 - 120	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	97	80 - 120	
Decachlorobiphenyl	21.33	21.32	0.01	+/-1.0	98	80 - 120	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	109	80 - 120	
Calibration Check (9H27093-CCV4)		**Lab File ID: A85_214-0**		**Analyzed: 08/27/09 09:53**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	108	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	93	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	116	80 - 120	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	103	80 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H27093
Instrument: 199
Matrix: Soil
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Matrix Spike Dup (0909721-MSD1)		**Lab File ID: A85_217-0**		**Analyzed: 08/27/09 11:45**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	88	70 - 125	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	85	70 - 125	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	84	55 - 130	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	92	55 - 130	
Matrix Spike (0909721-MS1)		**Lab File ID: A85_218-0**		**Analyzed: 08/27/09 12:23**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	97	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	94	70 - 125	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	89	55 - 130	
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	94	55 - 130	
Calibration Check (9H27093-CCV5)		**Lab File ID: A85_224-0**		**Analyzed: 08/27/09 16:08**			
Tetrachloro-m-xylene	7.75	7.78	-0.03	+/-1.0	117	80 - 120	
Tetrachloro-m-xylene [2C]	8.77	8.82	-0.05	+/-1.0	109	80 - 120	
Decachlorobiphenyl	21.29	21.32	-0.03	+/-1.0	98	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	98	80 - 120	
Calibration Check (9H27093-CCV6)		**Lab File ID: A85_225-0**		**Analyzed: 08/27/09 16:45**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	106	80 - 120	
Tetrachloro-m-xylene [2C]	8.77	8.82	-0.05	+/-1.0	87	80 - 120	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	111	80 - 120	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	91	80 - 120	

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: A85_201-0
Calibration Date: 08/25/09 10:09
Sequence: 9H27093
Injection Date: 08/27/09
Lab Sample ID: 9H27093-CCV1
Injection Time: 01:46

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0382	5995468	5729113		-4.4	20
beta-BHC	A	0.0400	0.0357	2149098	1920543		-10.6	20
gamma-BHC (Lindane)	A	0.0400	0.0370	5196859	4809213		-7.5	20
delta-BHC	A	0.0400	0.0365	4581752	4181560		-8.7	20
alpha-Chlordane	A	0.0400	0.0353	3932349	3471828		-11.7	20
gamma-Chlordane	A	0.0400	0.0357	4120711	3679800		-10.7	20
4,4'-DDD	A	0.0400	0.0345	2967226	2560598		-13.7	20
4,4'-DDE	A	0.0400	0.0348	3848836	3347145		-13.0	20
4,4'-DDT	A	0.0400	0.0327	2970675	2428225		-18.3	20
Aldrin	A	0.0400	0.0370	4724988	4366310		-7.6	20
Dieldrin	A	0.0400	0.0351	3824875	3358463		-12.2	20
Endosulfan I	A	0.0400	0.0353	3657648	3228585		-11.7	20
Endosulfan II	A	0.0400	0.0347	2824035	2448319		-13.3	20
Endosulfan Sulfate	A	0.0400	0.0351	2450729	2152894		-12.2	20
Endrin	A	0.0400	0.0347	3387779	2939983		-13.2	20
Endrin Aldehyde	A	0.0400	0.0343	1862380	1597516		-14.2	20
Endrin Ketone	A	0.0400	0.0348	2856336	2488488		-12.9	20
Heptachlor	A	0.0400	0.0371	5472984	5074613		-7.3	20
Heptachlor Epoxide	A	0.0400	0.0358	4140288	3708595		-10.4	20
Methoxychlor	A	0.0400	0.0321	1602837	1287984		-19.6	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: B85_202-0
Calibration Date: 08/25/09 10:09
Sequence: 9H27093
Injection Date: 08/27/09
Lab Sample ID: 9H27093-CCV2
Injection Time: 02:24

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.421	1494910	1250640		-16.3	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I01016
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I01016-CCV1	A85_228-0	08/27/09 18:37
Calibration Check	9I01016-CCV1	B85_228-0	08/27/09 18:37
Calibration Check	9I01016-CCV2	A85_229-0	08/27/09 19:15
Calibration Check	9I01016-CCV2	B85_229-0	08/27/09 19:15
LCS Dup	0909501-BSD2	A85_235-0	08/27/09 23:36
LCS Dup	0909501-BSD2	B85_235-0	08/27/09 23:36
LCS	0909501-BS2	A85_236-0	08/28/09 00:14
LCS	0909501-BS2	B85_236-0	08/28/09 00:14
LCS Dup	0909501-BSD1	A85_237-0	08/28/09 00:51
LCS Dup	0909501-BSD1	B85_237-0	08/28/09 00:51
LCS	0909501-BS1	A85_238-0	08/28/09 01:29
LCS	0909501-BS1	B85_238-0	08/28/09 01:29
Blank	0909501-BLK1	A85_239-0	08/28/09 02:06
Blank	0909501-BLK1	B85_239-0	08/28/09 02:06
Calibration Check	9I01016-CCV3	A85_240-0	08/28/09 02:43
Calibration Check	9I01016-CCV3	B85_240-0	08/28/09 02:43
Calibration Check	9I01016-CCV4	A85_241-0	08/28/09 03:21
Calibration Check	9I01016-CCV4	B85_241-0	08/28/09 03:21
72SB1A	0908228-01	A85_243-0	08/28/09 04:36
72SB1A	0908228-01	B85_243-0	08/28/09 04:36
EQBK-2	0908228-17	A85_248-0	08/28/09 07:43
EQBK-2	0908228-17	B85_248-0	08/28/09 07:43
LCS	0909501-BS4	A85_249-0	08/28/09 08:20
LCS	0909501-BS4	B85_249-0	08/28/09 08:20
LCS	0909501-BS3	A85_250-0	08/28/09 08:58
LCS	0909501-BS3	B85_250-0	08/28/09 08:58
Blank	0909501-BLK2	A85_251-0	08/28/09 09:35
Blank	0909501-BLK2	B85_251-0	08/28/09 09:35
Calibration Check	9I01016-CCV5	A85_252-0	08/28/09 10:12
Calibration Check	9I01016-CCV5	B85_252-0	08/28/09 10:12
Calibration Check	9I01016-CCV6	A85_253-0	08/28/09 10:50
Calibration Check	9I01016-CCV6	B85_253-0	08/28/09 10:50

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I01016
Instrument: 199
Matrix: Soil
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV1)		**Lab File ID: A85_228-0**		**Analyzed: 08/27/09 18:37**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	104	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	99	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	105	80 - 120	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	106	80 - 120	
Calibration Check (9I01016-CCV2)		**Lab File ID: A85_229-0**		**Analyzed: 08/27/09 19:15**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	112	80 - 120	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	130	80 - 120	* TOX
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	109	80 - 120	
LCS Dup (0909501-BSD2)		**Lab File ID: A85_235-0**		**Analyzed: 08/27/09 23:36**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	69	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	59	25 - 140	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	109	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	90	30 - 135	
LCS (0909501-BS2)		**Lab File ID: A85_236-0**		**Analyzed: 08/28/09 00:14**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	74	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	61	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	115	30 - 135	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	93	30 - 135	
LCS Dup (0909501-BSD1)		**Lab File ID: A85_237-0**		**Analyzed: 08/28/09 00:51**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	60	25 - 140	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	57	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	91	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	92	30 - 135	
LCS (0909501-BS1)		**Lab File ID: A85_238-0**		**Analyzed: 08/28/09 01:29**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	72	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	66	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	97	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	99	30 - 135	
Blank (0909501-BLK1)		**Lab File ID: A85_239-0**		**Analyzed: 08/28/09 02:06**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	132	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	127	25 - 140	
Decachlorobiphenyl	21.28	21.32	-0.04	+/-1.0	126	30 - 135	
Decachlorobiphenyl [2C]	24.04	24.11	-0.07	+/-1.0	130	30 - 135	

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV3)		**Lab File ID: A85_240-0**		**Analyzed: 08/28/09 02:43**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	107	80 - 120	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	101	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	108	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	110	80 - 120	
Calibration Check (9I01016-CCV4)		**Lab File ID: A85_241-0**		**Analyzed: 08/28/09 03:21**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	113	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	94	80 - 120	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	106	80 - 120	
72SB1A (0908228-01)		**Lab File ID: A85_243-0**		**Analyzed: 08/28/09 04:36**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	116	70 - 125	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	111	70 - 125	
Decachlorobiphenyl	21.36	21.32	0.04	+/-1.0	109	55 - 130	
Decachlorobiphenyl [2C]	24.11	24.11	0.00	+/-1.0	117	55 - 130	
EQBK-2 (0908228-17)		**Lab File ID: A85_248-0**		**Analyzed: 08/28/09 07:43**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	70	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	67	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	90	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	96	30 - 135	
LCS (0909501-BS4)		**Lab File ID: A85_249-0**		**Analyzed: 08/28/09 08:20**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	82	25 - 140	
Tetrachloro-m-xylene [2C]	8.80	8.82	-0.02	+/-1.0	70	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	106	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	88	30 - 135	
LCS (0909501-BS3)		**Lab File ID: A85_250-0**		**Analyzed: 08/28/09 08:58**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	64	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	61	25 - 140	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	94	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	100	30 - 135	
Blank (0909501-BLK2)		**Lab File ID: A85_251-0**		**Analyzed: 08/28/09 09:35**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	89	25 - 140	
Tetrachloro-m-xylene [2C]	8.76	8.82	-0.06	+/-1.0	88	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	90	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	98	30 - 135	

Tox

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV5)		**Lab File ID: A85_252-0**		**Analyzed: 08/28/09 10:12**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	99	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	95	80 - 120	
Decachlorobiphenyl	21.33	21.32	0.01	+/-1.0	97	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	99	80 - 120	
Calibration Check (9I01016-CCV6)		**Lab File ID: A85_253-0**		**Analyzed: 08/28/09 10:50**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	116	80 - 120	
Tetrachloro-m-xylene [2C]	8.75	8.82	-0.07	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.29	21.32	-0.03	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.03	24.11	-0.08	+/-1.0	108	80 - 120	

Tox

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: A85_252-0
Calibration Date: 08/25/09 10:09
Sequence: 9I01016
Injection Date: 08/28/09
Lab Sample ID: 9I01016-CCV5
Injection Time: 10:12

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0392	5995468	5877630		-2.0	20
beta-BHC	A	0.0400	0.0364	2149098	1954396		-9.1	20
gamma-BHC (Lindane)	A	0.0400	0.0384	5196859	4991550		-4.0	20
delta-BHC	A	0.0400	0.0372	4581752	4256335		-7.1	20
alpha-Chlordane	A	0.0400	0.0363	3932349	3571820		-9.2	20
gamma-Chlordane	A	0.0400	0.0367	4120711	3781483		-8.2	20
4,4'-DDD	A	0.0400	0.0367	2967226	2725048		-8.2	20
4,4'-DDE	A	0.0400	0.0367	3848836	3528583		-8.3	20
4,4'-DDT	A	0.0400	0.0340	2970675	2526720		-14.9	20
Aldrin	A	0.0400	0.0384	4724988	4533383		-4.1	20
Dieldrin	A	0.0400	0.0366	3824875	3497635		-8.6	20
Endosulfan I	A	0.0400	0.0367	3657648	3352413		-8.3	20
Endosulfan II	A	0.0400	0.0363	2824035	2565200		-9.2	20
Endosulfan Sulfate	A	0.0400	0.0370	2450729	2265386		-7.6	20
Endrin	A	0.0400	0.0363	3387779	3074303		-9.3	20
Endrin Aldehyde	A	0.0400	0.0366	1862380	1702350		-8.6	20
Endrin Ketone	A	0.0400	0.0368	2856336	2627935		-8.0	20
Heptachlor	A	0.0400	0.0380	5472984	5198428		-5.0	20
Heptachlor Epoxide	A	0.0400	0.0370	4140288	3833283		-7.4	20
Methoxychlor	A	0.0400	0.0336	1602837	1344557		-16.1	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: A85_253-0
Calibration Date: 08/25/09 10:09
Sequence: 9I01016
Injection Date: 08/28/09
Lab Sample ID: 9I01016-CCV6
Injection Time: 10:50

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.603	1130574	1558464		20.6	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02060

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02023

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I02060-CCV1	A85_366-0	09/01/09 05:02
Calibration Check	9I02060-CCV1	B85_366-0	09/01/09 05:02
Cal Standard	9I02060-CAL1	A85_367-0	09/01/09 05:40
Cal Standard	9I02060-CAL1	B85_367-0	09/01/09 05:40
Cal Standard	9I02060-CAL2	A85_368-0	09/01/09 06:17
Cal Standard	9I02060-CAL2	B85_368-0	09/01/09 06:17
Cal Standard	9I02060-CAL3	A85_369-0	09/01/09 06:55
Cal Standard	9I02060-CAL3	B85_369-0	09/01/09 06:55
Cal Standard	9I02060-CAL4	A85_370-0	09/01/09 07:32
Cal Standard	9I02060-CAL4	B85_370-0	09/01/09 07:32
Cal Standard	9I02060-CAL5	A85_371-0	09/01/09 08:10
Cal Standard	9I02060-CAL5	B85_371-0	09/01/09 08:10
Cal Standard	9I02060-CAL6	A85_372-0	09/01/09 08:47
Cal Standard	9I02060-CAL6	B85_372-0	09/01/09 08:47
Secondary Cal Check	9I02060-SCV1	A85_373-0	09/01/09 09:25
Secondary Cal Check	9I02060-SCV1	B85_373-0	09/01/09 09:25
18SB6A	0908228-15	A85_375-0	09/01/09 10:40
18SB6A	0908228-15	B85_375-0	09/01/09 10:40
DUP-3	0908228-14	A85_376-0	09/01/09 11:17
DUP-3	0908228-14	B85_376-0	09/01/09 11:17
18SB5B	0908228-13	A85_377-0	09/01/09 11:55
18SB5B	0908228-13	B85_377-0	09/01/09 11:55
18SB5A	0908228-12	A85_378-0	09/01/09 12:33
18SB5A	0908228-12	B85_378-0	09/01/09 12:33
18SB6B	0908228-16	A85_379-0	09/01/09 13:10
18SB6B	0908228-16	B85_379-0	09/01/09 13:10
Calibration Check	9I02060-CCV2	A85_380-0	09/01/09 13:48
Calibration Check	9I02060-CCV2	B85_380-0	09/01/09 13:48
Calibration Check	9I02060-CCV3	A85_381-0	09/01/09 14:25
Calibration Check	9I02060-CCV3	B85_381-0	09/01/09 14:25
Calibration Check	9I02060-CCV4	A85_392-0	09/01/09 21:54
Calibration Check	9I02060-CCV4	B85_392-0	09/01/09 21:54

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02060

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02023

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I02060-CCV5	A85_393-0	09/01/09 22:31
Calibration Check	9I02060-CCV5	B85_393-0	09/01/09 22:31

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I02060
Instrument: 199
Matrix: Soil
Calibration: 9I02023

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I02060-CCV1)		**Lab File ID: A85_366-0**		**Analyzed: 09/01/09 05:02**			
Tetrachloro-m-xylene	7.81	7.80	0.01	+/-1.0	88	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.78	0.03	+/-1.0	94	80 - 120	
Decachlorobiphenyl	21.37	21.34	0.04	+/-1.0	92	80 - 120	
Decachlorobiphenyl [2C]	24.04	24.05	-0.01	+/-1.0	109	80 - 120	
Cal Standard (9I02060-CAL1)		**Lab File ID: A85_367-0**		**Analyzed: 09/01/09 05:40**			
Tetrachloro-m-xylene	7.80	7.80	0.00	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.79	8.78	0.01	+/-1.0	NA	NA	
Decachlorobiphenyl	21.31	21.34	-0.03	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.01	24.05	-0.04	+/-1.0	NA	NA	
Cal Standard (9I02060-CAL2)		**Lab File ID: A85_368-0**		**Analyzed: 09/01/09 06:17**			
Tetrachloro-m-xylene	7.81	7.80	0.01	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.80	8.78	0.02	+/-1.0	NA	NA	
Decachlorobiphenyl	21.32	21.34	-0.02	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.01	24.05	-0.04	+/-1.0	NA	NA	
Cal Standard (9I02060-CAL3)		**Lab File ID: A85_369-0**		**Analyzed: 09/01/09 06:55**			
Tetrachloro-m-xylene	7.78	7.80	-0.01	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.77	8.78	-0.01	+/-1.0	NA	NA	
Decachlorobiphenyl	21.35	21.34	0.02	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.08	24.05	0.03	+/-1.0	NA	NA	
Cal Standard (9I02060-CAL4)		**Lab File ID: A85_370-0**		**Analyzed: 09/01/09 07:32**			
Tetrachloro-m-xylene	7.81	7.80	0.01	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.81	8.78	0.03	+/-1.0	NA	NA	
Decachlorobiphenyl	21.36	21.34	0.02	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.04	24.05	-0.01	+/-1.0	NA	NA	
Cal Standard (9I02060-CAL5)		**Lab File ID: A85_371-0**		**Analyzed: 09/01/09 08:10**			
Tetrachloro-m-xylene	7.79	7.80	0.00	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.77	8.78	-0.01	+/-1.0	NA	NA	
Decachlorobiphenyl	21.37	21.34	0.04	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.10	24.05	0.05	+/-1.0	NA	NA	
Cal Standard (9I02060-CAL6)		**Lab File ID: A85_372-0**		**Analyzed: 09/01/09 08:47**			
Tetrachloro-m-xylene	7.78	7.80	-0.01	+/-1.0	NA	NA	
Tetrachloro-m-xylene [2C]	8.76	8.78	-0.02	+/-1.0	NA	NA	
Decachlorobiphenyl	21.30	21.34	-0.04	+/-1.0	NA	NA	
Decachlorobiphenyl [2C]	24.03	24.05	-0.02	+/-1.0	NA	NA	

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I02060
Instrument: 199
Matrix: Soil
Calibration: 9I02023

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Secondary Cal Check (9I02060-SCV1)		**Lab File ID: A85_373-0**		**Analyzed: 09/01/09 09:25**			
Tetrachloro-m-xylene	7.78	7.80	-0.01	+/-1.0	85	80 - 120	
Tetrachloro-m-xylene [2C]	8.78	8.78	0.00	+/-1.0	85	80 - 120	
Decachlorobiphenyl	21.35	21.34	0.02	+/-1.0	91	80 - 120	
Decachlorobiphenyl [2C]	24.08	24.05	0.03	+/-1.0	94	80 - 120	
18SB6A (0908228-15)		**Lab File ID: A85_375-0**		**Analyzed: 09/01/09 10:40**			
Tetrachloro-m-xylene	7.77	7.80	-0.03	+/-1.0	71	70 - 125	
Tetrachloro-m-xylene [2C]	8.75	8.78	-0.03	+/-1.0	78	70 - 125	
Decachlorobiphenyl	21.31	21.34	-0.03	+/-1.0	74	55 - 130	
Decachlorobiphenyl [2C]	23.99	24.05	-0.06	+/-1.0	80	55 - 130	
DUP-3 (0908228-14)		**Lab File ID: A85_376-0**		**Analyzed: 09/01/09 11:17**			
Tetrachloro-m-xylene	7.72	7.80	-0.08	+/-1.0	86	70 - 125	
Tetrachloro-m-xylene [2C]	8.70	8.78	-0.08	+/-1.0	85	70 - 125	
Decachlorobiphenyl	21.30	21.34	-0.04	+/-1.0	87	55 - 130	
Decachlorobiphenyl [2C]	23.99	24.05	-0.06	+/-1.0	87	55 - 130	
18SB5B (0908228-13)		**Lab File ID: A85_377-0**		**Analyzed: 09/01/09 11:55**			
Tetrachloro-m-xylene	7.77	7.80	-0.03	+/-1.0	74	70 - 125	
Tetrachloro-m-xylene [2C]	8.75	8.78	-0.03	+/-1.0	74	70 - 125	
Decachlorobiphenyl	21.34	21.34	0.00	+/-1.0	82	55 - 130	
Decachlorobiphenyl [2C]	24.05	24.05	0.00	+/-1.0	81	55 - 130	
18SB5A (0908228-12)		**Lab File ID: A85_378-0**		**Analyzed: 09/01/09 12:33**			
Tetrachloro-m-xylene	7.75	7.80	-0.04	+/-1.0	92	70 - 125	
Tetrachloro-m-xylene [2C]	8.73	8.78	-0.05	+/-1.0	91	70 - 125	
Decachlorobiphenyl	21.27	21.34	-0.07	+/-1.0	95	55 - 130	
Decachlorobiphenyl [2C]	23.96	24.05	-0.09	+/-1.0	91	55 - 130	
18SB6B (0908228-16)		**Lab File ID: A85_379-0**		**Analyzed: 09/01/09 13:10**			
Tetrachloro-m-xylene	7.75	7.80	-0.04	+/-1.0	82	70 - 125	
Tetrachloro-m-xylene [2C]	8.74	8.78	-0.04	+/-1.0	81	70 - 125	
Decachlorobiphenyl	21.30	21.34	-0.04	+/-1.0	91	55 - 130	
Decachlorobiphenyl [2C]	24.01	24.05	-0.04	+/-1.0	85	55 - 130	
Calibration Check (9I02060-CCV2)		**Lab File ID: A85_380-0**		**Analyzed: 09/01/09 13:48**			
Tetrachloro-m-xylene	7.75	7.80	-0.04	+/-1.0	92	80 - 120	
Tetrachloro-m-xylene [2C]	8.73	8.78	-0.05	+/-1.0	90	80 - 120	
Decachlorobiphenyl	21.38	21.34	0.04	+/-1.0	98	80 - 120	
Decachlorobiphenyl [2C]	24.08	24.05	0.03	+/-1.0	97	80 - 120	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02060
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02023

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I02060-CCV3)		**Lab File ID: A85_381-0**		**Analyzed: 09/01/09 14:25**			
Tetrachloro-m-xylene	7.74	7.80	-0.05	+/-1.0	102	80 - 120	
Tetrachloro-m-xylene [2C]	8.73	8.78	-0.05	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.31	21.34	-0.03	+/-1.0	97	80 - 120	
Decachlorobiphenyl [2C]	23.96	24.05	-0.09	+/-1.0	112	80 - 120	
Calibration Check (9I02060-CCV4)		**Lab File ID: A85_392-0**		**Analyzed: 09/01/09 21:54**			
Tetrachloro-m-xylene	7.80	7.80	0.00	+/-1.0	82	80 - 120	
Tetrachloro-m-xylene [2C]	8.78	8.78	0.00	+/-1.0	88	80 - 120	
Decachlorobiphenyl	21.32	21.34	-0.02	+/-1.0	90	80 - 120	
Decachlorobiphenyl [2C]	24.00	24.05	-0.05	+/-1.0	90	80 - 120	
Calibration Check (9I02060-CCV5)		**Lab File ID: A85_393-0**		**Analyzed: 09/01/09 22:31**			
Tetrachloro-m-xylene	7.79	7.80	0.00	+/-1.0	104	80 - 120	
Tetrachloro-m-xylene [2C]	8.77	8.78	-0.01	+/-1.0	92	80 - 120	
Decachlorobiphenyl	21.31	21.34	-0.03	+/-1.0	94	80 - 120	
Decachlorobiphenyl [2C]	24.00	24.05	-0.05	+/-1.0	108	80 - 120	

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I02023
Lab File ID: A85_366-0
Calibration Date: 09/01/09 13:38
Sequence: 9I02060
Injection Date: 09/01/09
Lab Sample ID: 9I02060-CCV1
Injection Time: 05:02

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.420	1130574	1061404		-15.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B85_366-0
Sequence: 9I02060
Lab Sample ID: 9I02060-CCV1

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Calibration: 9I02023
Calibration Date: 09/01/09 13:38
Injection Date: 09/01/09
Injection Time: 05:02

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.400	1494910	1188680		-20.5	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

DUAL COLUMN CONFIRMATION CHECK

18SB3B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908228-09
File ID: A85_205-0
Sampled: 08/12/09 11:40
Prepared: 08/19/09 08:06
Analyzed: 08/27/09 04:16
Solids: 81.36
Preparation: 3550B Sonication Extracti
Instrument: 199
QC Batch: 0909721
Sequence: 9H27093
GC Column(1):
GC Column(2): RTX CLP Pest2

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
4,4'-DDT	* 1	16.35	16.39833	0.0483	8539.71	0.00119	3.4
	2	18.47	18.45167	0.0183	5647.07	0.00115	
Endrin Aldehyde	* 1	17.05	17.12167	0.0717	10532.15	0.00234	56.4
	2	18.77	18.78167	0.0117	4401.33	0.00131	

* Column used for quantitation

TriMatrix Laboratories, Inc.

Instrument Information		Column Temperature Program				Initial Temperature:
Instrument Number:	199	Hold for:	0 min	Ramp to:	160 C	Degrees/minute:
Detector:	ECD	Hold for:	0 min	Ramp to:	300 C	Degrees/minute:
Date New Column Installed:	2/5/2009	Hold for:	3	Ramp to:		Degrees/minute:
Type of Column:	CLPestII	Hold for:		Ramp to:		Degrees/minute:
Length:	30m	Injector Temperature: 205 C				
ID:	0.32	Flow Rate: 10 mL/minute				
Film Thickness:	0.25 micron					

Compound	Retention Time	Date: 8/27/2009 Time: 9:16:00 AM File Name: B85_213 Today's Retention Time Window		
TCMX-2C	8.82	8.75	to	8.89
ALPHA-BHC-2C	10.49	10.46	to	10.52
GAMMA-BHC-2C	11.45	11.42	to	11.48
BETA-BHC-2C	11.66	11.63	to	11.69
DELTA-BHC-2C	12.45	12.42	to	12.48
HEPTACHLOR-2C	12.65	12.60	to	12.70
ALDRIN-2C	13.51	13.48	to	13.54
HEPTACHLOR EPOXIDE-2	14.97	14.92	to	15.02
GAMMA-CHLORDANE-2C	15.45	15.40	to	15.50
ALPHA-CHLORDANE-2C	15.82	15.77	to	15.87
ENDOSULFAN I-2C	15.97	15.92	to	16.02
4,4'-DDE-2C	16.22	16.17	to	16.27
DIELDRIN-2C	16.66	16.61	to	16.71
ENDRIN-2C	17.42	17.36	to	17.48
4,4'-DDD-2C	17.66	17.61	to	17.71
ENDOSULFAN II-2C	17.94	17.89	to	17.99
4,4'-DDT-2C	18.44	18.39	to	18.49
ENDRIN ALDEHYDE-2C	18.77	18.72	to	18.82
ENDOSULFAN SULFATE-2	19.46	19.41	to	19.51
METHOXYCHLOR-2C	20.12	20.07	to	20.17
ENDRIN KETONE-2C	20.80	20.75	to	20.85
DCB-2C	24.10	23.99	to	24.21

TriMatrix Laboratories, Inc.

DAILY RETENTION TIME WINDOWS

Instrument Information		Column Temperature Program					
Instrument Number:	199	Hold for:	0 min	Ramp to:	160 C	Initial Temperature:	120 C
Detector:	ECD	Hold for:	0 min	Ramp to:	300 C	Degrees/minute:	20
Date New Column Installed:	2/5/2009	Hold for:	3	Ramp to:		Degrees/minute:	6
Type of Column:	CLPest	Hold for:		Ramp to:		Degrees/minute:	
Length:	30m	Injector Temperature: 205 C					
ID:	0.32	Flow Rate: 10 mL/minute					
Film Thickness:	0.25 micron						

Compound	Retention Time	Date: 8/27/2009 Time: 9:16:00 AM File Name: A85_213 Today's Retention Time Window		
TCMX	7.79	7.71	to	7.87
ALPHA-BHC	9.18	9.16	to	9.20
GAMMA-BHC	9.98	9.95	to	10.01
BETA-BHC	10.20	10.18	to	10.22
DELTA-BHC	10.65	10.64	to	10.66
HEPTACHLOR	11.17	11.14	to	11.20
ALDRIN	11.92	11.89	to	11.95
HEPTACHLOR EPOXIDE	13.44	13.41	to	13.47
GAMMA-CHLORDANE	13.74	13.71	to	13.77
ALPHA-CHLORDANE	14.07	14.04	to	14.10
4,4'-DDE	14.27	14.24	to	14.30
ENDOSULFAN I	14.40	14.37	to	14.43
DIELDRIN	14.99	14.96	to	15.02
ENDRIN	15.56	15.53	to	15.59
4,4'-DDD	15.74	15.71	to	15.77
ENDOSULFAN II	16.10	16.07	to	16.13
4,4'-DDT	16.41	16.38	to	16.44
ENDRIN ALDEHYDE	17.13	17.08	to	17.18
METHOXYCHLOR	17.60	17.57	to	17.63
ENDOSULFAN SULFATE	18.20	18.17	to	18.23
ENDRIN KETONE	18.87	18.84	to	18.90
DCB	21.33	21.27	to	21.39

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.79	TCMX	361210.07	1180868	0.0866		30.000	10	0.02887
9.07	ALPHA-BHC	324.32	1761	0.0001		30.000	10	0.00002 <10L
9.97	GAMMA-BHC	204.52	1069	0.0000		30.000	10	0.00001
10.18	BETA-BHC	151.66	567	0.0001		30.000	10	0.00002
10.63	DELTA-BHC	883.44	3581	0.0002		30.000	10	0.00006
11.17	HEPTACHLOR	1434.88	7705	0.0003		30.000	10	0.00009
11.84	ALDRIN	502.80	4195	0.0001		30.000	10	0.00004
13.45	HEPTACHLOR EPOXIDE	1009.69	6916	0.0002		30.000	10	0.00008
13.71	GAMMA-CHLORDANE	1794.47	12369	0.0004		30.000	10	0.00015
14.06	ALPHA-CHLORDANE	1282.24	12518	0.0003		30.000	10	0.00011
14.26	4,4'-DDE	2550.96	15095	0.0007		30.000	10	0.00022
14.39	ENDOSULFAN I	1861.16	13755	0.0005		30.000	10	0.00017
14.99	DIELDRIN	4049.34	34945	0.0011		30.000	10	0.00035 DUC
15.23	ENDRIN	3781.56	36689	0.0011		30.000	10	0.00037 RT
15.67	4,4'-DDD	6591.27	107524	0.0022		30.000	10	0.00074 RT DNC
15.98	ENDOSULFAN II	5473.70	31717	0.0019		30.000	10	0.00065 RT
16.35	4,4'-DDT	8539.71	160045	0.0029		30.000	10	0.00096 RT
17.05	ENDRIN ALDEHYDE	10532.15	236890	0.0057		30.000	10	0.00189 RT
17.39	METHOXYCHLOR	1113.12	50658	0.0007		30.000	10	0.00023 <10L
17.97	ENDOSULFAN SULFATE	1542.75	11506	0.0006		30.000	10	0.00021
18.99	ENDRIN KETONE	1332.26	4595	0.0005		30.000	10	0.00016
21.32	DCB	208858.97	776476	0.0839		30.000	10	0.02797

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_205.TX0

analyst judgement 11/4/09

$0.0029 \frac{\mu g}{ml} \times \frac{0.010\ ml}{0.030\ kg} = 0.000966 \frac{\mu g}{kg}$

0.00119 µg/kg dry wt

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
8.83	TCMX-2C	327758.27	1073789	0.0878		30.000	10	0.02925	
10.67	ALPHA-BHC-2C	286.93	3790	0.0001		30.000	10	0.00002	< MD
11.38	GAMMA-BHC-2C	203.51	1523	0.0000		30.000	10	0.00002	
11.67	BETA-BHC-2C	722.09	3993	0.0004		30.000	10	0.00013	
12.37	DELTA-BHC-2C	607.98	4808	0.0002		30.000	10	0.00005	
12.54	HEPTACHLOR-2C	407.26	2052	0.0001		30.000	10	0.00003	
13.64	ALDRIN-2C	296.88	992	0.0001		30.000	10	0.00003	
14.96	HEPTACHLOR EPOXIDE-2	1239.86	4918	0.0004		30.000	10	0.00013	
15.43	GAMMA-CHLORDANE-2C	1117.80	4081	0.0004		30.000	10	0.00012	
15.82	ALPHA-CHLORDANE-2C	0.00	0	0.0000		30.000	10	0.00000	
16.00	ENDOSULFAN I-2C	211.65	770	0.0001		30.000	10	0.00003	
16.29	4,4'-DDE-2C	845.62	4373	0.0003		30.000	10	0.00010	
16.67	DIELDRIN-2C	694.24	2283	0.0003		30.000	10	0.00008	
17.43	ENDRIN-2C	0.00	0	0.0000		30.000	10	0.00000	
17.57	4,4'-DDD-2C	1339.66	5828	0.0006		30.000	10	0.00021	
17.97	ENDOSULFAN II-2C	825.18	5478	0.0004		30.000	10	0.00014	
18.47	4,4'-DDT-2C	5647.07	87791	0.0028		30.000	10	0.00092	DNC
18.77	ENDRIN ALDEHYDE-2C	4401.33	68957	0.0032		30.000	10	0.00107	DNC
19.43	ENDOSULFAN SULFATE-2	2125.62	86838	0.0011		30.000	10	0.00038	RT
20.03	METHOXYCHLOR-2C	1899.04	47088	0.0018		30.000	10	0.00060	RT
20.79	ENDRIN KETONE-2C	456.66	12859	0.0002		30.000	10	0.00008	< MDL
24.09	DCB-2C	129631.33	601093	0.0938		30.000	10	0.03127	

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_205.TX0

TriMatrix Laboratories, Inc.

DAILY RETENTION TIME WINDOWS

Instrument Information		Column Temperature Program					
Instrument Number:	199	Hold for:	0 min	Ramp to:	160 C	Initial Temperature:	120 C
Detector:	ECD	Hold for:	0 min	Ramp to:	300 C	Degrees/minute:	20
Date New Column Installed:	2/5/2009	Hold for:	3	Ramp to:		Degrees/minute:	6
Type of Column:	CLPest	Hold for:		Ramp to:		Degrees/minute:	
Length:	30m	Injector Temperature: 205 C					
ID:	0.32	Flow Rate: 10 mL/minute					
Film Thickness:	0.25 micron						

Compound	Retention Time	Date: 9/1/2009 Time: 7:32:00 AM File Name: A85_370 Today's Retention Time Window		
TCMX	7.81	7.73	to	7.89
ALPHA-BHC	9.21	9.19	to	9.23
GAMMA-BHC	10.01	9.98	to	10.04
BETA-BHC	10.23	10.21	to	10.25
DELTA-BHC	10.68	10.67	to	10.69
HEPTACHLOR	11.20	11.17	to	11.23
ALDRIN	11.95	11.92	to	11.98
HEPTACHLOR EPOXIDE	13.47	13.44	to	13.50
GAMMA-CHLORDANE	13.77	13.74	to	13.80
ALPHA-CHLORDANE	14.10	14.07	to	14.13
4,4'-DDE	14.31	14.28	to	14.34
ENDOSULFAN I	14.44	14.41	to	14.47
DIELDRIN	15.03	15.00	to	15.06
ENDRIN	15.59	15.56	to	15.62
4,4'-DDD	15.78	15.75	to	15.81
ENDOSULFAN II	16.14	16.11	to	16.17
4,4'-DDT	16.46	16.43	to	16.49
ENDRIN ALDEHYDE	17.18	17.13	to	17.23
METHOXYCHLOR	17.65	17.62	to	17.68
ENDOSULFAN SULFATE	18.24	18.21	to	18.27
ENDRIN KETONE	18.92	18.89	to	18.95
DCB	21.36	21.30	to	21.42

TriMatrix Laboratories, Inc.

Instrument Information	
Instrument Number:	199
Detector:	ECD
Date New Column Installed:	2/5/2009
Type of Column:	CLPestII
Length:	30m
ID:	0.32
Film Thickness:	0.25 micron

Column Temperature Program				
Initial Temperature:				
Hold for:	0 min	Ramp to:	160 C	Degrees/minute:
Hold for:	0 min	Ramp to:	300 C	Degrees/minute:
Hold for:	3	Ramp to:		Degrees/minute:
Hold for:		Ramp to:		Degrees/minute:
Injector Temperature: 205 C				
Flow Rate: 10 mL/minute				

Compound	Retention Time	Date: 9/1/2009 Time: 7:32:00 AM File Name: B85_370 Today's Retention Time Window		
TCMX-2C	8.81	8.74	to	8.88
ALPHA-BHC-2C	10.47	10.44	to	10.50
GAMMA-BHC-2C	11.43	11.40	to	11.46
BETA-BHC-2C	11.64	11.61	to	11.67
DELTA-BHC-2C	12.42	12.39	to	12.45
HEPTACHLOR-2C	12.63	12.58	to	12.68
ALDRIN-2C	13.49	13.46	to	13.52
HEPTACHLOR EPOXIDE-2	14.95	14.90	to	15.00
GAMMA-CHLORDANE-2C	15.43	15.38	to	15.48
ALPHA-CHLORDANE-2C	15.80	15.75	to	15.85
ENDOSULFAN I-2C	15.95	15.90	to	16.00
4,4'-DDE-2C	16.20	16.15	to	16.25
DIELDRIN-2C	16.64	16.59	to	16.69
ENDRIN-2C	17.40	17.34	to	17.46
4,4'-DDD-2C	17.65	17.60	to	17.70
ENDOSULFAN II-2C	17.92	17.87	to	17.97
4,4'-DDT-2C	18.43	18.38	to	18.48
ENDRIN ALDEHYDE-2C	18.75	18.70	to	18.80
ENDOSULFAN SULFATE-2	19.44	19.39	to	19.49
METHOXYCHLOR-2C	20.10	20.05	to	20.15
ENDRIN KETONE-2C	20.77	20.72	to	20.82
DCB-2C	24.04	23.93	to	24.15

-12

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)
7.75	TCMX	364823.76	1208323	0.0917		30.000	10	0.03057
9.26	ALPHA-BHC	326.71	1404	0.0001		30.000	10	0.00002 <MDL
9.97	GAMMA-BHC	0.00	0	0.0000		30.000	10	0.00000
10.24	BETA-BHC	1047.91	12302	0.0006		30.000	10	0.00019
10.68	DELTA-BHC	1927.80	7639	0.0005		30.000	10	0.00016
11.10	HEPTACHLOR	4176.16	18380	0.0008		30.000	10	0.00028
11.94	ALDRIN	179.43	959	0.0000		30.000	10	0.00001
13.49	HEPTACHLOR EPOXIDE	1176.37	7213	0.0003		30.000	10	0.00011
13.64	GAMMA-CHLORDANE	632.14	3079	0.0002		30.000	10	0.00006
13.88	ALPHA-CHLORDANE	775.30	4196	0.0002		30.000	10	0.00008
14.16	4,4'-DDE	1273.51	6502	0.0005		30.000	10	0.00015
14.33	ENDOSULFAN I	227.11	1369	0.0001		30.000	10	0.00002
14.89	DIELDRIN	2299.88	8860	0.0007		30.000	10	0.00023
15.58	ENDRIN	4086.72	20324	0.0014		30.000	10	0.00047
15.88	4,4'-DDD	561.21	2803	0.0003		30.000	10	0.00009 <MDL
16.12	ENDOSULFAN II	114.04	346	0.0000		30.000	10	0.00002
16.46	4,4'-DDT	722.18	2696	0.0003		30.000	10	0.00011
17.23	ENDRIN ALDEHYDE	1241.54	8408	0.0008		30.000	10	0.00027
17.59	METHOXYCHLOR	351.38	2303	0.0003		30.000	10	0.00010
18.00	ENDOSULFAN SULFATE	179.79	589	0.0001		30.000	10	0.00003
18.92	ENDRIN KETONE	981.62	4336	0.0004		30.000	10	0.00014
21.27	DCB	186649.96	700982	0.0946		30.000	10	0.03154

Timed Event Table

Time	Event	Value
19.853	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\A85_378.TX0

TrimatrixLabs.GC199 Sample Quant. Soil/waste 8081,608,608.2

COLUMN: A: RTXCLP2 30M X 0.53MM ID B: RTX CLP 30M X 0.53MM ID

Time [min]	Component Name	Height [µV]	Area [µV·s]	Amount (ng/ul)	Cal. Range	Initial (g)	Final (ml)	Conc. (mg/kg)	
8.73	TCMX-2C	385263.28	1267992	0.0914		30.000	10	0.03048	
10.45	ALPHA-BHC-2C	309.50	1282	0.0001		30.000	10	0.00002	<MDL
11.21	GAMMA-BHC-2C	335.00	2149	0.0001		30.000	10	0.00002	
11.52	BETA-BHC-2C	1648.61	6367	0.0008		30.000	10	0.00027	
12.23	DELTA-BHC-2C	2401.97	13314	0.0006		30.000	10	0.00019	
12.71	HEPTACHLOR-2C	696.21	4021	0.0001		30.000	10	0.00005	
13.41	ALDRIN-2C	812.94	2808	0.0002		30.000	10	0.00007	
14.80	HEPTACHLOR EPOXIDE-2	848.60	3188	0.0002		30.000	10	0.00008	
15.36	GAMMA-CHLORDANE-2C	597.92	1911	0.0002		30.000	10	0.00006	
15.75	ALPHA-CHLORDANE-2C	0.00	0	0.0000		30.000	10	0.00000	
15.98	ENDOSULFAN I-2C	623.59	6017	0.0002		30.000	10	0.00007	
16.15	4,4'-DDE-2C	999.29	6087	0.0003		30.000	10	0.00011	
16.68	DIELDRIN-2C	329.31	1608	0.0001		30.000	10	0.00004	
17.43	ENDRIN-2C	3243.59	12472	0.0012		30.000	10	0.00041	
17.57	4,4'-DDD-2C	336.00	1730	0.0002		30.000	10	0.00005	<MDL
17.82	ENDOSULFAN II-2C	1550.84	10600	0.0007		30.000	10	0.00023	
18.32	4,4'-DDT-2C	3974.48	26666	0.0017		30.000	10	0.00058	RT
18.63	ENDRIN ALDEHYDE-2C	1965.93	10433	0.0013		30.000	10	0.00044	<MDL
19.47	ENDOSULFAN SULFATE-2	736.82	2669	0.0004		30.000	10	0.00012	
19.90	METHOXYCHLOR-2C	3299.83	13628	0.0029		30.000	10	0.00097	RT
20.66	ENDRIN KETONE-2C	599.29	2410	0.0003		30.000	10	0.00009	<MDL
23.96	DCB-2C	150225.64	713468	0.0911		30.000	10	0.03038	

Timed Event Table

Time	Event	Value
21.518	V	

Report stored in ASCII file: C:\TC4\GC199\AB85\B85_378.TX0

Semivolatiles GC, Soil, 3550B Sonication Extraction

Surrogate #1 = 9040924 (Pre-Prep)

Batch Comments: (none)

Work Order	Analysis	Work Order	Analysis	Work Order	Analysis
0908228	8081A DoD Pests plus custom				

Lab Number	*Contain*	*Prepared*	*By*	*Initial (g)*	*Final (mL)*	*uL Surrogate*	*Source ID*	*Spike ID*	*uL Spike*	*Client / QC Type*	*Extraction Comments*
0909721-BLK1		Aug-19-09 08:06	BJH	30	10	1000				BLANK	
0909721-BS1		Aug-19-09 08:06	BJH	30	10	1000		9061341	500	LCS	Chlorinated Pests
0909721-BS2		Aug-19-09 08:06	BJH	30	10	1000		9080435	1000	LCS	Toxaphene
0909721-MS1		Aug-19-09 08:06	BJH	30	10	1000	0908228-05	9061341	500	MATRIX SPIKE	Chlorinated Pests
0909721-MS2		Aug-19-09 08:06	BJH	30	10	1000	0908228-05	9080435	1000	MATRIX SPIKE	Toxaphene
0909721-MSD1		Aug-19-09 08:06	BJH	30	10	1000	0908228-05	9061341	500	MATRIX SPIKE DUP	Chlorinated Pests
0909721-MSD2		Aug-19-09 08:06	BJH	30	10	1000	0908228-05	9080435	1000	MATRIX SPIKE DUP	Toxaphene
0908228-05	B	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-06	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-07	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-08	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-09	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-10	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-11	B	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-12	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-13	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-14	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-15	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	
0908228-16	A	Aug-19-09 08:06	BJH	30	10	1000				URS Corporation	

Comments:

Analyst Initials:

SAMPLE ID SUMMARY

USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809B

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1A	0908228-01
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H26042

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 144
Calibration: 9H25001

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H26042-CCV1	A41_315-0	08/22/09 09:55
Calibration Check	9H26042-CCV1	B41_315-0	08/22/09 09:55
Calibration Check	9H26042-CCV2	A41_316-0	08/22/09 10:19
Calibration Check	9H26042-CCV2	B41_316-0	08/22/09 10:19
Calibration Check	9H26042-CCV3	A41_317-0	08/22/09 10:43
Calibration Check	9H26042-CCV3	B41_317-0	08/22/09 10:43
Calibration Check	9H26042-CCV4	A41_318-0	08/22/09 11:08
Calibration Check	9H26042-CCV4	B41_318-0	08/22/09 11:08
Calibration Check	9H26042-CCV5	A41_319-0	08/22/09 11:32
Calibration Check	9H26042-CCV5	B41_319-0	08/22/09 11:32
Calibration Check	9H26042-CCV6	A41_320-0	08/22/09 11:56
Calibration Check	9H26042-CCV6	B41_320-0	08/22/09 11:56
Calibration Check	9H26042-CCV7	A41_321-0	08/22/09 12:20
Calibration Check	9H26042-CCV7	B41_321-0	08/22/09 12:20
18SB5A	0908228-12	A41_322-0	08/22/09 12:45
18SB5A	0908228-12	B41_322-0	08/22/09 12:45
18SB1B	0908228-11	A41_323-0	08/22/09 13:09
18SB1B	0908228-11	B41_323-0	08/22/09 13:09
18SB1A	0908228-10	A41_324-0	08/22/09 13:33
18SB1A	0908228-10	B41_324-0	08/22/09 13:33
18SB3B	0908228-09	A41_325-0	08/22/09 13:57
18SB3B	0908228-09	B41_325-0	08/22/09 13:57
18SB4B	0908228-07	A41_327-0	08/22/09 14:46
18SB4B	0908228-07	B41_327-0	08/22/09 14:46
18SB4A	0908228-06	A41_328-0	08/22/09 15:10
18SB4A	0908228-06	B41_328-0	08/22/09 15:10
18SB2B	0908228-05	A41_329-0	08/22/09 15:34
18SB2B	0908228-05	B41_329-0	08/22/09 15:34
Blank	0909719-BLK1	A41_331-0	08/22/09 16:23
Blank	0909719-BLK1	B41_331-0	08/22/09 16:23
Calibration Check	9H26042-CCV8	A41_332-0	08/22/09 16:47
Calibration Check	9H26042-CCV8	B41_332-0	08/22/09 16:47

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H26042

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 144
Calibration: 9H25001

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H26042-CCV9	A41_333-0	08/22/09 17:11
Calibration Check	9H26042-CCV9	B41_333-0	08/22/09 17:11
18SB2B	0909719-MSD1	A41_334-0	08/22/09 17:36
18SB2B	0909719-MSD1	B41_334-0	08/22/09 17:36
18SB2B	0909719-MS1	A41_335-0	08/22/09 18:00
18SB2B	0909719-MS1	B41_335-0	08/22/09 18:00
18SB6B	0908228-16	A41_336-0	08/22/09 18:24
18SB6B	0908228-16	B41_336-0	08/22/09 18:24
18SB6A	0908228-15	A41_337-0	08/22/09 18:48
18SB6A	0908228-15	B41_337-0	08/22/09 18:48
DUP-3	0908228-14	A41_338-0	08/22/09 19:13
DUP-3	0908228-14	B41_338-0	08/22/09 19:13
18SB5B	0908228-13	A41_339-0	08/22/09 19:37
18SB5B	0908228-13	B41_339-0	08/22/09 19:37
Calibration Check	9H26042-CCVA	A41_340-0	08/22/09 20:01
Calibration Check	9H26042-CCVA	B41_340-0	08/22/09 20:01
Calibration Check	9H26042-CCVB	A41_341-0	08/22/09 20:25
Calibration Check	9H26042-CCVB	B41_341-0	08/22/09 20:25

X 1254
> 16/60

CONTINUING CALIBRATION CHECK
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 144
Calibration: 9H25001
Lab File ID: A41_333-0
Calibration Date: 08/19/09 08:00
Sequence: 9H26042
Injection Date: 08/22/09
Lab Sample ID: 9H26042-CCV9
Injection Time: 17:11

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
PCB-1254	L	0.400	0.464	694332.6	727750.5		16.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

DUAL COLUMN CONFIRMATION CHECK

18SB1A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/12/09 11:55
Solids: 86.40
QC Batch: 0909719
GC Column(1): DB-35 30m x 0.32mm

Laboratory ID: 0908228-10
Prepared: 08/19/09 08:04
Preparation: 3550B Sonication Extracti
Sequence: 9H26042
GC Column(2): DB-XLB 30m x 0.32mm

SDG: SS0809B
Project: RFAAP SSP at Six Sites
File ID: A41_324-0
Analyzed: 08/22/09 13:33
Instrument: 144

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1260	1	15.01	15.02	0.01	8278.43	7.14	
	* 2	13.33	13.34	0.01	14679.59	8.41	16.3

* Column used for quantitation

DUAL COLUMN CONFIRMATION CHECK

18SB5A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908228-12
File ID: A41_322-0
Sampled: 08/12/09 13:05
Prepared: 08/19/09 08:04
Analyzed: 08/22/09 12:45
Solids: 88.22
Preparation: 3550B Sonication Extracti
Instrument: 144
QC Batch: 0909719
Sequence: 9H26042
GC Column(1): DB-35 30m x 0.32mm
GC Column(2): DB-XLB 30m x 0.32mm

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1260	* 1	15.01	15.02	0.01	9811.67	8.27	1.8
	2	13.33	13.34	0.01	14444.15	8.12	

* Column used for quantitation

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8082

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909719-MS1

QC Batch: 0909719

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
PCB-1016	199	ND	189	95	40 - 140	ug/kg dry
PCB-1016 [2C]	199	ND	181	91	40 - 140	ug/kg dry
PCB-1260	199	ND	247	124	60 - 130	ug/kg dry
PCB-1260 [2C]	199	ND	209	105	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

18SB2B

USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909719-MSD1

QC Batch: 0909719

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
PCB-1016	199	191	96	0.8	30	40 - 140	ug/kg dry
PCB-1016 [2C]	199	181	91	0.02	30	40 - 140	ug/kg dry
PCB-1260	199	248	124	0.2	30	60 - 130	ug/kg dry
PCB-1260 [2C]	199	210	105	0.5	30	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Explosives

Reviewer: Andrea Sansom
Date: November 5, 2009
DV Level: II III IV

Review Document:

_X__ Region III Modified for National Functional Guidelines
____ NFG for organic Data review (February 1994)
_X__ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809B
Test Name: Explosives
Method No.: 8330-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.	X		
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%		X	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 40-150%?		X	
6.4	Are there any RPDs outside the QC limits not to exceed 60%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 40-150%?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are all positive identifications confirmed on second column or detector? If not, reject or estimate this detection.	X		
9.2	For positive sample detections, is RPD <40% between first and second columns. If not, apply J.		X	
9.3	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

10.0 Data Completeness			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	16			
	Number of target compounds in each analysis:	14			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809B

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17
EQBK-2	0908228-17RE1

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25035

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H25035-CCV1	expa002-0	08/24/09 10:19
Calibration Check	9H25035-CCV2	expa010-0	08/24/09 16:40
Calibration Check	9H25035-CCV3	expa016-0	08/24/09 20:56
72SB1B	0908228-02	expa005-0	08/26/09 12:20

See Sequence from 8/26/09

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25042

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H25042-CCV1	expa021-0	08/22/09 21:30
Blank	0909626-BLK1	expa022-0	08/22/09 22:13
LCS	0909626-BS1	expa023-0	08/22/09 22:55
Calibration Check	9H25042-CCV2	expa029-0	08/23/09 03:08

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H25042
Instrument: 221
Matrix: Soil
Calibration: 9F23012

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H25042-CCV1)		**Lab File ID: expa021-0**		**Analyzed: 08/22/09 21:30**			
4-Nitroaniline	8.33	8.86	-0.53	+/-1.0	81	85 - 115	*
Blank (0909626-BLK1)		**Lab File ID: expa022-0**		**Analyzed: 08/22/09 22:13**			
4-Nitroaniline	8.34	8.86	-0.52	+/-1.0	94	57 - 139	
LCS (0909626-BS1)		**Lab File ID: expa023-0**		**Analyzed: 08/22/09 22:55**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	132	57 - 139	
Calibration Check (9H25042-CCV2)		**Lab File ID: expa029-0**		**Analyzed: 08/23/09 03:08**			
4-Nitroaniline	8.33	8.86	-0.53	+/-1.0	81	85 - 115	*

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25052

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H25052-CCV1	expa002-0	08/25/09 10:17
Blank	0909645-BLK1	expa003-0	08/25/09 11:01
LCS	0909645-BS1	expa004-0	08/25/09 11:43
LCS Dup	0909645-BSD1	expa005-0	08/25/09 12:25
EQBK-2	0908228-17	expa007-0	08/25/09 13:49
Calibration Check	9H25052-CCV2	expa009-0	08/25/09 15:14

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa002-0
Calibration Date: 06/22/09 14:47
Sequence: 9H25052
Injection Date: 08/25/09
Lab Sample ID: 9H25052-CCV1
Injection Time: 10:17

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	734	21.60856	19.83125		-8.2	20
1,3-Dinitrobenzene	A	800	735	23.2766	21.39309		-8.1	20
2,4,6-Trinitrotoluene	A	800	748	14.05836	13.1488		-6.5	20
2,4-Dinitrotoluene	A	800	745	15.58131	14.50565		-6.9	20
2,6-Dinitrotoluene	A	800	718	8.967104	8.044175		-10.3	20
2-Amino-4,6-dinitrotoluene	A	800	704	7.924614	6.973425		-12.0	20
2-Nitrotoluene	A	800	707	6.897007	6.095213		-11.6	20
3-Nitrotoluene	A	800	714	6.600428	5.887		-10.8	20
4-Amino-2,6-dinitrotoluene	A	800	675	6.172953	5.208163		-15.6	20
4-Nitrotoluene	A	800	721	5.405638	4.874138		-9.8	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	696	7.391476	6.43285		-13.0	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	691	9.42282	8.133713		-13.7	20
Nitrobenzene	A	800	733	14.12719	12.9502		-8.3	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	689	8.330255	7.17535		-13.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa009-0
Calibration Date: 06/22/09 14:47
Sequence: 9H25052
Injection Date: 08/25/09
Lab Sample ID: 9H25052-CCV2
Injection Time: 15:14

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	749	21.60856	20.22		-6.4	20
1,3-Dinitrobenzene	A	800	754	23.2766	21.94		-5.7	20
2,4,6-Trinitrotoluene	A	800	774	14.05836	13.5975		-3.3	20
2,4-Dinitrotoluene	A	800	777	15.58131	15.13875		-2.8	20
2,6-Dinitrotoluene	A	800	751	8.967104	8.41625		-6.1	20
2-Amino-4,6-dinitrotoluene	A	800	719	7.924614	7.12375		-10.1	20
2-Nitrotoluene	A	800	784	6.897007	6.7625		-2.0	20
3-Nitrotoluene	A	800	754	6.600428	6.22		-5.8	20
4-Amino-2,6-dinitrotoluene	A	800	700	6.172953	5.40375		-12.5	20
4-Nitrotoluene	A	800	780	5.405638	5.27125		-2.5	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	710	7.391476	6.56		-11.2	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	709	9.42282	8.35625		-11.3	20
Nitrobenzene	A	800	759	14.12719	13.4075		-5.1	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	679	8.330255	7.07125		-15.1	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27001

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H27001-CCV1	expa002-0	08/26/09 10:11
Blank	0909683-BLK1	expa006-0	08/26/09 13:02
LCS	0909683-BS1	expa007-0	08/26/09 13:45
18SB2B	0908228-05	expa008-0	08/26/09 14:27
18SB4B	0908228-07	expa009-0	08/26/09 15:10
18SB3A	0908228-08	expa010-0	08/26/09 15:53
18SB3B	0908228-09	expa011-0	08/26/09 16:36
Calibration Check	9H27001-CCV2	xpa011-20090826-171921-	08/26/09 17:19
18SB1A	0908228-10	expa012-0	08/26/09 18:02
18SB1B	0908228-11	expa013-0	08/26/09 18:44
18SB5A	0908228-12	expa014-0	08/26/09 19:26
18SB5B	0908228-13	expa015-0	08/26/09 20:09
DUP-3	0908228-14	expa016-0	08/26/09 20:51
18SB6A	0908228-15	expa017-0	08/26/09 21:33
18SB6B	0908228-16	expa018-0	08/26/09 22:15
Calibration Check	9H27001-CCV3	expa020-0	08/26/09 23:41
18SB2B	0909683-MS1	expa029-0	08/27/09 06:00
18SB2B	0909683-MSD1	expa030-0	08/27/09 06:42
Calibration Check	9H27001-CCV4	expa031-0	08/27/09 07:24

0908228-02 expa005-0 8/26/09 1220

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa002-0
Calibration Date: 06/22/09 14:47
Sequence: 9H27001
Injection Date: 08/26/09
Lab Sample ID: 9H27001-CCV1
Injection Time: 10:11

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	726	21.60856	19.61276		-9.2	20
1,3-Dinitrobenzene	A	800	727	23.2766	21.15786		-9.1	20
2,4,6-Trinitrotoluene	A	800	739	14.05836	12.99258		-7.6	20
2,4-Dinitrotoluene	A	800	757	15.58131	14.7521		-5.3	20
2,6-Dinitrotoluene	A	800	723	8.967104	8.104475		-9.6	20
2-Amino-4,6-dinitrotoluene	A	800	762	7.924614	7.549875		-4.7	20
2-Nitrotoluene	A	800	772	6.897007	6.657288		-3.5	20
3-Nitrotoluene	A	800	753	6.600428	6.209475		-5.9	20
4-Amino-2,6-dinitrotoluene	A	800	726	6.172953	5.605513		-9.2	20
4-Nitrotoluene	A	800	744	5.405638	5.029075		-7.0	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	689	7.391476	6.364238		-13.9	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	671	9.42282	7.90215		-16.1	20
Nitrobenzene	A	800	725	14.12719	12.80818		-9.3	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	667	8.330255	6.94935		-16.6	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa011-20090826-171921-0
Sequence: 9H27001
Lab Sample ID: 9H27001-CCV2

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/26/09
Injection Time: 17:19

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	748	21.60856	20.20375		-6.5	20
1,3-Dinitrobenzene	A	800	748	23.2766	21.76875		-6.5	20
2,4,6-Trinitrotoluene	A	800	756	14.05836	13.29		-5.5	20
2,4-Dinitrotoluene	A	800	750	15.58131	14.61		-6.2	20
2,6-Dinitrotoluene	A	800	707	8.967104	7.9275		-11.6	20
2-Amino-4,6-dinitrotoluene	A	800	720	7.924614	7.1325		-10.0	20
2-Nitrotoluene	A	800	728	6.897007	6.27625		-9.0	20
3-Nitrotoluene	A	800	718	6.600428	5.92625		-10.2	20
4-Amino-2,6-dinitrotoluene	A	800	682	6.172953	5.265		-14.7	20
4-Nitrotoluene	A	800	730	5.405638	4.935		-8.7	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	714	7.391476	6.5925		-10.8	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	671	9.42282	7.9		-16.2	20
Nitrobenzene	A	800	745	14.12719	13.155		-6.9	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	694	8.330255	7.2275		-13.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa020-0
Calibration Date: 06/22/09 14:47
Sequence: 9H27001
Injection Date: 08/26/09
Lab Sample ID: 9H27001-CCV3
Injection Time: 23:41

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	741	21.60856	20.025		-7.3	20
1,3-Dinitrobenzene	A	800	738	23.2766	21.48375		-7.7	20
2,4,6-Trinitrotoluene	A	800	749	14.05836	13.16375		-6.4	20
2,4-Dinitrotoluene	A	800	755	15.58131	14.70875		-5.6	20
2,6-Dinitrotoluene	A	800	720	8.967104	8.065		-10.1	20
2-Amino-4,6-dinitrotoluene	A	800	714	7.924614	7.0675		-10.8	20
2-Nitrotoluene	A	800	738	6.897007	6.36		-7.8	20
3-Nitrotoluene	A	800	715	6.600428	5.905		-10.5	20
4-Amino-2,6-dinitrotoluene	A	800	679	6.172953	5.2325		-15.2	20
4-Nitrotoluene	A	800	727	5.405638	4.9125		-9.1	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	711	7.391476	6.56625		-11.2	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	669	9.42282	7.875		-16.4	20
Nitrobenzene	A	800	722	14.12719	12.75625		-9.7	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	698	8.330255	7.2675		-12.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H28027

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Calibration Check	9H28027-CCV1	expa002-0	08/27/09 14:39	X
Calibration Check	9H28027-CCV2	expa006-0	08/27/09 17:29	X
DUP-2	0908228-03	expa014-0	08/27/09 23:06	
18SB2A	0908228-04	expa015-0	08/27/09 23:48	
18SB4A	0908228-06	expa016-0	08/28/09 00:30	
Calibration Check	9H28027-CCV3	expa017-0	08/28/09 01:13	X

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa006-0
Sequence: 9H28027
Lab Sample ID: 9H28027-CCV2

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/27/09
Injection Time: 17:29

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	760	21.60856	20.26		-6.2	20
1,3-Dinitrobenzene	A	800	750	23.2766	21.64875		-7.0	20
2,4,6-Trinitrotoluene	A	800	753	14.05836	13.225		-5.9	20
2,4-Dinitrotoluene	A	800	754	15.58131	14.68125		-5.8	20
2,6-Dinitrotoluene	A	800	713	8.967104	7.9825		-11.0	20
2-Amino-4,6-dinitrotoluene	A	800	738	7.924614	7.28125		-8.1	20
2-Nitrotoluene	A	800	736	6.897007	6.335		-8.1	20
3-Nitrotoluene	A	800	744	6.600428	6.11625		-7.3	20
4-Amino-2,6-dinitrotoluene	A	800	712	6.172953	5.46625		-11.4	20
4-Nitrotoluene	A	800	745	5.405638	5.0175		-7.2	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	752	7.391476	6.64375		-10.1	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	670	9.42282	7.88625		-16.3	20
Nitrobenzene	A	800	744	14.12719	13.025		-7.8	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	703	8.330255	7.2625		-12.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa017-0
Sequence: 9H28027
Lab Sample ID: 9H28027-CCV3

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/28/09
Injection Time: 01:13

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	744	21.60856	20.09375		-7.0	20
1,3-Dinitrobenzene	A	800	757	23.2766	22.0275		-5.4	20
2,4,6-Trinitrotoluene	A	800	754	14.05836	13.24125		-5.8	20
2,4-Dinitrotoluene	A	800	760	15.58131	14.7575		-5.3	20
2,6-Dinitrotoluene	A	800	719	8.967104	8.0325		-10.4	20
2-Amino-4,6-dinitrotoluene	A	800	747	7.924614	7.27		-8.3	20
2-Nitrotoluene	A	800	751	6.897007	6.42		-6.9	20
3-Nitrotoluene	A	800	784	6.600428	6.3775		-3.4	20
4-Amino-2,6-dinitrotoluene	A	800	744	6.172953	5.63		-8.8	20
4-Nitrotoluene	A	800	781	5.405638	5.20125		-3.8	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	693	7.391476	6.40375		-13.4	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	662	9.42282	7.78375		-17.4	20
Nitrobenzene	A	800	753	14.12719	13.295		-5.9	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	713	8.330255	7.4175		-11.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I03030

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F26006

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I03030-CCV1	expa002-0	08/28/09 16:59
Blank	0909645-BLK2	expa003-0	08/28/09 17:32
EQBK-2	0908228-17RE1	expa005-0	08/28/09 18:36
Calibration Check	9I03030-CCV2	expa007-0	08/28/09 19:40
0908228-03	expa009	8/28/09 2044	
0908228-06	expa010	8/28/09 2116	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8330

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 8330 Extraction
Initial/Final: 2 g / 20 mL

Laboratory ID: 0909683-MS1
QC Batch: 0909683

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	ND	1.72	86	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	ND	1.83	92	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	ND	1.77	88	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	2.00	ND	1.81	91	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	ND	1.79	89	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	ND	3.45	86	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	ND	1.77	88	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	ND	1.92	96	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	ND	2.02	101	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	ND	1.84	92	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	2.00	ND	1.77	88	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	ND	1.54	77	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	ND	1.93	96	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	2.00	ND	1.69	84	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

18SB2B

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 8330 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0909683-MSD1

QC Batch: 0909683

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	1.65	83	4	30	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	1.81	90	2	30	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	1.78	89	0.9	30	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	2.00	1.78	89	2	30	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	1.73	87	3	30	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	3.35	84	3	30	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	1.77	89	0.08	30	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	1.77	89	8	30	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	1.76	88	14	30	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	1.79	89	3	30	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	2.00	1.71	86	3	30	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	1.51	75	2	30	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	1.84	92	4	30	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	2.00	1.70	85	0.4	30	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Nitroglycerin/PETN

Reviewer: Andrea Sansom
Date: November 5, 2009
DV Level: II III IV
Review Document:
_X__ Region III Modified for National Functional Guidelines
____ NFG for organic Data review (February 1994)
____ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809B
Test Name: Nitroglycerin/PETN
Method No.: 8332-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%	X		
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)

		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate

		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are any target compounds detected in the field samples? If Yes, is all positive identifications were confirmed in second column? Apply J flag if RPD >40% between first and second columns.		X	
9.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	DQOs		

Notes:

10.0 Data Completeness			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	16			
	Number of target compounds in each analysis:	2			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8332

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809B

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8332

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 8332 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0909681-MS1

QC Batch: 0909681

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Nitroglycerin	10.0	ND	9.94	99	72 - 112	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	ND	9.69	97	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8332

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 8332 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0909681-MSD1

QC Batch: 0909681

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Nitroglycerin	10.0	9.95	99	0.1	20	72 - 112	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	9.82	98	1	20	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET
INORGANIC - ICP, CVAA, AND CYANIDE
REGION III - NATIONAL FUNCTIONAL GUIDELINES

Project Name: Radford SSP
SDG No.: SS0809B
Reviewer: Andrea Sansom
Project No.: 11657490.40000
Date: November 5, 2009

1.0 Chain of Custody/Sample Condition/Raw Data		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X			X			X			X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X			X			X			X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X			X			X			X	
1.4	Does sample preservation, collection and storage meet method requirement? (For metal: water samples: with Nitric Acid to pH < 2, and soil/sediment samples: 4 ^{o}C $\pm$ 2 ^{o}C)	X			X			X			X		
1.5	Are the digestion logs present and complete with pH values, sample weights, dilutions, final volumes. % solids (for soil samples), and preparation dates? For any missing or incomplete documentation, contact the laboratory for explanation/resubmittal.	X			X			X			X		

Note:

2.0 Holding Time		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
2.1	Have any technical holding times, determined from date of collection to date of analysis, been exceeded? (Hg: 28days, CN: 14 days, other metals: 6 months) Action:L(+)/UL(-). If the holding time is grossly exceeded (twice the holding time criteria), L(+)/R(-).		X			X			X			X	

Note:

3.0 Instrument Calibration		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
3.1	Are sufficient standards included in the calibration curve? (ICP& ICPMS: blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL; CVAA: blank + five standards with one standard at the RL). If not, qualify with "R".	6+BLK			4+BLK			5+BLK			6+BLK		
3.2	Are the correlation coefficients > 0.99? Action: J(+)/UJ(-).	X			X			X			X		
3.3	Once per calibration, did a high and low distilled standard recovery within 85-115%? If no, follow 3.6.										X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X			X			X			X		
3.5	Was continuing calibration verification (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during an analytical run and at the end of the analytical run? If not, document and flag based on professional judgement.	X			X			X			X		
3.6	Are all calibration standard percent recoveries (ICV and CCV) within the control limits? For ICP 90% 110%; Hg 80-120%; CN 85-115%.	X			X			X			X		
	ICV and CCV: Action: L(+)/R(-) L(+)/UL(-) K(+) Mercury < 65% 65% - 79% > 120% Cyanide < 65% 65% - 84% > 115% Other Metals < 75% 75% - 89% > 110%												
3.7	For ICP & ICPMS, did the CRDL standard recover between 80-120%?			X			X				X		
	<50% 50%-79% >120% 2xCRDL>[sample]>IDL L(+)/R(-) L(+)/UL(-) K												

Note: _____

4.0 Blanks

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
4.1	Were method blank (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X			X			X			X		
4.2	Were calibration blanks (ICB and CCBs) analyzed immediately after each and every ICV and CCVs? Action: If no ICB was run, all associated data are rejected. If the frequency of the CCBs does not follow requirement, all associated data are qualified "J".	X			X			X			X		
4.3	Are there reported MB or ICB/CCBs values > MDL?	X			X				X			X	
	Sample Results > MDL												
	< 5X Blank Contamination B												
4.4	Are there negative blank results with the absolute value > MDL?	X				X			X			X	
	Sample Results Non-detects > MDL												
	< 5X absolute Blank Contamination UL L												
4.5	Are there reported field blank > ± MDL?	X			X				X			X	
	Sample Results > MDL												
	< 5X Blank Contamination B												

Note: _____

5.0 ICP Interference Check Sample (ICS)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
5.1	Was ICS analyzed at beginning of each ICP run?	X			X								
5.2	Are the ICS AB recoveries within 80% - 120%?	X			X								
5.3	Are the results for unspiked analytes (in ICS A) < ± RL?	X			X								
5.4	If not, are the associated sample Al, Ca, Fe, and Mg concentrations less than the level in the ICS?			X			X						
	If not...												
	Action: Not Spiked Analytes Spiked analytes (ICS AB analytes)												
	< -MDL > MDL < 50% 50% - 79% >120%												
	L(+)/UL(-) K(+) L(+)/R(-) L(+)/UL(-) K(+)												

Note: _____

6.0 Laboratory Control Sample (LCS)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
6.1	Was an LCS prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+) any sample not associated with LCS results.	X			X			X			X		
6.2	Is any LCS recovery outside the control limits? (Aqueous limits: 80% - 120% - except Ag and Sb; Solid limits: as per EPA-EMSL/LV)		X			X			X			X	
	Action: Solid: < LCL L(+)/UL(-); > UCL K(+). Aqueous: < 50% L(+)/R(-); 50% - 79% L(+)/UL(-); > 120% K(+)												

Note:

7.0 Laboratory Duplicates (MSD)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
7.1	Were Laboratory duplicates prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+), using professional judgement, analytes not associated with duplicate results.	X			X			X			X		
	For aqueous 6010B and Hg - RPD< 25%, aqueous CN - RPD < 20%, aqueous 6020 - RPD < 20%, and for soil - use laboratory generated limits for MS/MSD.												
7.2	Are all analyte duplicate results within control limits? If no, qualify all associated field samples J(+)/UJ(-) for the analyte with results that fall outside criteria.	X			X			X			X		

Note:

8.0 Spike Sample Analysis -Pre-Digestion/Post-Digestion		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
8.1	Was a spiked sample prepared and analyzed at the correct frequency (one per 20 samples, batch, matrix and level)? If not, J(+) with professional judgement.	X			X			X			X		
8.2	For all analytes with sample concentration > 4 x spike concentration, are spike recoveries within the control limit of 75-125%?												
	%R > 125% 30%< %R < 74% < 30%		X			X		X			X		
	Positive K L L												
	Non-detect None UL R												
8.3	Where pre-digestion matrix spike analytes were outside the acceptable recovery limits(except Ag), was a post-digestion spike performed? Note any failures in DV report, but no data qualifying action is required.	X			X			X			X		

Note: _____

9.0 Instrument Detection Limits (IDL)		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
9.1	Are all IDLs/RLs equal to or less than the reporting limits specified?	X			X			X			X		

Note: _____

10.0 ICP/AA Serial Dilutions (Not for Mercury Analysis)		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
10.1	Were serial dilutions performed?	X			X								
10.2	Was a five-fold dilution performed?	X			X								
10.3	Did the serial dilution results agree within 10% for ICP analyte concentration > 5 X the RL for 6010 or > 20 X the RL for 6020 in the original sample? If no, J(+).	X				X							

Note: _____

11.0 Field Duplicate Samples		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
11.1	Were any field duplicates submitted for metal analysis?	X			X			X			X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.												
11.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report	X				Ca		X			X		

Note: _____

12.0 Result Verification/ Internal Standards/ Tune		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
12.1	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?			X			X			X	X		
12.2	Were all dilution reflected in the positive results and detection limits?	X			X					X			X
12.3	Were the Internal Standard recoveries within 30-120%	X			X								
12.4	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution?	X											
12.5	Were the tune mass calibrations < 0.1 amu from the true value?	X											
12.6	Was the resolution check peak width < 0.9 amu at 10% peak height?	X											

Note: 6020, 6010, 7471 soils were air dried before digestion therefore no percent solids adjustments were required.

13.0 Completeness Calculation		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
13.1	Is % completeness within the control limits? (Control limit 90%)	X			X			X			X		
13.1.1	Number of samples: _____												
13.1.2	Number of target compounds in each analysis: _____												
13.1.3	Number of results rejected and not reported: _____												
	% Completeness = (13.1.1 x 13.1.2 - 13.1.3) x 100/(13.1.1 x 13.1.2)												
	% Completeness = _____	100%			100%			100%			100%		

Note: _____

SAMPLE ID SUMMARY

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809B

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H17031-CAL1	9h17031-001	08/17/09 09:48
Cal Standard	9H17031-CAL2	9h17031-002	08/17/09 09:51
Cal Standard	9H17031-CAL3	9h17031-003	08/17/09 09:54
Cal Standard	9H17031-CAL4	9h17031-004	08/17/09 09:57
Cal Standard	9H17031-CAL5	9h17031-005	08/17/09 10:00
Cal Standard	9H17031-CAL6	9h17031-006	08/17/09 10:03
Cal Standard	9H17031-CAL7	9h17031-007	08/17/09 10:06
Cal Standard	9H17031-CAL8	9h17031-008	08/17/09 10:08
Secondary Cal Check	9H17031-SCV1	9h17031-009	08/17/09 10:11
Calibration Check	9H17031-CCV1	9h17031-009	08/17/09 10:11
Calibration Blank	9H17031-CCB1	9h17031-010	08/17/09 10:14
Interference Check A	9H17031-IFA1	9h17031-011	08/17/09 10:17
Interference Check B	9H17031-IFB1	9h17031-012	08/17/09 10:20
Calibration Check	9H17031-CCV2	9h17031-013	08/17/09 10:23
Calibration Blank	9H17031-CCB2	9h17031-014	08/17/09 10:26
Calibration Check	9H17031-CCV3	9h17031-025	08/17/09 10:58
Calibration Blank	9H17031-CCB3	9h17031-027	08/17/09 11:04
Serial Dilution	9H17031-SRD1	9h17031-032	08/17/09 11:19
Calibration Check	9H17031-CCV4	9h17031-038	08/17/09 11:36
Calibration Blank	9H17031-CCB4	9h17031-040	08/17/09 11:42
Blank	0909503-BLK1	9h17031-043	08/17/09 11:51
LCS	0909503-BS1	9h17031-044	08/17/09 11:54
72SB1B	0908228-02	9h17031-045	08/17/09 11:57
72SB1B	0908228-02	9h17031-045	08/17/09 11:57
72SB1B	0908228-02	9h17031-045	08/17/09 11:57
72SB1B	0908228-02	9h17031-045	08/17/09 11:57
72SB1B	0908228-02	9h17031-045	08/17/09 11:57
72SB1B	0908228-02	9h17031-045	08/17/09 11:57
72SB1B	0908228-02	9h17031-045	08/17/09 11:57
DUP-2	0908228-03	9h17031-046	08/17/09 12:00
DUP-2	0908228-03	9h17031-046	08/17/09 12:00
DUP-2	0908228-03	9h17031-046	08/17/09 12:00

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
DUP-2	0908228-03	9h17031-046	08/17/09 12:00
DUP-2	0908228-03	9h17031-046	08/17/09 12:00
DUP-2	0908228-03	9h17031-046	08/17/09 12:00
DUP-2	0908228-03	9h17031-046	08/17/09 12:00
18SB2A	0908228-04	9h17031-047	08/17/09 12:03
18SB2A	0908228-04	9h17031-047	08/17/09 12:03
18SB2A	0908228-04	9h17031-047	08/17/09 12:03
18SB2A	0908228-04	9h17031-047	08/17/09 12:03
18SB2A	0908228-04	9h17031-047	08/17/09 12:03
18SB2A	0908228-04	9h17031-047	08/17/09 12:03
18SB2A	0908228-04	9h17031-047	08/17/09 12:03
18SB2B	0908228-05	9h17031-048	08/17/09 12:06
18SB2B	0908228-05	9h17031-048	08/17/09 12:06
18SB2B	0908228-05	9h17031-048	08/17/09 12:06
18SB2B	0908228-05	9h17031-048	08/17/09 12:06
18SB2B	0908228-05	9h17031-048	08/17/09 12:06
18SB2B	0908228-05	9h17031-048	08/17/09 12:06
18SB2B	0908228-05	9h17031-048	08/17/09 12:06
18SB2B	0909503-MS1	9h17031-049	08/17/09 12:09
18SB2B	0909503-MSD1	9h17031-050	08/17/09 12:12
Calibration Check	9H17031-CCV5	9h17031-051	08/17/09 12:15
Calibration Blank	9H17031-CCB5	9h17031-052	08/17/09 12:17
18SB2B	9H17031-SRD2	9h17031-053	08/17/09 12:22
18SB2B	0909503-PS1	9h17031-054	08/17/09 12:25
18SB4A	0908228-06	9h17031-055	08/17/09 12:28
18SB4A	0908228-06	9h17031-055	08/17/09 12:28
18SB4A	0908228-06	9h17031-055	08/17/09 12:28
18SB4A	0908228-06	9h17031-055	08/17/09 12:28
18SB4A	0908228-06	9h17031-055	08/17/09 12:28
18SB4A	0908228-06	9h17031-055	08/17/09 12:28
18SB4A	0908228-06	9h17031-055	08/17/09 12:28
18SB4B	0908228-07	9h17031-056	08/17/09 12:31

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H17031

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Instrument: 114

Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
18SB4B	0908228-07	9h17031-056	08/17/09 12:31	
18SB4B	0908228-07	9h17031-056	08/17/09 12:31	
18SB4B	0908228-07	9h17031-056	08/17/09 12:31	
18SB4B	0908228-07	9h17031-056	08/17/09 12:31	
18SB4B	0908228-07	9h17031-056	08/17/09 12:31	
18SB4B	0908228-07	9h17031-056	08/17/09 12:31	
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	+√
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	
18SB3A	0908228-08	9h17031-057	08/17/09 12:34	
18SB3B	0908228-09	9h17031-058	08/17/09 12:37	
18SB3B	0908228-09	9h17031-058	08/17/09 12:37	
18SB3B	0908228-09	9h17031-058	08/17/09 12:37	
18SB3B	0908228-09	9h17031-058	08/17/09 12:37	
18SB3B	0908228-09	9h17031-058	08/17/09 12:37	
18SB3B	0908228-09	9h17031-058	08/17/09 12:37	
18SB3B	0908228-09	9h17031-058	08/17/09 12:37	
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	+√
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	
18SB1A	0908228-10	9h17031-059	08/17/09 12:40	
18SB1B	0908228-11	9h17031-060	08/17/09 12:43	
18SB1B	0908228-11	9h17031-060	08/17/09 12:43	
18SB1B	0908228-11	9h17031-060	08/17/09 12:43	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H17031

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Instrument: 114

Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
18SB1B	0908228-11	9h17031-060	08/17/09 12:43
18SB1B	0908228-11	9h17031-060	08/17/09 12:43
18SB1B	0908228-11	9h17031-060	08/17/09 12:43
18SB1B	0908228-11	9h17031-060	08/17/09 12:43
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5A	0908228-12	9h17031-061	08/17/09 12:45
18SB5B	0908228-13	9h17031-062	08/17/09 12:48
18SB5B	0908228-13	9h17031-062	08/17/09 12:48
18SB5B	0908228-13	9h17031-062	08/17/09 12:48
18SB5B	0908228-13	9h17031-062	08/17/09 12:48
18SB5B	0908228-13	9h17031-062	08/17/09 12:48
18SB5B	0908228-13	9h17031-062	08/17/09 12:48
18SB5B	0908228-13	9h17031-062	08/17/09 12:48
Calibration Check	9H17031-CCV6	9h17031-063	08/17/09 12:51
Calibration Blank	9H17031-CCB6	9h17031-064	08/17/09 12:54
DUP-3	0908228-14	9h17031-065	08/17/09 12:57
DUP-3	0908228-14	9h17031-065	08/17/09 12:57
DUP-3	0908228-14	9h17031-065	08/17/09 12:57
DUP-3	0908228-14	9h17031-065	08/17/09 12:57
DUP-3	0908228-14	9h17031-065	08/17/09 12:57
DUP-3	0908228-14	9h17031-065	08/17/09 12:57
DUP-3	0908228-14	9h17031-065	08/17/09 12:57
18SB6A	0908228-15	9h17031-066	08/17/09 13:00
18SB6A	0908228-15	9h17031-066	08/17/09 13:00
18SB6A	0908228-15	9h17031-066	08/17/09 13:00
18SB6A	0908228-15	9h17031-066	08/17/09 13:00

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ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
18SB6A	0908228-15	9h17031-066	08/17/09 13:00
18SB6A	0908228-15	9h17031-066	08/17/09 13:00
18SB6A	0908228-15	9h17031-066	08/17/09 13:00
18SB6B	0908228-16	9h17031-067	08/17/09 13:03
18SB6B	0908228-16	9h17031-067	08/17/09 13:03
18SB6B	0908228-16	9h17031-067	08/17/09 13:03
18SB6B	0908228-16	9h17031-067	08/17/09 13:03
18SB6B	0908228-16	9h17031-067	08/17/09 13:03
18SB6B	0908228-16	9h17031-067	08/17/09 13:03
18SB6B	0908228-16	9h17031-067	08/17/09 13:03
Calibration Check	9H17031-CCV7	9h17031-075	08/17/09 13:26
Calibration Blank	9H17031-CCB7	9h17031-076	08/17/09 13:29
Serial Dilution	9H17031-SRD3	9h17031-078	08/17/09 13:35
Serial Dilution	9H17031-SRD4	9h17031-083	08/17/09 13:50
Calibration Check	9H17031-CCV8	9h17031-087	08/17/09 14:02
Calibration Blank	9H17031-CCB8	9h17031-088	08/17/09 14:04
72SB1B	0908228-02	9h17031-093	08/17/09 14:20
DUP-2	0908228-03	9h17031-094	08/17/09 14:23
18SB2A	0908228-04	9h17031-095	08/17/09 14:26
18SB2B	0908228-05	9h17031-096	08/17/09 14:29
18SB2B	0909503-MS1	9h17031-097	08/17/09 14:32
18SB2B	0909503-MSD1	9h17031-098	08/17/09 14:35
Calibration Check	9H17031-CCV9	9h17031-099	08/17/09 14:37
Calibration Blank	9H17031-CCB9	9h17031-100	08/17/09 14:40
18SB2B	9H17031-SRD5	9h17031-101	08/17/09 14:43
18SB2B	0909503-PS2	9h17031-102	08/17/09 14:46
18SB4A	0908228-06	9h17031-103	08/17/09 14:49
18SB4B	0908228-07	9h17031-104	08/17/09 14:52
18SB3B	0908228-09	9h17031-105	08/17/09 14:55
18SB1B	0908228-11	9h17031-106	08/17/09 14:58
18SB5B	0908228-13	9h17031-107	08/17/09 15:01
DUP-3	0908228-14	9h17031-108	08/17/09 15:04

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H18008

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
18SB6A	0908228-15	9h17031-109	08/17/09 15:07
18SB6B	0908228-16	9h17031-110	08/17/09 15:10
Calibration Check	9H17031-CCVA	9h17031-111	08/17/09 15:13
Calibration Blank	9H17031-CCBA	9h17031-112	08/17/09 15:16

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H18008

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H17031-CCB1	Arsenic	-0.000059	0.00020	0.000060	mg/L	U	08/17/09 10:14
	Copper	0.0000030	0.00040	0.000086	mg/L	U	08/17/09 10:14
	Lead	0.0000080	0.00040	0.000099	mg/L	U	08/17/09 10:14
	Nickel	0.0000050	0.00020	0.000050	mg/L	U	08/17/09 10:14
	Selenium	0.000059	0.00040	0.000099	mg/L	U	08/17/09 10:14
	Silver	0.000034	0.00020	0.000022	mg/L	J	08/17/09 10:14
	Thallium	0.0000060	0.00020	0.000012	mg/L	U	08/17/09 10:14
	Vanadium	0.0000040	0.00020	0.000065	mg/L	U	08/17/09 10:14
9H17031-CCB2	Arsenic	-0.000031	0.00020	0.000060	mg/L	U	08/17/09 10:26
	Copper	-0.0000020	0.00040	0.000086	mg/L	U	08/17/09 10:26
	Lead	0.0000060	0.00040	0.000099	mg/L	U	08/17/09 10:26
	Nickel	0.0000030	0.00020	0.000050	mg/L	U	08/17/09 10:26
	Selenium	0.000041	0.00040	0.000099	mg/L	U	08/17/09 10:26
	Silver	0.000028	0.00020	0.000022	mg/L	J	08/17/09 10:26
	Thallium	0.000013	0.00020	0.000012	mg/L	J	08/17/09 10:26
	Vanadium	-0.000020	0.00020	0.000065	mg/L	U	08/17/09 10:26
9H17031-CCB3	Arsenic	-0.000051	0.00020	0.000060	mg/L	U	08/17/09 11:04
	Copper	0.0	0.00040	0.000086	mg/L	U	08/17/09 11:04
	Lead	0.0000080	0.00040	0.000099	mg/L	U	08/17/09 11:04
	Nickel	0.0000010	0.00020	0.000050	mg/L	U	08/17/09 11:04
	Selenium	0.00011	0.00040	0.000099	mg/L	J	08/17/09 11:04
	Silver	0.0000050	0.00020	0.000022	mg/L	U	08/17/09 11:04
	Thallium	0.0000010	0.00020	0.000012	mg/L	U	08/17/09 11:04
	Vanadium	-0.000024	0.00020	0.000065	mg/L	U	08/17/09 11:04
9H17031-CCB4	Arsenic	-0.000017	0.00020	0.000060	mg/L	U	08/17/09 11:42
	Copper	0.0000020	0.00040	0.000086	mg/L	U	08/17/09 11:42
	Lead	0.000017	0.00040	0.000099	mg/L	U	08/17/09 11:42
	Nickel	0.0000070	0.00020	0.000050	mg/L	U	08/17/09 11:42
	Selenium	-0.00013	0.00040	0.000099	mg/L	J	08/17/09 11:42
	Silver	0.0000060	0.00020	0.000022	mg/L	U	08/17/09 11:42
	Thallium	-0.0000020	0.00020	0.000012	mg/L	U	08/17/09 11:42
	Vanadium	-0.000034	0.00020	0.000065	mg/L	U	08/17/09 11:42
0909503-BLK1	Arsenic, Total	0.10	0.10	0.030	mg/kg dry wt.	U	08/17/09 11:51

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H18008

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
0909503-BLK1	Copper, Total	0.20	0.20	0.043	mg/kg dry wt.	U	08/17/09 11:51
	Lead, Total	0.20	0.20	0.049	mg/kg dry wt.	U	08/17/09 11:51
	Nickel, Total	0.10	0.10	0.025	mg/kg dry wt.	U	08/17/09 11:51
	Selenium, Total	0.20	0.20	0.049	mg/kg dry wt.	U	08/17/09 11:51
	Silver, Total	0.10	0.10	0.011	mg/kg dry wt.	U	08/17/09 11:51
	Thallium, Total	0.10	0.10	0.0061	mg/kg dry wt.	U	08/17/09 11:51
	Vanadium, Total	0.10	0.10	0.032	mg/kg dry wt.	U	08/17/09 11:51
9H17031-CCB5	Arsenic	-0.000028	0.00020	0.000060	mg/L	U	08/17/09 12:17
	Copper	0.0000010	0.00040	0.000086	mg/L	U	08/17/09 12:17
	Lead	0.000021	0.00040	0.000099	mg/L	U	08/17/09 12:17
	Nickel	0.0000040	0.00020	0.000050	mg/L	U	08/17/09 12:17
	Selenium	-0.000085	0.00040	0.000099	mg/L	U	08/17/09 12:17
	Silver	0.000035	0.00020	0.000022	mg/L	J	08/17/09 12:17
	Thallium	0.0	0.00020	0.000012	mg/L	U	08/17/09 12:17
	Vanadium	-0.000037	0.00020	0.000065	mg/L	U	08/17/09 12:17
9H17031-CCB6	Arsenic	-0.000087	0.00020	0.000060	mg/L	J	08/17/09 12:54
	Copper	0.0000040	0.00040	0.000086	mg/L	U	08/17/09 12:54
	Lead	0.000020	0.00040	0.000099	mg/L	U	08/17/09 12:54
	Nickel	0.0000060	0.00020	0.000050	mg/L	U	08/17/09 12:54
	Selenium	-0.000091	0.00040	0.000099	mg/L	U	08/17/09 12:54
	Silver	0.000024	0.00020	0.000022	mg/L	J	08/17/09 12:54
	Thallium	0.0000060	0.00020	0.000012	mg/L	U	08/17/09 12:54
	Vanadium	-0.000044	0.00020	0.000065	mg/L	U	08/17/09 12:54
9H17031-CCB7	Arsenic	-0.000078	0.00020	0.000060	mg/L	J	08/17/09 13:29
	Copper	0.0000040	0.00040	0.000086	mg/L	U	08/17/09 13:29
	Lead	0.000020	0.00040	0.000099	mg/L	U	08/17/09 13:29
	Nickel	0.0000060	0.00020	0.000050	mg/L	U	08/17/09 13:29
	Selenium	0.000095	0.00040	0.000099	mg/L	U	08/17/09 13:29
	Silver	0.000029	0.00020	0.000022	mg/L	J	08/17/09 13:29
	Thallium	0.0000020	0.00020	0.000012	mg/L	U	08/17/09 13:29
	Vanadium	-0.000018	0.00020	0.000065	mg/L	U	08/17/09 13:29
9H17031-CCB8	Arsenic	-0.00010	0.00020	0.000060	mg/L	J	08/17/09 14:04
	Copper	0.0000060	0.00040	0.000086	mg/L	U	08/17/09 14:04

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H17031

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H18008

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H17031-CCB8	Lead	0.000023	0.00040	0.000099	mg/L	U	08/17/09 14:04
	Nickel	0.0000080	0.00020	0.000050	mg/L	U	08/17/09 14:04
Verify	Selenium	0.000027	0.00040	0.000099	mg/L	U	08/17/09 14:04
	Silver	0.000027	0.00020	0.000022	mg/L	J	08/17/09 14:04
	Thallium	0.0	0.00020	0.000012	mg/L	U	08/17/09 14:04
	Vanadium	-0.0000030	0.00020	0.000065	mg/L	U	08/17/09 14:04
9H17031-CCB9	Arsenic	-0.000046	0.00020	0.000060	mg/L	U	08/17/09 14:40
	Copper	0.0000020	0.00040	0.000086	mg/L	U	08/17/09 14:40
Verify	Lead	0.000021	0.00040	0.000099	mg/L	U	08/17/09 14:40
	Nickel	0.0000040	0.00020	0.000050	mg/L	U	08/17/09 14:40
	Selenium	0.000043	0.00040	0.000099	mg/L	U	08/17/09 14:40
	Silver	0.000036	0.00020	0.000022	mg/L	J	08/17/09 14:40
	Thallium	0.0000030	0.00020	0.000012	mg/L	U	08/17/09 14:40
	Vanadium	-0.000039	0.00020	0.000065	mg/L	U	08/17/09 14:40
9H17031-CCBA	Arsenic	-0.000085	0.00020	0.000060	mg/L	J	08/17/09 15:16
	Copper	0.0000030	0.00040	0.000086	mg/L	U	08/17/09 15:16
	Lead	0.000019	0.00040	0.000099	mg/L	U	08/17/09 15:16
Verify	Nickel	0.0000060	0.00020	0.000050	mg/L	U	08/17/09 15:16
	Selenium	0.000054	0.00040	0.000099	mg/L	U	08/17/09 15:16
	Silver	0.000026	0.00020	0.000022	mg/L	J	08/17/09 15:16
	Thallium	0.0000020	0.00020	0.000012	mg/L	U	08/17/09 15:16
	Vanadium	-0.000038	0.00020	0.000065	mg/L	U	08/17/09 15:16

* Values outside of QC limits

Quantitative Analysis Calibration Report

File Name:
File Path:
Calibration Type: External Calibration

Analyte	Mass	Curve Type	Slope	Intercept	Corr. Coeff.
V	50.944	Linear Thru Zero	26.51	0.00	0.999983
Ni	59.933	Linear Thru Zero	6.48	0.00	0.999979
Ni	61.928	Linear Thru Zero	0.96	0.00	0.999958
Cu	62.930	Linear Thru Zero	14.55	0.00	0.999936
Cu	64.928	Linear Thru Zero	7.02	0.00	0.999957
Ge	71.922	Linear Thru Zero	0.00	0.00	0.000000
As	74.922	Linear Thru Zero	5.24	0.00	0.999906
Se	76.920	Linear Thru Zero	0.38	0.00	0.999937
Se	81.917	Linear Thru Zero	0.52	0.00	0.999937
Rh	102.905	Linear Thru Zero	0.00	0.00	0.000000
Ag	106.905	Linear Thru Zero	24.42	0.00	0.999982
Tl	202.972	Linear Thru Zero	20.75	0.00	0.999971
Tl	204.975	Linear Thru Zero	49.93	0.00	0.999990
Pb	207.977	Linear Thru Zero	67.71	0.00	0.999972
Bi	208.980	Linear Thru Zero	0.00	0.00	0.000000

Method Equation

Analyte	Mass	Corrections
V	50.944	-3.127 *(ClO 53 -(0.113 *Cr 52))
As	74.922	-3.127 *(ArCl 77 -(0.706602625 *Se 82))
Se	81.917	- 1.007833 * Kr 83
Pb	207.977	+1*Pb 206 +1*Pb 207

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 11:42:53
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.040
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2390.099	-0.001	-0.000034	0.000	28.986	mg/L
	Ni	60	58.001	0.000	0.000007	0.000	2.438	mg/L
	Ni	62	25.334	0.000	0.000030	0.000	54.669	mg/L
	Cu	63	145.003	0.000	0.000002	0.000	264.005	mg/L
	Cu	65	85.001	0.000	0.000005	0.000	205.298	mg/L
>	Ge	72	252621.690	252621.690				mg/L
	As	75	428.000	-0.000	-0.000017	0.000	270.814	mg/L
	Se	77	137.336	-0.000	-0.000272	0.000	39.242	mg/L
	Se	82	-26.041	-0.000	-0.000132	0.000	246.144	mg/L
>	Rh	103	277114.459	277114.459				mg/L
	Ag	107	65.668	0.000	0.000006	0.000	25.374	mg/L
	Tl	203	46.334	-0.000	-0.000002	0.000	76.427	mg/L
	Tl	205	116.669	-0.000	-0.000001	0.000	62.855	mg/L
	Pb	208	511.012	0.001	0.000017	0.000	16.026	mg/L
>	Bi	209	228112.588	228112.588				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	97.017
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	94.594
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	97.217

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message
9H17031-CCB	Se	77	

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2306.486	-0.001	-0.000043	mg/L
Ni	60	57.001	0.000	0.000007	mg/L
Ni	62	21.000	0.000	0.000013	mg/L

: 04214

Sample Information

Sample ID: 0909503-BLK1
Autosampler Position: 39
Sample Date/Time: Monday, August 17, 2009 11:51:39
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0909503-BLK1.043
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2632.717	-0.001	-0.000023	0.000	92.471	mg/L
	Ni	60	54.334	0.000	0.000003	0.000	221.065	mg/L
	Ni	62	24.000	0.000	0.000018	0.000	46.836	mg/L
	Cu	63	188.004	0.000	0.000010	0.000	14.205	mg/L
	Cu	65	98.668	0.000	0.000009	0.000	64.618	mg/L
>	Ge	72	269526.149	269526.149				mg/L
	As	75	452.541	-0.000	-0.000020	0.000	35.690	mg/L
	Se	77	160.003	-0.000	-0.000139	0.000	63.682	mg/L
	Se	82	2.896	0.000	0.000084	0.000	304.977	mg/L
>	Rh	103	297720.730	297720.730				mg/L
	Ag	107	40.334	0.000	0.000002	0.000	46.302	mg/L
	Tl	203	37.000	-0.000	-0.000005	0.000	34.837	mg/L
	Tl	205	79.335	-0.000	-0.000005	0.000	23.856	mg/L
	Pb	208	473.677	0.001	0.000013	0.000	11.790	mg/L
>	Bi	209	241961.898	241961.898				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	103.509
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	101.628
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	103.119

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2726.534	0.000	0.000009	mg/L
Ni	60	66.001	0.000	0.000015	mg/L
Ni	62	24.000	0.000	0.000018	mg/L
Cu	63	183.004	0.000	0.000009	mg/L
Cu	65	91.001	0.000	0.000005	mg/L

Sample ID: 0909503-BLK1
Report Date/Time: Monday, August 17, 2009 11:52:52

Sample Information

Sample ID: 0908228-02
Autosampler Position: 41
Sample Date/Time: Monday, August 17, 2009 11:57:29
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-02.045
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	1020693.302	3.699	0.139514	0.004	2.631	mg/L
	Ni	60	55196.332	0.200	0.030944	0.000	1.194	mg/L
	Ni	62	10820.299	0.039	0.040744	0.001	1.867	mg/L
	Cu	63	135546.865	0.492	0.033818	0.001	3.092	mg/L
	Cu	65	67489.031	0.245	0.034904	0.001	2.757	mg/L
>	Ge	72	275233.446	275233.446				mg/L
	As	75	4891.150	0.016	0.003054	0.000	4.073	mg/L
	Se	77	443.018	0.001	0.002548	0.000	5.416	mg/L
	Se	82	49.569	0.000	0.000416	0.000	100.623	mg/L
>	Rh	103	276510.412	276510.412				mg/L
	Ag	107	736.045	0.003	0.000105	0.000	6.127	mg/L
	Tl	203	2196.693	0.009	0.000425	0.000	2.776	mg/L
	Tl	205	5363.400	0.022	0.000432	0.000	2.436	mg/L
	Pb	208	487840.676	2.013	0.029735	0.000	1.145	mg/L
>	Bi	209	242197.541	242197.541				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	105.701
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	94.388
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	103.220

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	1020693.127	3.595	0.135586	mg/L
Ni	60	55195.758	0.199	0.030669	mg/L
Ni	62	10993.563	0.040	0.041051	mg/L
Cu	63	134186.012	0.483	0.033192	mg/L
Cu	65	67234.622	0.242	0.034476	mg/L

: 84221

Sample Information

Sample ID: 0908228-03
Autosampler Position: 42
Sample Date/Time: Monday, August 17, 2009 12:00:23
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-03.046
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
V	51	1007371.627	3.620	0.136544	0.000	0.292	mg/L
Ni	60	54728.108	0.197	0.030433	0.001	2.469	mg/L
Ni	62	10794.258	0.039	0.040315	0.001	1.539	mg/L
Cu	63	141752.545	0.510	0.035073	0.001	1.534	mg/L
Cu	65	69347.420	0.250	0.035570	0.001	2.439	mg/L
Ge	72	277477.546	277477.546				mg/L
As	75	4984.675	0.016	0.003090	0.000	4.374	mg/L
Se	77	408.349	0.001	0.002181	0.000	1.013	mg/L
Se	82	73.775	0.000	0.000577	0.000	51.590	mg/L
Rh	103	275535.842	275535.842				mg/L
Ag	107	593.364	0.002	0.000084	0.000	3.291	mg/L
Tl	203	2220.367	0.009	0.000436	0.000	1.077	mg/L
Tl	205	5238.640	0.021	0.000428	0.000	3.965	mg/L
Pb	208	513665.352	2.152	0.031779	0.000	1.293	mg/L
Bi	209	238641.912	238641.912				mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
V	50.944	
Ni	59.933	
Ni	61.928	
Cu	62.930	
Cu	64.928	
Ge	71.922	106.563
As	74.922	
Se	76.920	
Se	81.917	
Rh	102.905	94.055
Ag	106.905	
Tl	202.972	
Tl	204.975	
Pb	207.977	
Bi	208.980	101.704

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	1013873.667	3.612	0.136227	mg/L
Ni	60	54155.058	0.193	0.029648	mg/L
Ni	62	10770.221	0.038	0.039671	mg/L
Cu	63	140497.707	0.501	0.034457	mg/L
Cu	65	68683.321	0.245	0.034917	mg/L

Sample ID: 0908228-03
Report Date/Time: Monday, August 17, 2009 12:01:37

: 04223

Sample Information

Sample ID: 0908228-04
Autosampler Position: 43
Sample Date/Time: Monday, August 17, 2009 12:03:18
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-04.047
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
V	51	814171.040	3.016	0.113751	0.002	1.725	mg/L
Ni	60	56697.047	0.211	0.032515	0.001	2.240	mg/L
Ni	62	10895.081	0.040	0.041967	0.001	2.697	mg/L
Cu	63	115650.946	0.429	0.029504	0.001	1.973	mg/L
Cu	65	56990.696	0.212	0.030135	0.000	0.779	mg/L
							mg/L
Ge	72	269078.689	269078.689				mg/L
As	75	4939.843	0.017	0.003168	0.000	6.523	mg/L
Se	77	367.680	0.001	0.001904	0.000	6.338	mg/L
Se	82	67.905	0.000	0.000553	0.000	34.014	mg/L
							mg/L
Rh	103	280525.077	280525.077				mg/L
Ag	107	684.040	0.002	0.000096	0.000	2.697	mg/L
Tl	203	2479.789	0.010	0.000499	0.000	2.302	mg/L
Tl	205	5955.210	0.025	0.000499	0.000	5.950	mg/L
Pb	208	822666.430	3.517	0.051946	0.002	3.016	mg/L
Bi	209	233958.918	233958.918				mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
V	50.944	
Ni	59.933	
Ni	61.928	
Cu	62.930	
Cu	64.928	
Ge	71.922	103.337
As	74.922	
Se	76.920	
Se	81.917	
Rh	102.905	95.758
Ag	106.905	
Tl	202.972	
Tl	204.975	
Pb	207.977	
Bi	208.980	99.709

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	814502.718	2.991	0.112821	mg/L
Ni	60	56814.624	0.209	0.032303	mg/L
Ni	62	10649.039	0.039	0.040666	mg/L
Cu	63	115163.104	0.428	0.029381	mg/L
Cu	65	56990.015	0.210	0.029879	mg/L

Sample ID: 0908228-04
Report Date/Time: Monday, August 17, 2009 12:04:32

: 94225

Sample Information

Sample ID: 0908228-05
Autosampler Position: 44
Sample Date/Time: Monday, August 17, 2009 12:06:13
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-05.048
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
V	51	798652.521	2.915	0.109942	0.003	2.862	mg/L
Ni	60	52354.023	0.192	0.029580	0.001	1.868	mg/L
Ni	62	9783.460	0.036	0.037123	0.001	1.945	mg/L
Cu	63	109158.914	0.399	0.027432	0.000	0.781	mg/L
Cu	65	53335.641	0.195	0.027786	0.001	2.520	mg/L
Ge	72	273111.405	273111.405				mg/L
As	75	5108.532	0.017	0.003235	0.000	7.808	mg/L
Se	77	335.678	0.001	0.001541	0.000	4.345	mg/L
Se	82	34.469	0.000	0.000309	0.000	42.012	mg/L
Rh	103	283284.544	283284.544				mg/L
Ag	107	653.703	0.002	0.000091	0.000	4.150	mg/L
Tl	203	2698.537	0.011	0.000537	0.000	1.767	mg/L
Tl	205	6472.663	0.027	0.000536	0.000	3.687	mg/L
Pb	208	581761.217	2.456	0.036270	0.001	3.178	mg/L
Bi	209	236939.790	236939.790				mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
V	50.944	
Ni	59.933	
Ni	61.928	
Cu	62.930	
Cu	64.928	
Ge	71.922	104.886
As	74.922	
Se	76.920	
Se	81.917	
Rh	102.905	96.700
Ag	106.905	
Tl	202.972	
Tl	204.975	
Pb	207.977	
Bi	208.980	100.979

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	797278.833	2.837	0.106990	mg/L
Ni	60	52126.026	0.188	0.029060	mg/L
Ni	62	9784.768	0.035	0.036584	mg/L
Cu	63	110099.130	0.398	0.027324	mg/L
Cu	65	52444.347	0.189	0.026978	mg/L

Sample ID: 0908228-05
Report Date/Time: Monday, August 17, 2009 12:07:27

: 04227

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 12:17:54
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.052
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2380.235	-0.001	-0.000037	0.000	35.528	mg/L
	Ni	60	52.334	0.000	0.000004	0.000	66.579	mg/L
	Ni	62	22.334	0.000	0.000017	0.000	75.852	mg/L
	Cu	63	143.003	0.000	0.000001	0.000	101.506	mg/L
	Cu	65	80.335	0.000	0.000002	0.000	182.776	mg/L
>	Ge	72	253791.651	253791.651				mg/L
	As	75	415.197	-0.000	-0.000028	0.000	70.297	mg/L
	Se	77	149.003	-0.000	-0.000157	0.000	10.250	mg/L
	Se	82	-19.751	-0.000	-0.000085	0.000	124.200	mg/L
>	Rh	103	282145.525	282145.525				mg/L
	Ag	107	266.674	0.001	0.000035	0.000	20.980	mg/L
	Tl	203	61.001	0.000	0.000000	0.000	512.659	mg/L
	Tl	205	176.671	0.000	0.000004	0.000	41.522	mg/L
	Pb	208	578.682	0.001	0.000021	0.000	4.423	mg/L
>	Bi	209	231988.859	231988.859				mg/L

x5 = 0.00075

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	97.466
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	96.311
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	98.869

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2429.127	-0.001	0.000026	mg/L
Ni	60	52.001	0.000	0.000004	mg/L
Ni	62	25.000	0.000	0.000029	mg/L
Cu	63	139.003	0.000	0.000001	mg/L
Cu	65	80.001	0.000	0.000003	mg/L

Sample ID: 9H17031-CCB
Report Date/Time: Monday, August 17, 2009 12:19:06

Sample Information

Sample ID: 0908228-06
Autosampler Position: 49
Sample Date/Time: Monday, August 17, 2009 12:28:24
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-06.055
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	767654.342	2.788	0.105165	0.002	1.690	mg/L
	Ni	60	58900.779	0.215	0.033129	0.000	1.240	mg/L
	Ni	62	11092.722	0.040	0.041915	0.002	3.970	mg/L
	Cu	63	156292.722	0.569	0.039120	0.001	2.685	mg/L
	Cu	65	77507.745	0.282	0.040220	0.001	2.784	mg/L
>	Ge	72	274348.582	274348.582				mg/L
	As	75	6234.028	0.021	0.004000	0.000	1.882	mg/L
	Se	77	332.678	0.001	0.001497	0.000	1.332	mg/L
	Se	82	43.210	0.000	0.000370	0.000	54.286	mg/L
>	Rh	103	277934.811	277934.811				mg/L
	Ag	107	966.075	0.003	0.000139	0.000	2.834	mg/L
	Tl	203	2814.583	0.012	0.000570	0.000	3.269	mg/L
	Tl	205	6625.137	0.028	0.000558	0.000	2.911	mg/L
	Pb	208	529737.197	2.273	0.033575	0.001	3.980	mg/L
>	Bi	209	233089.829	233089.829				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	105.361
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	94.874
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	99.338

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	766361.651	2.734	0.103126	mg/L
Ni	60	59120.245	0.212	0.032668	mg/L
Ni	62	10917.448	0.039	0.040515	mg/L
Cu	63	156195.675	0.559	0.038404	mg/L
Cu	65	76427.465	0.273	0.038953	mg/L

Sample Information

Sample ID: 0908228-07
Autosampler Position: 50
Sample Date/Time: Monday, August 17, 2009 12:31:20
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-07.056
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
V	51	760029.944	2.753	0.103842	0.001	0.752	mg/L
Ni	60	56215.597	0.204	0.031535	0.000	0.739	mg/L
Ni	62	11091.383	0.040	0.041794	0.001	1.478	mg/L
Cu	63	86958.368	0.316	0.021692	0.000	1.349	mg/L
Cu	65	43152.405	0.157	0.022313	0.000	1.622	mg/L
Ge	72	275023.481	275023.481				mg/L
As	75	3438.447	0.011	0.002048	0.000	7.798	mg/L
Se	77	429.017	0.001	0.002416	0.000	7.911	mg/L
Se	82	51.639	0.000	0.000427	0.000	39.548	mg/L
Rh	103	290203.745	290203.745				mg/L
Ag	107	611.032	0.002	0.000083	0.000	5.709	mg/L
Tl	203	1873.264	0.008	0.000364	0.000	2.604	mg/L
Tl	205	4415.742	0.018	0.000357	0.000	0.178	mg/L
Pb	208	350822.461	1.461	0.021581	0.000	1.326	mg/L
Bi	209	239929.829	239929.829				mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
V	50.944	
Ni	59.933	
Ni	61.928	
Cu	62.930	
Cu	64.928	
Ge	71.922	105.620
As	74.922	
Se	76.920	
Se	81.917	
Rh	102.905	99.062
Ag	106.905	
Tl	202.972	
Tl	204.975	
Pb	207.977	
Bi	208.980	102.253

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	760334.245	2.734	0.103138	mg/L
Ni	60	55763.378	0.204	0.031472	mg/L
Ni	62	10954.503	0.040	0.041528	mg/L
Cu	63	87614.942	0.320	0.021989	mg/L
Cu	65	42769.208	0.156	0.022259	mg/L

Sample ID: 0908228-07
Report Date/Time: Monday, August 17, 2009 12:32:34

Sample Information

Sample ID: 0908228-08
Autosampler Position: 51
Sample Date/Time: Monday, August 17, 2009 12:34:16
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-08.057
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
V	51	716645.553	2.583	0.097438	0.002	1.595	mg/L
Ni	60	47144.561	0.170	0.026322	0.001	2.427	mg/L
Ni	62	8967.049	0.032	0.033622	0.001	3.144	mg/L
Cu	63	98715.869	0.357	0.024516	0.001	2.436	mg/L
Cu	65	48464.347	0.175	0.024947	0.000	1.337	mg/L
> Ge	72	276343.225	276343.225				mg/L
As	75	5110.477	0.017	0.003193	0.000	4.144	mg/L
Se	77	372.013	0.001	0.001854	0.000	24.542	mg/L
Se	82	47.780	0.000	0.000398	0.000	67.167	mg/L
> Rh	103	286922.106	286922.106				mg/L
Ag	107	698.708	0.002	0.000096	0.000	6.130	mg/L
Tl	203	2304.061	0.009	0.000455	0.000	1.548	mg/L
Tl	205	5457.806	0.022	0.000449	0.000	1.868	mg/L
Pb	208	495494.369	2.084	0.030787	0.001	1.970	mg/L
> Bi	209	237632.769	237632.769				mg/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
V	50.944	
Ni	59.933	
Ni	61.928	
Cu	62.930	
Cu	64.928	
> Ge	71.922	106.127
As	74.922	
Se	76.920	
Se	81.917	
> Rh	102.905	97.942
Ag	106.905	
Tl	202.972	
Tl	204.975	
Pb	207.977	
> Bi	208.980	101.274

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	716435.185	2.606	0.098311	mg/L
Ni	60	46902.298	0.171	0.026370	mg/L
Ni	62	8973.723	0.033	0.033954	mg/L
Cu	63	97779.682	0.357	0.024507	mg/L
Cu	65	48128.077	0.175	0.025003	mg/L

Sample ID: 0908228-08
Report Date/Time: Monday, August 17, 2009 12:35:29

: 01245

Sample Information

Sample ID: 0908228-09
Autosampler Position: 52
Sample Date/Time: Monday, August 17, 2009 12:37:11
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-09.058
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	786788.387	2.820	0.106371	0.002	2.322	mg/L
|	Ni	60	56075.830	0.202	0.031125	0.001	2.528	mg/L
|	Ni	62	10480.121	0.038	0.039066	0.001	2.095	mg/L
|	Cu	63	114350.527	0.411	0.028232	0.000	1.647	mg/L
|	Cu	65	57451.712	0.206	0.029405	0.001	2.457	mg/L
|>	Ge	72	278043.581	278043.581				mg/L
|	As	75	4986.928	0.016	0.003086	0.000	3.496	mg/L
|	Se	77	397.682	0.001	0.002069	0.000	13.898	mg/L
⌊	Se	82	38.256	0.000	0.000332	0.000	32.865	mg/L
⌈>	Rh	103	278661.440	278661.440				mg/L
⌊	Ag	107	667.705	0.002	0.000094	0.000	3.883	mg/L
⌈	Tl	203	2519.803	0.010	0.000501	0.000	1.423	mg/L
|	Tl	205	6042.615	0.025	0.000500	0.000	2.225	mg/L
|	Pb	208	479142.135	2.026	0.029917	0.001	1.993	mg/L
⌊>	Bi	209	236473.049	236473.049				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
|>	Ge	71.922	106.780
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈>	Rh	102.905	95.122
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊>	Bi	208.980	100.780

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	792978.145	2.841	0.107149	mg/L
Ni	60	56401.575	0.199	0.030732	mg/L
Ni	62	10422.703	0.037	0.038831	mg/L
Cu	63	114369.811	0.411	0.028227	mg/L
Cu	65	56093.865	0.209	0.029717	mg/L

: 04247

Sample Information

Sample ID: 0908228-10
Autosampler Position: 53
Sample Date/Time: Monday, August 17, 2009 12:40:06
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-10.059
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	725281.024	2.650	0.099952	0.002	1.734	mg/L
|	Ni	60	42045.152	0.154	0.023788	0.000	1.537	mg/L
|	Ni	62	7506.351	0.027	0.028510	0.000	1.726	mg/L
|	Cu	63	87026.842	0.319	0.021900	0.000	0.826	mg/L
|	Cu	65	43218.802	0.158	0.022544	0.000	1.415	mg/L
|								mg/L
\>	Ge	72	272622.534	272622.534				
|	As	75	7963.585	0.027	0.005239	0.000	0.226	mg/L
|	Se	77	343.345	0.001	0.001620	0.000	10.972	mg/L
⌊	Se	82	93.821	0.000	0.000730	0.000	46.952	mg/L
								mg/L
⌈>	Rh	103	279878.741	279878.741				
⌊	Ag	107	676.706	0.002	0.000095	0.000	3.383	mg/L
⌈	Tl	203	2126.338	0.009	0.000423	0.000	3.888	mg/L
|	Tl	205	5034.491	0.021	0.000417	0.000	2.268	mg/L
|	Pb	208	449377.998	1.910	0.028207	0.000	1.534	mg/L
⌊>	Bi	209	235190.519	235190.519				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
\>	Ge	71.922	104.698
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈>	Rh	102.905	95.537
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊>	Bi	208.980	100.234

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	731549.627	2.670	0.100697	mg/L
Ni	60	41376.910	0.151	0.023380	mg/L
Ni	62	7519.031	0.027	0.026523	mg/L
Cu	63	87758.667	0.321	0.022057	mg/L
Cu	65	42599.075	0.156	0.022193	mg/L

Sample Information

Sample ID: 0908228-11
Autosampler Position: 54
Sample Date/Time: Monday, August 17, 2009 12:43:01
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-11.060
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	927138.838	3.315	0.125041	0.001	0.435	mg/L
	Ni	60	65272.900	0.234	0.036127	0.001	1.462	mg/L
	Ni	62	12165.476	0.044	0.045228	0.001	2.191	mg/L
	Cu	63	122479.904	0.439	0.030152	0.000	0.871	mg/L
	Cu	65	60358.939	0.216	0.030803	0.000	1.315	mg/L
>	Ge	72	278791.886	278791.886				mg/L
	As	75	6649.368	0.022	0.004215	0.000	1.939	mg/L
	Se	77	367.013	0.001	0.001771	0.000	3.890	mg/L
	Se	82	11.746	0.000	0.000147	0.000	240.301	mg/L
>	Rh	103	287050.939	287050.939				mg/L
	Ag	107	713.376	0.002	0.000098	0.000	8.300	mg/L
	Tl	203	2443.109	0.010	0.000485	0.000	1.908	mg/L
	Tl	205	5751.706	0.024	0.000475	0.000	1.720	mg/L
	Pb	208	532395.003	2.246	0.033171	0.001	1.698	mg/L
>	Bi	209	236963.749	236963.749				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	107.068
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	97.986
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.989

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	932754.190	3.309	0.124804	mg/L
Ni	60	65893.194	0.234	0.036181	mg/L
Ni	62	12355.801	0.044	0.045572	mg/L
Cu	63	124484.813	0.442	0.030405	mg/L
Cu	65	60710.516	0.216	0.030738	mg/L

: 04251

Sample Information

Sample ID: 0908228-12
Autosampler Position: 55
Sample Date/Time: Monday, August 17, 2009 12:45:56
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-12.061
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	477282.393	1.731	0.065283	0.000	0.630	mg/L
	Ni	60	33868.109	0.123	0.019052	0.000	0.487	mg/L
	Ni	62	6259.804	0.023	0.023634	0.000	0.649	mg/L
	Cu	63	89213.645	0.325	0.022329	0.000	1.465	mg/L
	Cu	65	43663.827	0.159	0.022652	0.000	0.825	mg/L
>	Ge	72	274112.308	274112.308				mg/L
	As	75	5136.563	0.017	0.003239	0.000	3.546	mg/L
	Se	77	377.347	0.001	0.001930	0.000	15.990	mg/L
	Se	82	75.562	0.000	0.000597	0.000	33.720	mg/L
>	Rh	103	287348.958	287348.958				mg/L
	Ag	107	645.369	0.002	0.000088	0.000	4.371	mg/L
	Tl	203	1772.905	0.007	0.000343	0.000	5.031	mg/L
	Tl	205	4254.976	0.017	0.000342	0.000	0.981	mg/L
	Pb	208	503763.224	2.091	0.030876	0.000	1.119	mg/L
>	Bi	209	240863.951	240863.951				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	105.270
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	98.087
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	102.651

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	474767.959	1.718	0.064806	mg/L
Ni	60	33750.925	0.123	0.018952	mg/L
Ni	62	6237.785	0.023	0.023504	mg/L
Cu	63	89239.689	0.324	0.022292	mg/L
Cu	65	44004.571	0.160	0.022785	mg/L

Sample ID: 0908228-12
Report Date/Time: Monday, August 17, 2009 12:47:10

Sample Information

Sample ID: 0908228-13
Autosampler Position: 56
Sample Date/Time: Monday, August 17, 2009 12:48:51
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-13.062
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[	V	51	877489.202	3.124	0.117835	0.003	2.885	mg/L
|	Ni	60	58122.441	0.207	0.032028	0.001	1.957	mg/L
|	Ni	62	10736.506	0.038	0.039738	0.001	3.169	mg/L
|	Cu	63	115381.067	0.411	0.028277	0.000	0.548	mg/L
|	Cu	65	56747.838	0.202	0.028833	0.001	2.722	mg/L
| >	Ge	72	280061.549	280061.549				mg/L
|	As	75	6795.095	0.022	0.004296	0.000	3.159	mg/L
|	Se	77	394.682	0.001	0.002015	0.000	4.522	mg/L
[	Se	82	70.566	0.000	0.000552	0.000	31.829	mg/L
[>	Rh	103	275514.505	275514.505				mg/L
[	Ag	107	642.035	0.002	0.000092	0.000	1.035	mg/L
[	Tl	203	2445.776	0.010	0.000479	0.000	1.587	mg/L
|	Tl	205	5822.097	0.024	0.000475	0.000	4.423	mg/L
|	Pb	208	442398.860	1.843	0.027225	0.001	2.814	mg/L
[>	Bi	209	239962.891	239962.891				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
| >	Ge	71.922	107.555
|	As	74.922	
|	Se	76.920	
[	Se	81.917	
[>	Rh	102.905	94.048
[	Ag	106.905	
[	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
[>	Bi	208.980	102.267

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	871555.591	3.074	0.115943	mg/L
Ni	60	58703.827	0.208	0.032049	mg/L
Ni	62	10968.525	0.039	0.040218	mg/L
Cu	63	116202.742	0.411	0.028220	mg/L
Cu	65	55545.689	0.196	0.027961	mg/L

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 12:54:41
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.064
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[	V	51	2414.160	-0.001	-0.000044	0.000	18.748	mg/L
|	Ni	60	57.667	0.000	0.000006	0.000	108.607	mg/L
|	Ni	62	24.000	0.000	0.000020	0.000	107.028	mg/L
|	Cu	63	159.003	0.000	0.000004	0.000	109.719	mg/L
|	Cu	65	89.335	0.000	0.000006	0.000	103.300	mg/L
| >	Ge	72	262526.700	262526.700				mg/L
|	As	75	347.709	-0.000	-0.000087 X5 = .000435	0.000	48.343	mg/L
|	Se	77	183.338	0.000	0.000137	0.000	146.218	mg/L
|	Se	82	-21.124	-0.000	-0.000091	0.000	59.149	mg/L
[>	Rh	103	281657.902	281657.902				mg/L
|	Ag	107	188.671	0.001	0.000024 X5 = 0.00012	0.000	28.837	mg/L
[	Tl	203	88.001	0.000	0.000006	0.000	47.813	mg/L
|	Tl	205	213.339	0.000	0.000007	0.000	30.220	mg/L
|	Pb	208	555.014	0.001	0.000020	0.000	9.864	mg/L
| >	Bi	209	229974.844	229974.844				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
| >	Ge	71.922	100.821
|	As	74.922	
|	Se	76.920	
|	Se	81.917	
[>	Rh	102.905	96.145
|	Ag	106.905	
[	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
| >	Bi	208.980	98.011

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2466.184	-0.001	-0.000038	mg/L
Ni	60	67.001	0.000	0.000011	mg/L
Ni	62	29.000	0.000	0.000040	mg/L
Cu	63	159.003	0.000	0.000004	mg/L
Cu	65	80.001	0.000	0.000000	mg/L

: @4253

Sample Information

Sample ID: 0908228-14
Autosampler Position: 57
Sample Date/Time: Monday, August 17, 2009 12:57:35
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-14.065
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	883991.304	3.164	0.119341	0.002	1.926	mg/L
	Ni	60	60850.713	0.218	0.033712	0.000	0.647	mg/L
	Ni	62	11492.694	0.041	0.042760	0.001	2.600	mg/L
	Cu	63	117109.787	0.420	0.028859	0.000	0.445	mg/L
	Cu	65	57678.521	0.207	0.029466	0.000	1.320	mg/L
>	Ge	72	278511.422	278511.422				mg/L
	As	75	6650.965	0.022	0.004222	0.000	4.991	mg/L
	Se	77	418.016	0.001	0.002258	0.000	8.619	mg/L
	Se	82	40.230	0.000	0.000344	0.000	61.821	mg/L
>	Rh	103	276605.243	276605.243				mg/L
	Ag	107	722.044	0.003	0.000103	0.000	4.891	mg/L
	Tl	203	2559.151	0.011	0.000512	0.000	2.930	mg/L
	Tl	205	6078.981	0.025	0.000506	0.000	2.342	mg/L
	Pb	208	430050.264	1.827	0.026980	0.000	0.970	mg/L
>	Bi	209	235301.429	235301.429				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	106.960
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	94.420
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.281

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	877346.544	3.132	0.118140	mg/L
Ni	60	60616.724	0.217	0.033500	mg/L
Ni	62	11303.049	0.040	0.041957	mg/L
Cu	63	116790.213	0.418	0.028711	mg/L
Cu	65	57261.173	0.206	0.029180	mg/L

Sample Information

Sample ID: 0908228-15
Autosampler Position: 58
Sample Date/Time: Monday, August 17, 2009 13:00:30
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-15.066
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	833528.458	2.997	0.113049	0.001	0.503	mg/L
	Ni	60	52376.263	0.189	0.029165	0.001	3.748	mg/L
	Ni	62	10102.242	0.036	0.037777	0.001	3.202	mg/L
	Cu	63	114189.697	0.412	0.028282	0.001	1.803	mg/L
	Cu	65	56244.937	0.203	0.028881	0.001	4.094	mg/L
>	Ge	72	277139.706	277139.706				mg/L
	As	75	5067.099	0.017	0.003153	0.000	5.489	mg/L
	Se	77	384.348	0.001	0.001958	0.000	3.973	mg/L
	Se	82	65.295	0.000	0.000522	0.000	55.207	mg/L
>	Rh	103	281676.288	281676.288				mg/L
	Ag	107	650.036	0.002	0.000091	0.000	5.369	mg/L
	Tl	203	2383.755	0.010	0.000469	0.000	3.790	mg/L
	Tl	205	5662.634	0.023	0.000463	0.000	1.180	mg/L
	Pb	208	456899.441	1.911	0.028232	0.001	2.514	mg/L
>	Bi	209	238963.574	238963.574				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	106.433
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	96.151
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.842

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	843766.021	3.014	0.113675	mg/L
Ni	60	51295.035	0.184	0.028362	mg/L
Ni	62	10141.295	0.036	0.037661	mg/L
Cu	63	112970.475	0.404	0.027782	mg/L
Cu	65	56602.951	0.203	0.028862	mg/L

: 94253

Sample Information

Sample ID: 0908228-16
Autosampler Position: 59
Sample Date/Time: Monday, August 17, 2009 13:03:26
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\0908228-16.067
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	787255.751	2.807	0.105868	0.002	1.799	mg/L
	Ni	60	58169.154	0.208	0.032117	0.000	1.512	mg/L
	Ni	62	11339.443	0.041	0.042055	0.001	2.473	mg/L
	Cu	63	121129.316	0.433	0.029751	0.000	0.942	mg/L
	Cu	65	59613.021	0.213	0.030352	0.001	1.735	mg/L
>	Ge	72	279453.245	279453.245				mg/L
	As	75	5711.418	0.019	0.003563	0.000	2.760	mg/L
	Se	77	400.682	0.001	0.002080	0.000	16.405	mg/L
	Se	82	44.496	0.000	0.000372	0.000	10.510	mg/L
>	Rh	103	278436.248	278436.248				mg/L
	Ag	107	723.377	0.003	0.000103	0.000	8.957	mg/L
	Tl	203	2631.178	0.011	0.000522	0.000	3.249	mg/L
	Tl	205	6346.882	0.026	0.000524	0.000	1.065	mg/L
	Pb	208	377384.703	1.589	0.023463	0.000	0.614	mg/L
>	Bi	209	237404.948	237404.948				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	107.322
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	95.045
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.177

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	790430.480	2.799	0.105555	mg/L
Ni	60	57560.568	0.204	0.031558	mg/L
Ni	62	11100.730	0.039	0.040879	mg/L
Cu	63	120746.219	0.429	0.029451	mg/L
Cu	65	59107.137	0.210	0.029884	mg/L

Sample Information

Sample ID: 9H17031-CCB
Autosampler Position: 1
Sample Date/Time: Monday, August 17, 2009 13:29:46
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H17031.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H17031\9H17031-CCB.076
Tuning File: C:\Elandata\Tuning\17AUG2009_6020A_B.tun
Optimization File: C:\elandata\Optimize\17aug2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2621.509	-0.000	-0.000018	0.000	38.848	mg/L
	Ni	60	58.334	0.000	0.000006	0.000	27.795	mg/L
	Ni	62	22.667	0.000	0.000014	0.000	75.563	mg/L
	Cu	63	161.337	0.000	0.000004	0.000	22.663	mg/L
	Cu	65	83.668	0.000	0.000002	0.000	382.058	mg/L
>	Ge	72	265128.011	265128.011				mg/L
	As	75	364.256	-0.000	-0.000078	0.000	6.147	mg/L
	Se	77	187.338	0.000	0.000158	0.000	30.868	mg/L
	Se	82	4.292	0.000	0.000095	0.000	113.803	mg/L
>	Rh	103	286934.684	286934.684				mg/L
	Ag	107	232.673	0.001	0.000029	0.000	29.597	mg/L
	Tl	203	66.001	0.000	0.000002	0.000	111.408	mg/L
	Tl	205	144.003	0.000	0.000001	0.000	206.714	mg/L
	Pb	208	549.347	0.001	0.000020	0.000	18.621	mg/L
>	Bi	209	227790.298	227790.298				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	101.820
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	97.946
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	97.080

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2580.956	-0.001	-0.000026	mg/L
Ni	60	59.001	0.000	0.000006	mg/L
Ni	62	26.000	0.000	0.000027	mg/L
Cu	63	160.003	0.000	0.000004	mg/L
Cu	65	99.002	0.000	0.000010	mg/L

: 04283

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Cal Standard	9H19009-CAL1	9h19009-001	08/19/09 08:24	
Cal Standard	9H19009-CAL2	9h19009-002	08/19/09 08:28	
Cal Standard	9H19009-CAL3	9h19009-003	08/19/09 08:33	
Cal Standard	9H19009-CAL4	9h19009-004	08/19/09 08:37	
Cal Standard	9H19009-CAL5	9h19009-005	08/19/09 08:42	
Cal Standard	9H19009-CAL6	9h19009-006	08/19/09 08:46	
Cal Standard	9H19009-CAL7	9h19009-007	08/19/09 08:51	
Cal Standard	9H19009-CAL8	9h19009-008	08/19/09 08:55	
Secondary Cal Check	9H19009-SCV1	9h19009-009	08/19/09 08:59	✓
Calibration Check	9H19009-CCV1	9h19009-009	08/19/09 08:59	✓
Calibration Blank	9H19009-CCB1	9h19009-010	08/19/09 09:09	
Interference Check A	9H19009-IFA1	9h19009-011	08/19/09 09:13	✓
Interference Check B	9H19009-IFB1	9h19009-012	08/19/09 09:18	✓
Calibration Check	9H19009-CCV2	9h19009-013	08/19/09 09:22	✓
Calibration Blank	9H19009-CCB2	9h19009-014	08/19/09 09:32	
Blank	0909625-BLK1	9h19009-015	08/19/09 09:36	
LCS	0909625-BS1	9h19009-016	08/19/09 09:41	
LCS Dup	0909625-BSD1	9h19009-017	08/19/09 09:47	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	
EQBK-2	0908228-17	9h19009-019	08/19/09 10:01	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H19009-CCV3	9h19009-021	08/19/09 10:10
Calibration Blank	9H19009-CCB3	9h19009-022	08/19/09 10:20

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H19009

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19009-CCB1	Antimony	0.15	0.60	0.080	ug/L	J	08/19/09 09:09
	Arsenic	0.13	0.40	0.077	ug/L	J	08/19/09 09:09
	Barium	-0.0040	0.40	0.063	ug/L	U	08/19/09 09:09
	Cadmium	-0.00044	0.040	0.012	ug/L	U	08/19/09 09:09
	Chromium	0.0028	0.40	0.069	ug/L	U	08/19/09 09:09
	Cobalt	-0.0031	0.20	0.0073	ug/L	U	08/19/09 09:09
	Copper	0.0014	0.20	0.053	ug/L	U	08/19/09 09:09
	Lead	0.0026	0.20	0.052	ug/L	U	08/19/09 09:09
	Manganese	-0.0027	0.60	0.12	ug/L	U	08/19/09 09:09
	Nickel	0.0033	0.40	0.092	ug/L	U	08/19/09 09:09
	Silver	0.0080	0.10	0.011	ug/L	U	08/19/09 09:09
	Thallium	-0.0028	0.040	0.0099	ug/L	U	08/19/09 09:09
	Vanadium	0.0047	0.20	0.059	ug/L	U	08/19/09 09:09
	Zinc	0.0012	1.2	0.40	ug/L	U	08/19/09 09:09
9H19009-CCB2	Antimony	0.10	0.60	0.080	ug/L	J	08/19/09 09:32
	Arsenic	0.014	0.40	0.077	ug/L	U	08/19/09 09:32
	Barium	-0.00053	0.40	0.063	ug/L	U	08/19/09 09:32
	Cadmium	-0.00034	0.040	0.012	ug/L	U	08/19/09 09:32
	Chromium	0.015	0.40	0.069	ug/L	U	08/19/09 09:32
	Cobalt	-0.0054	0.20	0.0073	ug/L	U	08/19/09 09:32
	Copper	-0.00062	0.20	0.053	ug/L	U	08/19/09 09:32
	Lead	0.0011	0.20	0.052	ug/L	U	08/19/09 09:32
	Manganese	-0.0018	0.60	0.12	ug/L	U	08/19/09 09:32
	Nickel	-0.00066	0.40	0.092	ug/L	U	08/19/09 09:32
	Silver	0.0062	0.10	0.011	ug/L	U	08/19/09 09:32
	Thallium	-0.00095	0.040	0.0099	ug/L	U	08/19/09 09:32
	Vanadium	-0.0074	0.20	0.059	ug/L	U	08/19/09 09:32
	Zinc	0.012	1.2	0.40	ug/L	U	08/19/09 09:32
0909625-BLK1	Antimony, Total	3.0	3.0	0.40	ug/L	U	08/19/09 09:36
	Arsenic, Total	2.0	2.0	0.39	ug/L	U	08/19/09 09:36
	Barium, Total	2.0	2.0	0.32	ug/L	U	08/19/09 09:36
	Cadmium, Total	0.20	0.20	0.060	ug/L	U	08/19/09 09:36
	Chromium, Total	2.0	2.0	0.34	ug/L	U	08/19/09 09:36

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H19009

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
0909625-BLK1	Cobalt, Total	1.0	1.0	0.036	ug/L	U	08/19/09 09:36
	Copper, Total	1.0	1.0	0.26	ug/L	U	08/19/09 09:36
	Lead, Total	1.0	1.0	0.26	ug/L	U	08/19/09 09:36
	Manganese, Total	3.0	3.0	0.58	ug/L	U	08/19/09 09:36
	Nickel, Total	2.0	2.0	0.46	ug/L	U	08/19/09 09:36
	Silver, Total	0.50	0.50	0.053	ug/L	U	08/19/09 09:36
	Thallium, Total	0.20	0.20	0.050	ug/L	U	08/19/09 09:36
	Vanadium, Total	1.0	1.0	0.30	ug/L	U	08/19/09 09:36
	Zinc, Total	2.1	6.0	2.0	ug/L	J	08/19/09 09:36
9H19009-CCB3	Antimony	0.086	0.60	0.080	ug/L	J	08/19/09 10:20
	Arsenic	0.016	0.40	0.077	ug/L	U	08/19/09 10:20
	Barium	0.00018	0.40	0.063	ug/L	U	08/19/09 10:20
	Cadmium	0.00012	0.040	0.012	ug/L	U	08/19/09 10:20
	Chromium	0.053	0.40	0.069	ug/L	U	08/19/09 10:20
	Cobalt	-0.0081	0.20	0.0073	ug/L	J	08/19/09 10:20
	Copper	-0.00064	0.20	0.053	ug/L	U	08/19/09 10:20
	Lead	0.0016	0.20	0.052	ug/L	U	08/19/09 10:20
	Manganese	-0.00062	0.60	0.12	ug/L	U	08/19/09 10:20
	Nickel	0.0034	0.40	0.092	ug/L	U	08/19/09 10:20
	Silver	0.0047	0.10	0.011	ug/L	U	08/19/09 10:20
	Thallium	-0.0080	0.040	0.0099	ug/L	U	08/19/09 10:20
	Vanadium	0.0083	0.20	0.059	ug/L	U	08/19/09 10:20
	Zinc	0.0070	1.2	0.40	ug/L	U	08/19/09 10:20

* Values outside of QC limits

Sample Information

Sample ID: 9H19009-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 09:32:28
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\9H19009-CCB.014
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	122324.427	122324.427				ug/L
	B	11	109.002	0.000	0.621658	0.104	16.795	ug/L
	Be	9	2.667	0.000	0.012366	0.028	222.565	ug/L
	V	51	3084.704	-0.000	-0.007388	0.005	69.254	ug/L
	Cr	52	9704.687	0.000	0.014739	0.020	133.424	ug/L
	Cr	53	392.348	0.000	0.147208	0.016	10.716	ug/L
	Mn	55	496.022	-0.000	-0.001806	0.001	74.723	ug/L
	Co	59	125.669	-0.000	-0.005408	0.001	19.895	ug/L
	Ni	60	54.334	-0.000	-0.000658	0.006	951.711	ug/L
	Ni	62	22.000	0.000	0.019502	0.008	40.472	ug/L
	Cu	63	168.337	-0.000	-0.000616	0.004	712.859	ug/L
	Cu	65	85.001	-0.000	-0.003467	0.007	202.666	ug/L
	Zn	66	188.004	0.000	0.012499	0.010	82.812	ug/L
	Zn	68	402.015	-0.000	-0.014215	0.025	175.792	ug/L
>	Ge	72	310023.544	310023.544				ug/L
	As	75	272.810	0.000	0.014354	0.038	265.470	ug/L
	Se	77	237.340	0.000	0.285403	0.092	32.105	ug/L
	Se	82	0.101	0.000	0.140509	0.109	77.584	ug/L
>	Rh	103	356325.147	356325.147				ug/L
	Ag	107	67.334	0.000	0.006200	0.001	20.929	ug/L
	Cd	111	5.801	-0.000	-0.000340	0.001	414.262	ug/L
	Cd	114	23.021	0.000	0.000541	0.001	95.471	ug/L
>	In	115	270807.961	270807.961				ug/L
	Sb	121	655.703	0.002	0.104475	0.009	8.658	ug/L
	Sb	123	496.269	0.002	0.104640	0.008	7.570	ug/L
	Ba	135	24.334	0.000	0.001151	0.003	285.853	ug/L
	Ba	137	42.001	-0.000	-0.000533	0.001	265.540	ug/L
>	Tb	159	341368.749	341368.749				ug/L
	Tl	203	107.335	-0.000	-0.000946	0.003	358.030	ug/L
	Tl	205	275.008	0.000	0.001184	0.001	48.587	ug/L
	Pb	208	378.008	0.000	0.001094	0.000	33.296	ug/L
>	Bi	209	289738.909	289738.909				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	86.553
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

Sample Information

Sample ID: 0909625-BLK1
Autosampler Position: 17
Sample Date/Time: Wednesday, August 19, 2009 09:36:54
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\0909625-BLK1.015
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

0.410949 x 5 = 2.1 reported

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[>	Li	6	120423.867	120423.867				ug/L
[	B	11	75.001	0.000	0.155435	0.244	157.294	ug/L
[	Be	9	1.000	-0.000	-0.009400	0.000	0.867	ug/L
[	V	51	3304.172	0.000	0.016049	0.021	131.130	ug/L
[	Cr	52	10096.234	0.001	0.058927	0.063	106.337	ug/L
[	Cr	53	374.014	0.000	0.122235	0.028	22.971	ug/L
[	Mn	55	541.693	0.000	0.002083	0.004	174.248	ug/L
[	Co	59	99.002	-0.000	-0.008318	0.001	17.717	ug/L
[	Ni	60	62.334	0.000	0.002973	0.003	89.692	ug/L
[	Ni	62	23.334	0.000	0.023097	0.011	46.604	ug/L
[	Cu	63	273.675	0.000	0.021575	0.005	21.425	ug/L
[	Cu	65	146.670	0.000	0.023711	0.005	20.617	ug/L
[	Zn	66	674.039	0.002	0.410949	0.029	6.965	ug/L
[	Zn	68	724.044	0.001	0.351939	0.031	8.847	ug/L
[>	Ge	72	312537.041	312537.041				ug/L
[	As	75	187.519	-0.000	-0.041065	0.013	31.659	ug/L
[	Se	77	245.673	0.000	0.338334	0.181	53.594	ug/L
[	Se	82	-8.076	0.000	0.090362	0.247	273.448	ug/L
[>	Rh	103	348268.436	348268.436				ug/L
[	Ag	107	43.001	0.000	0.003516	0.000	10.699	ug/L
[	Cd	111	7.935	0.000	0.000800	0.002	209.342	ug/L
[	Cd	114	12.177	-0.000	-0.001751	0.002	98.409	ug/L
[>	In	115	273296.880	273296.880				ug/L
[	Sb	121	393.681	0.001	0.060166	0.003	5.488	ug/L
[	Sb	123	316.215	0.001	0.064046	0.006	8.916	ug/L
[	Ba	135	22.000	-0.000	-0.000191	0.001	300.004	ug/L
[	Ba	137	32.667	-0.000	-0.003698	0.001	14.784	ug/L
[>	Tb	159	342010.756	342010.756				ug/L
[	Tl	203	91.002	-0.000	-0.003594	0.004	109.887	ug/L
[	Tl	205	228.006	-0.000	-0.002006	0.001	40.120	ug/L
[	Pb	208	402.675	0.000	0.002462	0.001	37.332	ug/L
[>	Bi	209	288317.967	288317.967				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[>	Li	6.015	85.209
[	B	11.009	
[	Be	9.012	
[	V	50.944	
[	Cr	51.941	
[	Cr	52.941	

: 04582

Sample Information

Sample ID: 0908228-17
Autosampler Position: 21
Sample Date/Time: Wednesday, August 19, 2009 10:01:42
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\0908228-17.019
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	117907.039	117907.039				ug/L
	B	11	86.001	0.000	0.340967	0.231	67.653	ug/L
	Be	9	3.000	0.000	0.018206	0.014	76.052	ug/L
	V	51	3462.963	0.001	0.024973	0.008	33.703	ug/L
	Cr	52	10767.551	0.003	0.115679	0.011	9.084	ug/L
	Cr	53	357.679	0.000	0.093635	0.032	34.516	ug/L
	Mn	55	1279.461	0.002	0.067327	0.003	4.245	ug/L
	Co	59	244.673	0.000	0.006452	0.000	7.382	ug/L
	Ni	60	74.334	0.000	0.007927	0.002	29.736	ug/L
	Ni	62	19.000	0.000	0.008018	0.019	235.343	ug/L
	Cu	63	373.347	0.001	0.041116	0.001	3.270	ug/L
	Cu	65	196.338	0.000	0.043676	0.002	4.345	ug/L
	Zn	66	1895.271	0.005	1.377322	0.058	4.199	ug/L
	Zn	68	1636.204	0.004	1.354792	0.054	3.978	ug/L
>	Ge	72	320103.270	320103.270				ug/L
	As	75	152.327	-0.000	-0.065460	0.008	12.620	ug/L
	Se	77	238.006	0.000	0.228450	0.040	17.551	ug/L
	Se	82	16.848	0.000	0.239262	0.189	78.829	ug/L
>	Rh	103	354920.174	354920.174				ug/L
	Ag	107	43.667	0.000	0.003502	0.001	21.731	ug/L
	Cd	111	3.115	-0.000	-0.001694	0.002	125.079	ug/L
	Cd	114	15.536	-0.000	-0.001078	0.001	127.639	ug/L
>	In	115	277643.023	277643.023				ug/L
	Sb	121	311.010	0.001	0.045689	0.003	6.953	ug/L
	Sb	123	245.046	0.001	0.047613	0.003	5.451	ug/L
	Ba	135	44.001	0.000	0.013081	0.003	20.649	ug/L
	Ba	137	70.001	0.000	0.009257	0.004	39.051	ug/L
>	Tb	159	335252.151	335252.151				ug/L
	Tl	203	35.667	-0.000	-0.012814	0.001	8.620	ug/L
	Tl	205	80.335	-0.001	-0.012270	0.000	4.023	ug/L
	Pb	208	740.356	0.001	0.020252	0.001	5.972	ug/L
>	Bi	209	285791.823	285791.823				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	83.428
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

Sample Information

Sample ID: 9H19009-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 10:20:13
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\9H19009-CCB.022
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	114622.956	114622.956				ug/L
	B	11	100.668	0.000	0.599997	0.121	20.153	ug/L
	Be	9	0.667	-0.000	-0.013326	0.008	61.246	ug/L
	V	51	3208.733	0.000	0.008260	0.011	137.818	ug/L
	Cr	52	9960.041	0.001	0.053159	0.020	37.490	ug/L
	Cr	53	345.679	0.000	0.093803	0.030	32.131	ug/L
	Mn	55	508.023	-0.000	-0.000618	0.003	554.838	ug/L
	Co	59	100.002	-0.000	-0.008119	0.002	19.880	ug/L
	Ni	60	62.668	0.000	0.003441	0.003	101.187	ug/L
	Ni	62	17.334	0.000	0.004714	0.012	249.112	ug/L
	Cu	63	168.004	-0.000	-0.000641	0.001	93.948	ug/L
	Cu	65	96.335	0.000	0.001733	0.002	93.238	ug/L
	Zn	66	181.004	0.000	0.006960	0.013	179.865	ug/L
	Zn	68	389.348	-0.000	-0.027771	0.024	88.173	ug/L
>	Ge	72	309384.592	309384.592				ug/L
	As	75	274.601	0.000	0.016122	0.051	319.332	ug/L
	Se	77	239.340	0.000	0.306256	0.020	6.515	ug/L
	Se	82	23.728	0.000	0.284823	0.219	76.828	ug/L
>	Rh	103	350003.623	350003.623				ug/L
	Ag	107	53.667	0.000	0.004746	0.000	7.818	ug/L
	Cd	111	6.631	0.000	0.000119	0.002	1316.605	ug/L
	Cd	114	19.651	-0.000	-0.000115	0.001	1032.675	ug/L
>	In	115	271499.516	271499.516				ug/L
	Sb	121	545.360	0.002	0.085863	0.004	4.298	ug/L
	Sb	123	412.093	0.001	0.085761	0.006	6.958	ug/L
	Ba	135	26.667	0.000	0.003080	0.001	27.163	ug/L
	Ba	137	42.667	0.000	0.000176	0.002	1106.655	ug/L
>	Tb	159	329892.135	329892.135				ug/L
	Tl	203	61.668	-0.000	-0.008016	0.001	9.361	ug/L
	Tl	205	141.669	-0.000	-0.007562	0.000	5.948	ug/L
	Pb	208	368.674	0.000	0.001613	0.001	49.110	ug/L
>	Bi	209	275224.464	275224.464				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	81.104
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

: 84523

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19032

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H19032-CAL1	9h19032-001	08/19/09 10:34
Cal Standard	9H19032-CAL2	9h19032-002	08/19/09 10:36
Cal Standard	9H19032-CAL3	9h19032-003	08/19/09 10:39
Cal Standard	9H19032-CAL4	9h19032-004	08/19/09 10:42
Cal Standard	9H19032-CAL5	9h19032-005	08/19/09 10:44
Cal Standard	9H19032-CAL6	9h19032-006	08/19/09 10:47
Cal Standard	9H19032-CAL7	9h19032-007	08/19/09 10:50
Secondary Cal Check	9H19032-SCV1	9h19032-008	08/19/09 10:52
Calibration Check	9H19032-CCV1	9h19032-008	08/19/09 10:52
Calibration Blank	9H19032-CCB1	9h19032-011	08/19/09 11:02
Interference Check A	9H19032-IFA1	9h19032-012	08/19/09 11:05
Interference Check B	9H19032-IFB1	9h19032-013	08/19/09 11:08
Calibration Check	9H19032-CCV2	9h19032-014	08/19/09 11:10
Calibration Blank	9H19032-CCB2	9h19032-015	08/19/09 11:12
LCS	0909625-BS2	9h19032-017	08/19/09 11:32
LCS Dup	0909625-BSD2	9h19032-018	08/19/09 11:35
EQBK-2	0908228-17	9h19032-020	08/19/09 11:39
EQBK-2	0908228-17	9h19032-020	08/19/09 11:39
Blank	0909625-BLK2	9h19032-022	08/19/09 11:43
Calibration Check	9H19032-CCV3	9h19032-023	08/19/09 11:46
Calibration Blank	9H19032-CCB3	9h19032-024	08/19/09 11:48

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19032

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H19010

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19032-CCB1	Beryllium	-0.010	0.40	0.063	ug/L	U	08/19/09 11:02
	Selenium	-0.084	0.60	0.079	ug/L	J	08/19/09 11:02
9H19032-CCB2	Beryllium	0.0033	0.40	0.063	ug/L	U	08/19/09 11:12
	Selenium	-0.043	0.60	0.079	ug/L	U	08/19/09 11:12
0909625-BLK2	Beryllium, Total	2.0	2.0	0.31	ug/L	U	08/19/09 11:43
	Selenium, Total	3.0	3.0	0.40	ug/L	U	08/19/09 11:43
9H19032-CCB3	Beryllium	0.0081	0.40	0.063	ug/L	U	08/19/09 11:48
	Selenium	-0.097	0.60	0.079	ug/L	J	08/19/09 11:48

* Values outside of QC limits

Sample Information

Sample ID: 9H19032-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 11:12:48
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19032.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19032\9H19032-CCB.015
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈>	Li	6	102280.479	102280.479				ug/L
⌊	Be	9	3.000	0.000	0.003284	0.012	379.288	ug/L
⌈>	Ge	72	286129.882	286129.882				ug/L
|	Se	77	213.005	-0.000	-0.031376	0.091	289.876	ug/L
⌊	Se	82	-2.278	-0.000	-0.042869	0.075	174.085	ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈>	Li	6.015	91.270
⌊	Be	9.012	
⌈>	Ge	71.922	92.877
|	Se	76.920	
⌊	Se	81.917	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	103062.225	103062.225		ug/L
Be	9	4.000	0.000	0.015520	ug/L
Ge	72	285484.105	285484.105		ug/L
Se	77	214.005	0.000	0.017746	ug/L
Se	82	14.727	0.000	0.128133	ug/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	101169.434	101169.434		ug/L
Be	9	3.000	0.000	0.003715	ug/L
Ge	72	286810.707	286810.707		ug/L
Se	77	203.005	-3.000	-0.126375	ug/L
Se	82	2.368	-0.000	-0.011051	ug/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	102609.776	102609.776		ug/L
Be	9	2.000	-0.000	-0.009383	ug/L
Ge	72	286094.832	286094.832		ug/L
Se	77	222.006	0.000	0.051992	ug/L
Se	82	5.525	0.000	0.010578	ug/L

: 04548

Sample Information

Sample ID: 0908228-17
Autosampler Position: 21
Sample Date/Time: Wednesday, August 19, 2009 11:39:41
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19032.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19032\0908228-17.020
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[>	Li	6	101524.429	101524.429				ug/L
[	Be	9	2.000	-0.000	-0.009117	0.022	241.182	ug/L
[>	Ge	72	299700.339	299700.339				ug/L
[	Se	77	236.340	0.000	0.085391	0.047	54.891	ug/L
[	Se	82	26.593	0.000	0.147328	0.233	158.188	ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[>	Li	6.015	90.596
[	Be	9.012	
[>	Ge	71.922	97.282
[	Se	76.920	
[	Se	81.917	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	101944.343	101944.343		ug/L
Be	9	3.000	0.000	0.003425	ug/L
Ge	72	300686.340	300686.340		ug/L
Se	77	231.006	0.000	0.031561	ug/L
Se	82	5.826	0.000	0.065128	ug/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	101129.880	101129.880		ug/L
Be	9	3.000	0.000	0.003730	ug/L
Ge	72	301022.049	301022.049		ug/L
Se	77	741.006	0.000	0.117174	ug/L
Se	82	21.189	0.000	0.110514	ug/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	101499.065	101499.065		ug/L
Be	9	0.000	0.000	0.034505	ug/L
Ge	72	297392.627	297392.627		ug/L
Se	77	237.006	0.000	0.107440	ug/L
Se	82	64.419	0.000	0.396598	ug/L

Sample Information

Sample ID: 9H19032-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 11:48:15
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19032.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19032\9H19032-CCB.024
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_B.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈>	Li	6	101087.520	101087.520				ug/L
⌊	Be	9	3.333	0.000	0.008052	0.008	96.866	ug/L
⌈>	Ge	72	299313.098	299313.098				ug/L
|	Se	77	226.006	-0.000	-0.005231	0.158	3014.654	ug/L
⌊	Se	82	-11.131	-0.000	-0.096560	0.276	286.149	ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈>	Li	6.015	90.206
⌊	Be	9.012	
⌈>	Ge	71.922	97.156
|	Se	76.920	
⌊	Se	81.917	

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	103683.120	103683.120		ug/L
Be	9	3.000	0.000	0.002769	ug/L
Ge	72	305177.984	305177.584		ug/L
Se	77	248.007	0.000	0.149011	ug/L
Se	82	57.207	0.000	-0.393965	ug/L

Repeat 2

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	100074.156	100074.156		ug/L
Be	9	4.000	0.000	0.017013	ug/L
Ge	72	298599.454	298599.454		ug/L
Se	77	226.000	0.000	0.001468	ug/L
Se	82	3.157	0.000	-0.047691	ug/L

Repeat 3

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
Li	6	99505.265	99505.785		ug/L
Be	9	3.000	0.000	0.004355	ug/L
Ge	72	294161.657	294161.657		ug/L
Se	77	204.005	0.000	-0.166171	ug/L
Se	82	26.971	0.000	0.152177	ug/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.5162 g / 250 mL

Laboratory ID: 0909503-MS1
QC Batch: 0909503

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Arsenic, Total	19.4	1.61	15.9	74 *	80 - 120	mg/kg dry wt.
Copper, Total	19.4	13.6	30.9	89	80 - 120	mg/kg dry wt.
Lead, Total	19.4	18.0	33.3	79 *	80 - 120	mg/kg dry wt.
Nickel, Total	19.4	14.7	32.6	92	80 - 120	mg/kg dry wt.
Selenium, Total	19.4	0.154	14.4	74 *	80 - 120	mg/kg dry wt.
Silver, Total	19.4	0.0452	18.2	94	75 - 120	mg/kg dry wt.
Thallium, Total	19.4	0.267	19.4	99	80 - 120	mg/kg dry wt.
Vanadium, Total	19.4	53.9	71.1	89	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5037 g / 250 mL

Laboratory ID: 0909503-MSD1

QC Batch: 0909503

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Arsenic, Total	19.9	16.1	73 *	1	20	80 - 120	mg/kg dry wt.
Copper, Total	19.9	31.5	90	2	20	80 - 120	mg/kg dry wt.
Lead, Total	19.9	34.8	85	4	20	80 - 120	mg/kg dry wt.
Nickel, Total	19.9	32.8	91	0.6	20	80 - 120	mg/kg dry wt.
Selenium, Total	19.9	15.0	75 *	4	20	80 - 120	mg/kg dry wt.
Silver, Total	19.9	19.3	97	6	20	75 - 120	mg/kg dry wt.
Thallium, Total	19.9	19.6	98	1	20	80 - 120	mg/kg dry wt.
Vanadium, Total	19.9	71.3	87	0.3	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5096 g / 250 mL

Laboratory ID: 0909587-MS1

QC Batch: 0909587

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Antimony, Total	19.6	0.110	19.2	97	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5099 g / 250 mL

Laboratory ID: 0909587-MSD1

QC Batch: 0909587

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Antimony, Total	19.6	19.3	98	0.5	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 0909503-PS1
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.02012 g / 10 mL
QC Batch: 0909503
Sequence: 9H17031

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Arsenic, Total	75 - 125	0.0216	0.00324	0.0200	92	mg/L
Copper, Total	75 - 125	0.0447	0.0274	0.0200	86	mg/L
Lead, Total	75 - 125	0.0557	0.0363	0.0200	97	mg/L
Nickel, Total	75 - 125	0.0466	0.0296	0.0200	85	mg/L
Selenium, Total	75 - 125	0.0183	0.000309	0.0200	90	mg/L
Silver, Total	75 - 125	0.0200	0.0000910	0.0200	99	mg/L
Thallium, Total	75 - 125	0.0209	0.000537	0.0200	102	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 0909503-PS2
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.02012 g / 10 mL
QC Batch: 0909503
Sequence: 9H17031

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Vanadium, Total	75 - 125	0.145	0.109	0.0400	92	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 0909587-PS1
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.010094 g / 5 mL
QC Batch: 0909587
Sequence: 9H18065

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Antimony, Total	75 - 125	0.0205	0.000222	0.0200	101	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 9H17031-SRD2
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
QC Batch: 9H17031
Sequence: 9H17031

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Arsenic, Total	0.00324		0.00326		1.0 #		mg/L	10
Copper, Total	0.0274		0.0285		4.0		mg/L	10
Lead, Total	0.0363		0.0366		1.0		mg/L	10
Nickel, Total	0.0296		0.0309		4.0		mg/L	10
Selenium, Total	0.000309	J	0.00113	J	266.0 #		mg/L	10
Silver, Total	0.0000910	J	0.000110	J	21.0 #		mg/L	10
Thallium, Total	0.000537		0.000530	J	1.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 83.60
Laboratory ID: 9H17031-SRD5
QC Batch: 9H17031
Lab Source ID: 0908228-05
Sequence: 9H17031

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Vanadium, Total	0.0543		0.0555		2.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6020A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 83.60
Laboratory ID: 9H18065-SRD2
QC Batch: 9H18065
Lab Source ID: 0908228-05
Sequence: 9H18065

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Antimony, Total	0.000222	J	0.000325	U	46.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

: 04113

SAMPLE ID SUMMARY

USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809B

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20016

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H20005

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H20016-CAL1	9H20016-002	08/20/09 08:15
Cal Standard	9H20016-CAL2	9H20016-003	08/20/09 08:19
Cal Standard	9H20016-CAL3	9H20016-004	08/20/09 08:22
Cal Standard	9H20016-CAL4	9H20016-005	08/20/09 08:25
Cal Standard	9H20016-CAL5	9H20016-006	08/20/09 08:29
Secondary Cal Check	9H20016-SCV1	9H20016-007	08/20/09 08:32
Calibration Check	9H20016-CCV1	9H20016-007	08/20/09 08:32
Calibration Blank	9H20016-CCB1	9H20016-008	08/20/09 08:36
Interference Check A	9H20016-IFA1	9H20016-009	08/20/09 08:39
Interference Check A	9H20016-IFA2	9H20016-010	08/20/09 08:43
Interference Check B	9H20016-IFB1	9H20016-011	08/20/09 08:46
Interference Check B	9H20016-IFB2	9H20016-012	08/20/09 08:50
Calibration Check	9H20016-CCV2	9H20016-013	08/20/09 08:53
Calibration Blank	9H20016-CCB2	9H20016-014	08/20/09 08:56
Blank	0909623-BLK1	9H20016-015	08/20/09 09:00
LCS	0909623-BS1	9H20016-016	08/20/09 09:03
LCS Dup	0909623-BSD1	9H20016-017	08/20/09 09:07
EQBK-2	0908228-17	9H20016-019	08/20/09 09:13
EQBK-2	0908228-17	9H20016-019	08/20/09 09:13
EQBK-2	0908228-17	9H20016-019	08/20/09 09:13
EQBK-2	0908228-17	9H20016-019	08/20/09 09:13
EQBK-2	0908228-17	9H20016-019	08/20/09 09:13
EQBK-2	0908228-17	9H20016-019	08/20/09 09:13
Calibration Check	9H20016-CCV3	9H20016-021	08/20/09 09:20
Calibration Blank	9H20016-CCB3	9H20016-022	08/20/09 09:23

2 Ni 231.603	-131.0	-133.1	-4.80629 µg/L	-4.80629 µg/L	
2 Pb 220.353	-3.5	-3.6	18.1555 µg/L	18.1555 µg/L	
2 Sb 206.831	-24.7	-25.1	-6.93159 µg/L	-6.93159 µg/L	
2 Se 196.026	73.1	74.2	66.2124 µg/L	66.2124 µg/L	
2 Si 251.611	980.0	995.3	29.5896 µg/L	29.5896 µg/L	
2 Sn 189.933	138.2	140.4	26.9710 µg/L	26.9710 µg/L	
2 Sr 407.771	-127.5	-129.4	-0.948430 µg/L	-0.948430 µg/L	
2 Ti 334.941	1740.7	1767.9	2.16790 µg/L	2.16790 µg/L	
2 Tl 190.800	12.6	12.8	-34.3481 µg/L	-34.3481 µg/L	
2 V 292.402	-396.6	-402.8	2.39589 µg/L	2.39589 µg/L	
2 Zn 206.200	60.3	61.2	18.2309 µg/L	18.2309 µg/L	

Mean Data

ID: 0908228-17 Seq. No.: 19 Sample No.: 5 A/S Pos: 21
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/20/09 9:13:13 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	500447.8	98.9	0.56	µg/L				0.57%
Y 360.064	312696.7	97.8	0.60	µg/L				0.61%
Ag 328.068	-425.9	0.960724	0.9913548	µg/L	0.960724	0.9913548	µg/L	103.19%
Al 396.140	-152.1	-65.5914	0.54070	µg/L	-65.5914	0.54070	µg/L	0.82%
As 188.979	-1.5	-6.21217	3.735985	µg/L	-6.21217	3.735985	µg/L	60.14%
B 249.773	126.5	-14.2371	2.43114	µg/L	-14.2371	2.43114	µg/L	17.08%
Ba 455.403	7642.1	0.0643869	0.06699266	µg/L	0.0643869	0.06699266	µg/L	104.05%
Be 234.861	-269.4	-0.161104	0.1621672	µg/L	-0.161104	0.1621672	µg/L	100.66%
Ca 315.887	-609.9	-0.0085684	0.00568394	mg/L	-0.0085684	0.00568394	mg/L	66.34%
Cd 214.438	87.8	1.09374	0.754789	µg/L	1.09374	0.754789	µg/L	69.01%
Ce 413.765	911.0	17.3047	6.55500	µg/L	0.0173047	0.00655500	mg/L	37.88%
Co 228.616	-8.5	-3.19389	1.764484	µg/L	-3.19389	1.764484	µg/L	55.25%
Cr 205.560	26.4	-0.0660814	3.76619638	µg/L	-0.0660814	3.76619638	µg/L	>999.9%
Cu 327.394	162.4	1.71040	0.770159	µg/L	1.71040	0.770159	µg/L	45.03%
Fe 238.204	437.2	9.42093	0.405042	µg/L	9.42093	0.405042	µg/L	4.30%
K 766.514	1420.8	-0.0294610	0.02304907	mg/L	-0.0294610	0.02304907	mg/L	78.24%
Li 670.781	-391.9	-3.32746	0.414878	µg/L	-3.32746	0.414878	µg/L	12.47%
Mg 279.074	-148.8	-0.0215368	0.01480948	mg/L	-0.0215368	0.01480948	mg/L	68.76%
Mn 257.610	-11.3	-0.126349	0.1080257	µg/L	-0.126349	0.1080257	µg/L	85.50%
Mo 202.031	11.6	4.43785	3.047708	µg/L	4.43785	3.047708	µg/L	68.68%
Na 589.594	1712.3	0.0352933	0.00044769	mg/L	0.0352933	0.00044769	mg/L	1.27%
Ni 231.603	-133.3	-4.87541	0.097757	µg/L	-4.87541	0.097757	µg/L	2.01%
Pb 220.353	-6.4	11.9987	8.70706	µg/L	11.9987	8.70706	µg/L	72.57%
Sb 206.831	-27.1	-13.5673	9.38432	µg/L	-13.5673	9.38432	µg/L	69.17%
Se 196.026	71.2	52.6517	19.17779	µg/L	52.6517	19.17779	µg/L	36.42%
Si 251.611	969.1	25.4335	5.87766	µg/L	25.4335	5.87766	µg/L	23.11%
Sn 189.933	142.6	32.9415	8.44356	µg/L	32.9415	8.44356	µg/L	25.63%
Sr 407.771	-74.8	-0.917283	0.0440484	µg/L	-0.917283	0.0440484	µg/L	4.80%
Ti 334.941	1745.4	1.97579	0.271677	µg/L	1.97579	0.271677	µg/L	13.75%
Tl 190.800	13.9	-29.6490	6.64548	µg/L	-29.6490	6.64548	µg/L	22.41%
V 292.402	-446.0	0.253995	3.0290997	µg/L	0.253995	3.0290997	µg/L	>999.9%
Zn 206.200	66.2	19.6939	2.06894	µg/L	19.6939	2.06894	µg/L	10.51%

Replicate Data

ID: 0908257-15 Date: 8/20/09 9:16:35 AM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	500956.0	500956.0	99.0	µg/L		
1	Y 360.064	312011.2	312011.2	97.6	µg/L		
1	Ag 328.068	-472.5	-477.5	-0.638854	µg/L	-0.638854	µg/L
1	Al 396.140	83.3	84.1	-39.7845	µg/L	-39.7845	µg/L
1	As 188.979	5.7	5.8	20.7100	µg/L	20.7100	µg/L
1	B 249.773	103.4	104.5	-15.8387	µg/L	-15.8387	µg/L
1	Ba 455.403	7945.9	8029.0	0.528956	µg/L	0.528956	µg/L
1	Be 234.861	-250.0	-252.6	-0.0212214	µg/L	-0.0212214	µg/L
1	Ca 315.887	934.3	944.0	0.107357	mg/L	0.107357	mg/L
1	Cd 214.438	87.8	88.7	1.18328	µg/L	1.18328	µg/L
1	Ce 413.765	952.2	962.1	23.1562	µg/L	0.0231562	mg/L
1	Co 228.616	-0.0	-0.0	-1.44590	µg/L	-1.44590	µg/L
1	Cr 205.560	25.0	25.3	-0.721086	µg/L	-0.721086	µg/L
1	Cu 327.394	148.8	150.4	1.04073	µg/L	1.04073	µg/L

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20016

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H20005

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H20016-CCB1	Aluminum	-26	50	24	ug/L	J	08/20/09 08:36
	Calcium	-0.036	0.50	0.058	mg/L	U	08/20/09 08:36
	Iron	0.86	25	8.0	ug/L	U	08/20/09 08:36
	Magnesium	0.0022	0.50	0.044	mg/L	U	08/20/09 08:36
	Potassium	-0.0099	0.50	0.098	mg/L	U	08/20/09 08:36
	Sodium	-0.014	0.50	0.082	mg/L	U	08/20/09 08:36
9H20016-CCB2	Aluminum	-24	50	24	ug/L	J	08/20/09 08:56
	Calcium	-0.032	0.50	0.058	mg/L	U	08/20/09 08:56
	Iron	2.5	25	8.0	ug/L	U	08/20/09 08:56
	Magnesium	0.020	0.50	0.044	mg/L	U	08/20/09 08:56
	Potassium	-0.031	0.50	0.098	mg/L	U	08/20/09 08:56
	Sodium	-0.021	0.50	0.082	mg/L	U	08/20/09 08:56
0909623-BLK1	Aluminum, Total	50	50	24	ug/L	U	08/20/09 09:00
	Calcium, Total	500	500	58	ug/L	U	08/20/09 09:00
	Iron, Total	25	25	8.0	ug/L	U	08/20/09 09:00
	Magnesium, Total	500	500	44	ug/L	U	08/20/09 09:00
	Potassium, Total	500	500	98	ug/L	U	08/20/09 09:00
	Sodium, Total	500	500	82	ug/L	U	08/20/09 09:00
9H20016-CCB3	Aluminum	-31	50	24	ug/L	J	08/20/09 09:23
	Calcium	-0.037	0.50	0.058	mg/L	U	08/20/09 09:23
	Iron	1.6	25	8.0	ug/L	U	08/20/09 09:23
	Magnesium	0.0052	0.50	0.044	mg/L	U	08/20/09 09:23
	Potassium	-0.050	0.50	0.098	mg/L	U	08/20/09 09:23
	Sodium	-0.0088	0.50	0.082	mg/L	U	08/20/09 09:23

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H18017-CAL1	9H18017-002	08/18/09 09:03
Cal Standard	9H18017-CAL2	9H18017-003	08/18/09 09:07
Cal Standard	9H18017-CAL3	9H18017-004	08/18/09 09:10
Cal Standard	9H18017-CAL4	9H18017-005	08/18/09 09:13
Cal Standard	9H18017-CAL5	9H18017-006	08/18/09 09:17
Secondary Cal Check	9H18017-SCV1	9H18017-007	08/18/09 09:20
Calibration Check	9H18017-CCV1	9H18017-007	08/18/09 09:20
Calibration Blank	9H18017-CCB1	9H18017-008	08/18/09 09:24
Interference Check A	9H18017-IFA1	9H18017-009	08/18/09 09:29
Interference Check A	9H18017-IFA2	9H18017-010	08/18/09 09:32
Interference Check B	9H18017-IFB1	9H18017-011	08/18/09 09:36
Interference Check B	9H18017-IFB2	9H18017-012	08/18/09 09:39
Calibration Check	9H18017-CCV2	9H18017-013	08/18/09 09:43
Calibration Blank	9H18017-CCB2	9H18017-014	08/18/09 09:46
Calibration Check	9H18017-CCV3	9H18017-025	08/18/09 10:26
Calibration Blank	9H18017-CCB3	9H18017-027	08/18/09 10:36
Serial Dilution	9H18017-SRD1	9H18017-032	08/18/09 10:54
Calibration Check	9H18017-CCV4	9H18017-038	08/18/09 11:16
Calibration Blank	9H18017-CCB4	9H18017-040	08/18/09 11:26
Blank	0909502-BLK1	9H18017-043	08/18/09 11:36
LCS	0909502-BS1	9H18017-044	08/18/09 11:40
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
72SB1B	0908228-02	9H18017-045	08/18/09 11:43
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
DUP-2	0908228-03	9H18017-046	08/18/09 11:47
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2A	0908228-04	9H18017-047	08/18/09 11:51
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0908228-05	9H18017-048	08/18/09 11:54
18SB2B	0909502-MS1	9H18017-049	08/18/09 11:58
18SB2B	0909502-MSD1	9H18017-050	08/18/09 12:02
Calibration Check	9H18017-CCV5	9H18017-051	08/18/09 12:05
Calibration Blank	9H18017-CCB5	9H18017-053	08/18/09 12:14
18SB2B	9H18017-SRD2	9H18017-054	08/18/09 12:18
18SB2B	0909502-PS1	9H18017-055	08/18/09 12:22
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4A	0908228-06	9H18017-056	08/18/09 12:25
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H18017

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Instrument: 101

Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB4B	0908228-07	9H18017-057	08/18/09 12:29
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3A	0908228-08	9H18017-058	08/18/09 12:32
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36
18SB3B	0908228-09	9H18017-059	08/18/09 12:36

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1A	0908228-10	9H18017-060	08/18/09 12:39
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB1B	0908228-11	9H18017-061	08/18/09 12:43
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5A	0908228-12	9H18017-062	08/18/09 12:46
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
18SB5B	0908228-13	9H18017-063	08/18/09 12:50
Calibration Check	9H18017-CCV6	9H18017-066	08/18/09 13:04
Calibration Blank	9H18017-CCB6	9H18017-067	08/18/09 13:07
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
DUP-3	0908228-14	9H18017-068	08/18/09 13:11
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6A	0908228-15	9H18017-069	08/18/09 13:14
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
18SB6B	0908228-16	9H18017-070	08/18/09 13:18
Calibration Check	9H18017-CCV7	9H18017-078	08/18/09 13:46
Calibration Blank	9H18017-CCB7	9H18017-080	08/18/09 13:55
Calibration Check	9H18017-CCV8	9H18017-091	08/18/09 14:34

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H19003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Calibration Blank	9H18017-CCB8	9H18017-092	08/18/09 14:37	
Calibration Check	9H18017-CCV9	9H18017-095	08/18/09 14:48	
Calibration Blank	9H18017-CCB9	9H18017-097	08/18/09 15:02	
Blank	0909502-BLK1	9H18017-098	08/18/09 15:05	
Serial Dilution	9H18017-SRD4	9H18017-106	08/18/09 15:32	
Calibration Check	9H18017-CCVA	9H18017-108	08/18/09 15:39	
Calibration Blank	9H18017-CCBA	9H18017-109	08/18/09 15:42	
Serial Dilution	9H18017-SRD5	9H18017-111	08/18/09 15:49	
Serial Dilution	9H18017-SRD6	9H18017-114	08/18/09 15:59	
18SB2B	0908228-05	9H18017-118	08/18/09 16:13	Fe
18SB2B	9H18017-SRD7	9H18017-119	08/18/09 16:16	
Calibration Check	9H18017-CCVB	9H18017-120	08/18/09 16:19	
Calibration Blank	9H18017-CCBB	9H18017-121	08/18/09 16:23	
18SB2B	0909502-PS2	9H18017-122	08/18/09 16:26	
18SB2B	0908228-05	9H18017-123	08/18/09 16:30	Al
18SB2B	0908228-05	9H18017-123	08/18/09 16:30	Mn
18SB2B	9H18017-SRD8	9H18017-124	08/18/09 16:33	
18SB2B	0909502-PS3	9H18017-125	08/18/09 16:36	
Calibration Check	9H18017-CCVC	9H18017-132	08/18/09 17:00	
Calibration Blank	9H18017-CCBC	9H18017-133	08/18/09 17:04	
Calibration Check	9H18017-CCVD	9H18017-137	08/18/09 17:17	
Calibration Blank	9H18017-CCBD	9H18017-138	08/18/09 17:20	

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCB1	Aluminum	0.00082	0.10	0.018	mg/L	U	08/18/09 09:24
	Barium	-0.00077	0.010	0.0028	mg/L	U	08/18/09 09:24
	Beryllium	0.0000031	0.010	0.00035	mg/L	U	08/18/09 09:24
	Cadmium	0.00027	0.020	0.0024	mg/L	U	08/18/09 09:24
	Calcium	0.010	0.50	0.087	mg/L	U	08/18/09 09:24
	Chromium	0.0020	0.050	0.0074	mg/L	U	08/18/09 09:24
	Cobalt	-0.00073	0.020	0.0044	mg/L	U	08/18/09 09:24
	Iron	0.00041	0.10	0.0047	mg/L	U	08/18/09 09:24
	Magnesium	-0.038	0.50	0.044	mg/L	U	08/18/09 09:24
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 09:24
	Potassium	-0.011	0.50	0.068	mg/L	U	08/18/09 09:24
	Sodium	-0.022	1.0	0.054	mg/L	U	08/18/09 09:24
	Zinc	-0.00074	0.050	0.0079	mg/L	U	08/18/09 09:24
9H18017-CCB2	Aluminum	0.0017	0.10	0.018	mg/L	U	08/18/09 09:46
	Barium	-0.00072	0.010	0.0028	mg/L	U	08/18/09 09:46
	Beryllium	-0.000030	0.010	0.00035	mg/L	U	08/18/09 09:46
	Cadmium	0.00038	0.020	0.0024	mg/L	U	08/18/09 09:46
	Calcium	0.010	0.50	0.087	mg/L	U	08/18/09 09:46
	Chromium	0.00033	0.050	0.0074	mg/L	U	08/18/09 09:46
	Cobalt	0.00076	0.020	0.0044	mg/L	U	08/18/09 09:46
	Iron	0.0026	0.10	0.0047	mg/L	U	08/18/09 09:46
	Magnesium	0.0019	0.50	0.044	mg/L	U	08/18/09 09:46
	Manganese	-0.00086	0.010	0.0021	mg/L	U	08/18/09 09:46
	Potassium	0.0095	0.50	0.068	mg/L	U	08/18/09 09:46
	Sodium	-0.036	1.0	0.054	mg/L	U	08/18/09 09:46
	Zinc	-0.0011	0.050	0.0079	mg/L	U	08/18/09 09:46
9H18017-CCB3	Aluminum	-0.0069	0.10	0.018	mg/L	U	08/18/09 10:36
	Barium	-0.00061	0.010	0.0028	mg/L	U	08/18/09 10:36
	Beryllium	-0.000099	0.010	0.00035	mg/L	U	08/18/09 10:36
	Cadmium	0.00049	0.020	0.0024	mg/L	U	08/18/09 10:36
	Calcium	0.017	0.50	0.087	mg/L	U	08/18/09 10:36
	Chromium	0.0038	0.050	0.0074	mg/L	U	08/18/09 10:36
	Cobalt	0.0030	0.020	0.0044	mg/L	U	08/18/09 10:36

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCB3	Iron	0.0046	0.10	0.0047	mg/L	U	08/18/09 10:36
	Magnesium	0.0015	0.50	0.044	mg/L	U	08/18/09 10:36
	Manganese	-0.0011	0.010	0.0021	mg/L	U	08/18/09 10:36
	Potassium	-0.019	0.50	0.068	mg/L	U	08/18/09 10:36
	Sodium	-0.034	1.0	0.054	mg/L	U	08/18/09 10:36
	Zinc	-0.0015	0.050	0.0079	mg/L	U	08/18/09 10:36
9H18017-CCB4	Aluminum	-0.0022	0.10	0.018	mg/L	U	08/18/09 11:26
	Barium	-0.00057	0.010	0.0028	mg/L	U	08/18/09 11:26
	Beryllium	-0.00014	0.010	0.00035	mg/L	U	08/18/09 11:26
	Cadmium	0.00060	0.020	0.0024	mg/L	U	08/18/09 11:26
	Calcium	0.0078	0.50	0.087	mg/L	U	08/18/09 11:26
	Chromium	0.000027	0.050	0.0074	mg/L	U	08/18/09 11:26
	Cobalt	-0.0015	0.020	0.0044	mg/L	U	08/18/09 11:26
	Iron	0.0071	0.10	0.0047	mg/L	J	08/18/09 11:26
	Magnesium	-0.017	0.50	0.044	mg/L	U	08/18/09 11:26
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 11:26
	Potassium	0.019	0.50	0.068	mg/L	U	08/18/09 11:26
	Sodium	-0.029	1.0	0.054	mg/L	U	08/18/09 11:26
	Zinc	-0.00034	0.050	0.0079	mg/L	U	08/18/09 11:26
0909502-BLK1	Aluminum, Total	4.2	10	1.8	mg/kg dry wt.	J	08/18/09 11:36
	Barium, Total	1.0	1.0	0.28	mg/kg dry wt.	U	08/18/09 11:36
	Beryllium, Total	1.0	1.0	0.035	mg/kg dry wt.	U	08/18/09 11:36
	Cadmium, Total	2.0	2.0	0.24	mg/kg dry wt.	U	08/18/09 11:36
	Calcium, Total	16	50	8.7	mg/kg dry wt.	J	08/18/09 11:36
	Chromium, Total	5.0	5.0	0.74	mg/kg dry wt.	U	08/18/09 11:36
	Cobalt, Total	2.0	2.0	0.44	mg/kg dry wt.	U	08/18/09 11:36
	Magnesium, Total	7.1	50	4.4	mg/kg dry wt.	J	08/18/09 11:36
	Manganese, Total	1.0	1.0	0.21	mg/kg dry wt.	U	08/18/09 11:36
	Potassium, Total	50	50	6.8	mg/kg dry wt.	U	08/18/09 11:36
	Sodium, Total	100	100	5.4	mg/kg dry wt.	U	08/18/09 11:36
	Zinc, Total	0.95	5.0	0.79	mg/kg dry wt.	J	08/18/09 11:36
9H18017-CCB5	Aluminum	-0.0074	0.10	0.018	mg/L	U	08/18/09 12:14
	Barium	-0.00032	0.010	0.0028	mg/L	U	08/18/09 12:14

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H18017
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCB5	Beryllium	-0.000041	0.010	0.00035	mg/L	U	08/18/09 12:14
	Cadmium	-0.000019	0.020	0.0024	mg/L	U	08/18/09 12:14
	Calcium	0.0059	0.50	0.087	mg/L	U	08/18/09 12:14
	Chromium	0.00075	0.050	0.0074	mg/L	U	08/18/09 12:14
	Cobalt	-0.00041	0.020	0.0044	mg/L	U	08/18/09 12:14
	Iron	0.0061	0.10	0.0047	mg/L	J	08/18/09 12:14
	Magnesium	-0.027	0.50	0.044	mg/L	U	08/18/09 12:14
	Manganese	-0.0010	0.010	0.0021	mg/L	U	08/18/09 12:14
	Potassium	0.022	0.50	0.068	mg/L	U	08/18/09 12:14
	Sodium	-0.032	1.0	0.054	mg/L	U	08/18/09 12:14
	Zinc	-0.0013	0.050	0.0079	mg/L	U	08/18/09 12:14
9H18017-CCB6	Aluminum	-0.00033	0.10	0.018	mg/L	U	08/18/09 13:07
	Barium	-0.00041	0.010	0.0028	mg/L	U	08/18/09 13:07
	Beryllium	0.000048	0.010	0.00035	mg/L	U	08/18/09 13:07
	Cadmium	0.00016	0.020	0.0024	mg/L	U	08/18/09 13:07
	Calcium	0.0096	0.50	0.087	mg/L	U	08/18/09 13:07
	Chromium	-0.00079	0.050	0.0074	mg/L	U	08/18/09 13:07
	Cobalt	0.00097	0.020	0.0044	mg/L	U	08/18/09 13:07
	Iron	0.0069	0.10	0.0047	mg/L	J	08/18/09 13:07
	Magnesium	-0.024	0.50	0.044	mg/L	U	08/18/09 13:07
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 13:07
	Potassium	0.017	0.50	0.068	mg/L	U	08/18/09 13:07
	Sodium	-0.032	1.0	0.054	mg/L	U	08/18/09 13:07
	Zinc	-0.00080	0.050	0.0079	mg/L	U	08/18/09 13:07
9H18017-CCB7	Aluminum	0.0023	0.10	0.018	mg/L	U	08/18/09 13:55
	Barium	-0.00057	0.010	0.0028	mg/L	U	08/18/09 13:55
	Beryllium	0.0000076	0.010	0.00035	mg/L	U	08/18/09 13:55
	Cadmium	0.00042	0.020	0.0024	mg/L	U	08/18/09 13:55
	Calcium	0.013	0.50	0.087	mg/L	U	08/18/09 13:55
	Chromium	-0.0028	0.050	0.0074	mg/L	U	08/18/09 13:55
	Cobalt	-0.00046	0.020	0.0044	mg/L	U	08/18/09 13:55
	Iron	0.0050	0.10	0.0047	mg/L	J	08/18/09 13:55
	Magnesium	-0.0056	0.50	0.044	mg/L	U	08/18/09 13:55

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCB7	Manganese	-0.0011	0.010	0.0021	mg/L	U	08/18/09 13:55
	Potassium	-0.0060	0.50	0.068	mg/L	U	08/18/09 13:55
	Sodium	-0.034	1.0	0.054	mg/L	U	08/18/09 13:55
	Zinc	-0.0017	0.050	0.0079	mg/L	U	08/18/09 13:55
9H18017-CCB8	Aluminum	0.013	0.10	0.018	mg/L	U	08/18/09 14:37
	Barium	-0.00057	0.010	0.0028	mg/L	U	08/18/09 14:37
	Beryllium	-0.000037	0.010	0.00035	mg/L	U	08/18/09 14:37
	Cadmium	0.00076	0.020	0.0024	mg/L	U	08/18/09 14:37
	Calcium	0.027	0.50	0.087	mg/L	U	08/18/09 14:37
	Chromium	-0.0021	0.050	0.0074	mg/L	U	08/18/09 14:37
	Cobalt	-0.0011	0.020	0.0044	mg/L	U	08/18/09 14:37
	Iron	0.0093	0.10	0.0047	mg/L	J	08/18/09 14:37
	Magnesium	-0.034	0.50	0.044	mg/L	U	08/18/09 14:37
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 14:37
	Potassium	0.0075	0.50	0.068	mg/L	U	08/18/09 14:37
	Sodium	-0.036	1.0	0.054	mg/L	U	08/18/09 14:37
	Zinc	-0.0023	0.050	0.0079	mg/L	U	08/18/09 14:37
9H18017-CCB9	Aluminum	-0.0077	0.10	0.018	mg/L	U	08/18/09 15:02
	Barium	-0.00077	0.010	0.0028	mg/L	U	08/18/09 15:02
	Beryllium	-0.000041	0.010	0.00035	mg/L	U	08/18/09 15:02
	Cadmium	0.0011	0.020	0.0024	mg/L	U	08/18/09 15:02
	Calcium	0.028	0.50	0.087	mg/L	U	08/18/09 15:02
	Chromium	-0.0011	0.050	0.0074	mg/L	U	08/18/09 15:02
	Cobalt	-0.00044	0.020	0.0044	mg/L	U	08/18/09 15:02
	Iron	0.0029	0.10	0.0047	mg/L	U	08/18/09 15:02
	Magnesium	-0.034	0.50	0.044	mg/L	U	08/18/09 15:02
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 15:02
	Potassium	0.0032	0.50	0.068	mg/L	U	08/18/09 15:02
	Sodium	-0.032	1.0	0.054	mg/L	U	08/18/09 15:02
	Zinc	-0.0031	0.050	0.0079	mg/L	U	08/18/09 15:02
0909502-BLK1	Iron, Total	0.71	10	0.47	mg/kg dry wt.	J	08/18/09 15:05
9H18017-CCBA	Aluminum	-0.0018	0.10	0.018	mg/L	U	08/18/09 15:42
	Barium	0.00017	0.010	0.0028	mg/L	U	08/18/09 15:42

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCBA	Beryllium	-0.000061	0.010	0.00035	mg/L	U	08/18/09 15:42
	Cadmium	0.0011	0.020	0.0024	mg/L	U	08/18/09 15:42
	Calcium	0.017	0.50	0.087	mg/L	U	08/18/09 15:42
	Chromium	0.00013	0.050	0.0074	mg/L	U	08/18/09 15:42
	Cobalt	-0.00054	0.020	0.0044	mg/L	U	08/18/09 15:42
	Iron	0.0046	0.10	0.0047	mg/L	U	08/18/09 15:42
	Magnesium	-0.015	0.50	0.044	mg/L	U	08/18/09 15:42
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 15:42
	Potassium	0.0043	0.50	0.068	mg/L	U	08/18/09 15:42
	Sodium	-0.020	1.0	0.054	mg/L	U	08/18/09 15:42
	Zinc	-0.0028	0.050	0.0079	mg/L	U	08/18/09 15:42
9H18017-CCBB	Aluminum	-0.0087	0.10	0.018	mg/L	U	08/18/09 16:23
	Barium	0.00015	0.010	0.0028	mg/L	U	08/18/09 16:23
	Beryllium	-0.00019	0.010	0.00035	mg/L	U	08/18/09 16:23
	Cadmium	0.0013	0.020	0.0024	mg/L	U	08/18/09 16:23
	Calcium	0.014	0.50	0.087	mg/L	U	08/18/09 16:23
	Chromium	0.0011	0.050	0.0074	mg/L	U	08/18/09 16:23
	Cobalt	0.0012	0.020	0.0044	mg/L	U	08/18/09 16:23
	Iron	0.0043	0.10	0.0047	mg/L	U	08/18/09 16:23
	Magnesium	-0.031	0.50	0.044	mg/L	U	08/18/09 16:23
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/18/09 16:23
	Potassium	0.018	0.50	0.068	mg/L	U	08/18/09 16:23
	Sodium	-0.023	1.0	0.054	mg/L	U	08/18/09 16:23
	Zinc	0.00084	0.050	0.0079	mg/L	U	08/18/09 16:23
9H18017-CCBC	Aluminum	-0.0059	0.10	0.018	mg/L	U	08/18/09 17:04
	Barium	0.00018	0.010	0.0028	mg/L	U	08/18/09 17:04
	Beryllium	-0.00031	0.010	0.00035	mg/L	U	08/18/09 17:04
	Cadmium	0.00073	0.020	0.0024	mg/L	U	08/18/09 17:04
	Calcium	0.016	0.50	0.087	mg/L	U	08/18/09 17:04
	Chromium	0.0031	0.050	0.0074	mg/L	U	08/18/09 17:04
	Cobalt	0.0011	0.020	0.0044	mg/L	U	08/18/09 17:04
	Iron	0.0040	0.10	0.0047	mg/L	U	08/18/09 17:04
	Magnesium	-0.0095	0.50	0.044	mg/L	U	08/18/09 17:04

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H18017

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9H19003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H18017-CCBC	Manganese	-0.0014	0.010	0.0021	mg/L	U	08/18/09 17:04
	Potassium	-0.016	0.50	0.068	mg/L	U	08/18/09 17:04
	Sodium	-0.031	1.0	0.054	mg/L	U	08/18/09 17:04
	Zinc	0.00051	0.050	0.0079	mg/L	U	08/18/09 17:04
9H18017-CCBD	Aluminum	0.0018	0.10	0.018	mg/L	U	08/18/09 17:20
	Barium	0.000017	0.010	0.0028	mg/L	U	08/18/09 17:20
	Beryllium	-0.00013	0.010	0.00035	mg/L	U	08/18/09 17:20
	Cadmium	0.00094	0.020	0.0024	mg/L	U	08/18/09 17:20
	Calcium	0.023	0.50	0.087	mg/L	U	08/18/09 17:20
	Chromium	0.0073	0.050	0.0074	mg/L	U	08/18/09 17:20
	Cobalt	0.0036	0.020	0.0044	mg/L	U	08/18/09 17:20
N/A	Iron	0.0048	0.10	0.0047	mg/L	J	08/18/09 17:20
	Magnesium	-0.043	0.50	0.044	mg/L	U	08/18/09 17:20
	Manganese	-0.0012	0.010	0.0021	mg/L	U	08/18/09 17:20
	Potassium	0.022	0.50	0.068	mg/L	U	08/18/09 17:20
	Sodium	-0.031	1.0	0.054	mg/L	U	08/18/09 17:20
	Zinc	-0.0011	0.050	0.0079	mg/L	U	08/18/09 17:20

* Values outside of QC limits

1	Zn 206.200	3.9	4.1	-0.0007812	mg/L
2	Sc 357.253	495667.7	495667.7	95.9	mg/L
2	Y 360.064	312103.2	312103.2	95.9	mg/L
2	Ag 328.068	-405.2	-422.5	-0.0004801	mg/L
2	Al 396.140	-45.0	-46.9	-0.0020493	mg/L
2	As 188.979	4.8	5.0	0.0014769	mg/L
2	B 249.773	172.3	179.7	-0.0050195	mg/L
2	Ba 455.403	7472.2	7791.0	-0.0005536	mg/L
2	Be 234.861	-274.4	-286.2	-0.0001952	mg/L
2	Ca 315.887	-1214.1	-1265.9	0.0050061	mg/L
2	Cd 214.438	89.5	93.3	0.0007131	mg/L
2	Ce 413.765	887.8	925.7	0.0092341	mg/L
2	Co 228.616	-7.8	-8.2	-0.0012330	mg/L
2	Cr 205.560	32.3	33.7	0.0002475	mg/L
2	Cu 327.394	148.6	155.0	-0.0011387	mg/L
2	Fe 238.204	413.7	431.4	0.0069740	mg/L
2	K 766.514	1405.0	1464.9	0.0200760	mg/L
2	Li 670.781	-34.5	-36.0	-0.0006296	mg/L
2	Mg 279.074	-121.5	-126.7	-0.0242435	mg/L
2	Mn 257.610	-48.6	-50.7	-0.0012640	mg/L
2	Mo 202.031	4.7	4.9	-0.0050914	mg/L
2	Na 589.594	639.5	666.8	-0.0293060	mg/L
2	Ni 231.603	-136.9	-142.7	-0.0025620	mg/L
2	Pb 220.353	-7.3	-7.6	0.0027882	mg/L
2	Sb 206.831	-11.4	-11.9	0.0269040	mg/L
2	Se 196.026	77.7	81.0	0.0531623	mg/L
2	Si 251.611	876.7	914.1	-0.0346474	mg/L
2	Sn 189.933	147.4	153.7	0.0210779	mg/L
2	Sr 407.771	211.4	220.4	-0.0009636	mg/L
2	Ti 334.941	1695.4	1767.8	-0.0014814	mg/L
2	Tl 190.800	16.6	17.3	-0.0269160	mg/L
2	V 292.402	-419.1	-436.9	-0.0009669	mg/L
2	Zn 206.200	6.8	7.1	0.0000932	mg/L

Mean Data ----------

ID: 9H18017-CCB Seq. No.: 30 Sample No.: 9 A/S Pos: 1

Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0

Data: Original Date: 8/18/09 11:25:42 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Units	RSD
Sc 357.253	496629.4	96.1	0.26	mg/L				0.27%
Y 360.064	312778.9	96.1	0.29	mg/L				0.31%
Ag 328.068	-464.2	-0.0017947	0.00185917	mg/L				103.59%
Al 396.140	-47.9	-0.0021591	0.00015520	mg/L				7.19%
As 188.979	2.3	-0.0083900	0.01395398	mg/L				166.32%
B 249.773	166.4	-0.0060000	0.00138662	mg/L				23.11%
Ba 455.403	7781.7	-0.0005655	0.00001675	mg/L				2.96%
Be 234.861	-279.8	-0.0001406	0.00007717	mg/L				54.88%
Ca 315.887	-1228.9	0.0077633	0.00389934	mg/L				50.23%
Cd 214.438	92.2	0.0006014	0.00015797	mg/L				26.27%
Ce 413.765	879.0	0.0035600	0.00802451	mg/L				225.41%
Co 228.616	-9.7	-0.0015407	0.00043516	mg/L				28.24%
Cr 205.560	33.3	0.0000271	0.00031161	mg/L				>999.9%
Cu 327.394	173.1	-0.0000865	0.00148813	mg/L				>999.9%
Fe 238.204	432.8	0.0070781	0.00014724	mg/L				2.08%
K 766.514	1460.6	0.0190252	0.00148601	mg/L				7.81%
Li 670.781	-40.6	-0.0006566	0.00003819	mg/L				5.82%
Mg 279.074	-115.5	-0.0173841	0.00970066	mg/L				55.80%
Mn 257.610	-40.7	-0.0011651	0.00013994	mg/L				12.01%
Mo 202.031	6.5	-0.0037930	0.00183613	mg/L				48.41%
Na 589.594	663.4	-0.0294937	0.00026551	mg/L				0.90%
Ni 231.603	-142.0	-0.0022987	0.00037235	mg/L				16.20%
Pb 220.353	-10.1	-0.0024342	0.00738562	mg/L				303.41%
Sb 206.831	-13.5	0.0215225	0.00761050	mg/L				35.36%
Se 196.026	80.9	0.0527815	0.00053852	mg/L				1.02%
Si 251.611	908.6	-0.0355541	0.00128225	mg/L				3.61%
Sn 189.933	147.3	0.0039366	0.02424147	mg/L				615.79%
Sr 407.771	254.3	-0.0009435	0.00002842	mg/L				3.01%
Ti 334.941	1792.5	-0.0012608	0.00031195	mg/L				24.74%
Tl 190.800	17.6	-0.0257535	0.00164399	mg/L				6.38%

2 Pb 220.353	-15.6	-15.7	-0.0146799 mg/L	-0.0146799 mg/L	
2 Sb 206.831	-17.5	-17.6	0.0078226 mg/L	0.0078226 mg/L	
2 Se 196.026	72.0	72.7	0.0155276 mg/L	0.0155276 mg/L	
2 Si 251.611	1029.2	1039.2	-0.0141462 mg/L	-0.0141462 mg/L	
2 Sn 189.933	150.6	152.1	0.0168345 mg/L	0.0168345 mg/L	
2 Sr 407.771	-191.1	-193.0	-0.0012082 mg/L	-0.0012082 mg/L	
2 Ti 334.941	1835.1	1853.0	-0.0007217 mg/L	-0.0007217 mg/L	
2 Tl 190.800	23.4	23.6	0.0007103 mg/L	0.0007103 mg/L	
2 V 292.402	-374.8	-378.4	0.0019823 mg/L	0.0019823 mg/L	
2 Zn 206.200	33.4	33.8	0.0077645 mg/L	0.0077645 mg/L	

Mean Data ----------

ID: 0909502-BLK1 Seq. No.: 33 Sample No.: 23 A/S Pos: 39
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 11:36:19 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	509224.1	98.5	0.71	mg/L				0.72%
Y 360.064	317827.8	97.7	0.70	mg/L				0.71%
Ag 328.068	-395.8	0.0003631	0.00008098	mg/L	0.0003631	0.00008098	mg/L	22.30%
Al 396.140	342.1	0.0423726	0.03560137	mg/L	0.0423726	0.03560137	mg/L	84.02%
As 188.979	5.9	0.0049717	0.00894461	mg/L	0.0049717	0.00894461	mg/L	179.91%
B 249.773	87.1	-0.0118602	0.00050054	mg/L	-0.0118602	0.00050054	mg/L	4.22%
Ba 455.403	7757.0	-0.0005966	0.00000814	mg/L	-0.0005966	0.00000814	mg/L	1.36%
Be 234.861	-255.7	0.0000650	0.00009253	mg/L	0.0000650	0.00009253	mg/L	142.42%
Ca 315.887	817.5	0.160399	0.0050546	mg/L	0.160399	0.0050546	mg/L	3.15%
Cd 214.438	90.8	0.0004667	0.00069302	mg/L	0.0004667	0.00069302	mg/L	148.51%
Ce 413.765	855.2	0.0006723	0.01090549	mg/L	0.0006723	0.01090549	mg/L	>999.9%
Co 228.616	-2.1	-0.0000321	0.00149563	mg/L	-0.0000321	0.00149563	mg/L	>999.9%
Cr 205.560	28.3	-0.0029039	0.00399959	mg/L	-0.0029039	0.00399959	mg/L	137.73%
Cu 327.394	167.0	-0.0004437	0.00055857	mg/L	-0.0004437	0.00055857	mg/L	125.90%
Fe 238.204	1268.0	0.0696495	0.01501890	mg/L	0.0696495	0.01501890	mg/L	21.56%
K 766.514	1508.2	0.0306910	0.05448455	mg/L	0.0306910	0.05448455	mg/L	177.53%
Li 670.781	11.7	-0.0003538	0.00040781	mg/L	-0.0003538	0.00040781	mg/L	115.25%
Mg 279.074	29.0	0.0712831	0.06322708	mg/L	0.0712831	0.06322708	mg/L	88.70%
Mn 257.610	13.9	-0.0006243	0.00017454	mg/L	-0.0006243	0.00017454	mg/L	27.96%
Mo 202.031	12.5	0.0013850	0.00710413	mg/L	0.0013850	0.00710413	mg/L	512.94%
Na 589.594	743.5	-0.0250174	0.00788620	mg/L	-0.0250174	0.00788620	mg/L	31.52%
Ni 231.603	-116.2	0.0074293	0.00301257	mg/L	0.0074293	0.00301257	mg/L	40.55%
Pb 220.353	-15.0	-0.0130940	0.00224271	mg/L	-0.0130940	0.00224271	mg/L	17.13%
Sb 206.831	-27.6	-0.0250669	0.04651274	mg/L	-0.0250669	0.04651274	mg/L	185.55%
Se 196.026	67.6	-0.0074587	0.03250759	mg/L	-0.0074587	0.03250759	mg/L	435.83%
Si 251.611	1056.7	-0.0112814	0.00405137	mg/L	-0.0112814	0.00405137	mg/L	35.91%
Sn 189.933	147.4	0.0041332	0.01796229	mg/L	0.0041332	0.01796229	mg/L	434.58%
Sr 407.771	-204.4	-0.0012150	0.00000951	mg/L	-0.0012150	0.00000951	mg/L	0.78%
Ti 334.941	1812.5	-0.0010827	0.00051049	mg/L	-0.0010827	0.00051049	mg/L	47.15%
Tl 190.800	22.1	-0.0059747	0.00945406	mg/L	-0.0059747	0.00945406	mg/L	158.23%
V 292.402	-426.2	-0.0004248	0.00340407	mg/L	-0.0004248	0.00340407	mg/L	801.36%
Zn 206.200	39.8	0.0095151	0.00247568	mg/L	0.0095151	0.00247568	mg/L	26.02%

Replicate Data ----------

ID: 0909502-BS1 Date: 8/18/09 11:39:43 AM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	508241.4	508241.4	98.3	mg/L		
1	Y 360.064	315733.9	315733.9	97.0	mg/L		
1	Ag 328.068	7247.5	7369.8	0.245377	mg/L	0.245377	mg/L
1	Al 396.140	10776.9	10958.8	1.25451	mg/L	1.25451	mg/L
1	As 188.979	334.7	340.3	1.22666	mg/L	1.22666	mg/L
1	B 249.773	3282.5	3337.9	0.228351	mg/L	0.228351	mg/L
1	Ba 455.403	202544.0	205961.5	0.250356	mg/L	0.250356	mg/L
1	Be 234.861	2693.0	2738.5	0.0256205	mg/L	0.0256205	mg/L
1	Ca 315.887	164101.2	166870.1	12.5442	mg/L	12.5442	mg/L
1	Cd 214.438	2616.9	2661.1	0.250454	mg/L	0.250454	mg/L
1	Ce 413.765	831.9	846.0	-0.0004507	mg/L	-0.0004507	mg/L
1	Co 228.616	1204.6	1224.9	0.244173	mg/L	0.244173	mg/L
1	Cr 205.560	476.7	484.8	0.262547	mg/L	0.262547	mg/L
1	Cu 327.394	4679.6	4758.6	0.265309	mg/L	0.265309	mg/L
1	Fe 238.204	4024.9	4092.8	0.281275	mg/L	0.281275	mg/L

2 Fe 238.204	5289136.2	5176702.3	387.793 mg/L	387.793 mg/L	
2 K 766.514	76188.3	74568.7	17.9302 mg/L	17.9302 mg/L	
2 Li 670.781	31811.1	31134.9	0.179535 mg/L	0.179535 mg/L	
2 Mg 279.074	52275.9	51164.7	31.3259 mg/L	31.3259 mg/L	
2 Mn 257.610	679037.9	664603.2	6.58538 mg/L	6.58538 mg/L	
2 Mo 202.031	-45.1	-44.1	-0.0467465 mg/L	-0.0467465 mg/L	
2 Na 589.594	7589.1	7427.7	0.348866 mg/L	0.348866 mg/L	
2 Ni 231.603	358.7	351.1	0.153404 mg/L	0.153404 mg/L	
2 Pb 220.353	-14.9	-14.6	0.182328 mg/L	0.182328 mg/L	
2 Sb 206.831	-117.2	-114.7	-0.0678153 mg/L	-0.0678153 mg/L	
2 Se 196.026	72.4	70.8	0.0071480 mg/L	0.0071480 mg/L	
2 Si 251.611	138279.5	135340.0	21.5625 mg/L	21.5625 mg/L	
2 Sn 189.933	427.9	418.8	0.315630 mg/L	0.315630 mg/L	
2 Sr 407.771	137915.6	134983.9	0.0788004 mg/L	0.0788004 mg/L	
2 Ti 334.941	1181304.1	1156192.5	10.2818 mg/L	10.2818 mg/L	
2 Tl 190.800	-8.5	-8.3	-0.0379476 mg/L	-0.0379476 mg/L	
2 V 292.402	16336.3	15989.0	0.777934 mg/L	0.777934 mg/L	
2 Zn 206.200	2436.6	2384.8	0.666897 mg/L	0.666897 mg/L	

Mean Data ----------

ID: 0908228-02 Seq. No.: 35 Sample No.: 25 A/S Pos: 41
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 11:43:15 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	528142.6	102.2	0.03	mg/L				0.03%
Y 360.064	335913.8	103.2	0.29	mg/L				0.28%
Ag 328.068	-696.5	0.113358	0.0012934	mg/L	0.113358	0.0012934	mg/L	1.14%
Al 396.140	2283109.4	260.674	0.1146	mg/L	260.674	0.1146	mg/L	0.04%
As 188.979	41.9	0.136556	0.0357861	mg/L	0.136556	0.0357861	mg/L	26.21%
B 249.773	15039.2	0.0242803	0.00975966	mg/L	0.0242803	0.00975966	mg/L	40.20%
Ba 455.403	848557.2	1.06396	0.000170	mg/L	1.06396	0.000170	mg/L	0.02%
Be 234.861	6558.2	0.0153020	0.00003901	mg/L	0.0153020	0.00003901	mg/L	0.25%
Ca 315.887	137437.1	10.3208	0.03830	mg/L	10.3208	0.03830	mg/L	0.37%
Cd 214.438	697.2	0.0074554	0.00091591	mg/L	0.0074554	0.00091591	mg/L	12.29%
Ce 413.765	6803.1	0.723260	0.0036254	mg/L	0.723260	0.0036254	mg/L	0.50%
Co 228.616	1623.7	0.160401	0.0004948	mg/L	0.160401	0.0004948	mg/L	0.31%
Cr 205.560	661.2	0.328427	0.0070272	mg/L	0.328427	0.0070272	mg/L	2.14%
Cu 327.394	3364.2	0.184604	0.0050500	mg/L	0.184604	0.0050500	mg/L	2.74%
Fe 238.204	5178760.1	387.947	0.2180	mg/L	387.947	0.2180	mg/L	0.06%
K 766.514	74827.5	17.9936	0.08967	mg/L	17.9936	0.08967	mg/L	0.50%
Li 670.781	31320.5	0.180608	0.0015173	mg/L	0.180608	0.0015173	mg/L	0.84%
Mg 279.074	51344.1	31.4359	0.15562	mg/L	31.4359	0.15562	mg/L	0.50%
Mn 257.610	664968.0	6.58900	0.005112	mg/L	6.58900	0.005112	mg/L	0.08%
Mo 202.031	-38.9	-0.0423487	0.00621944	mg/L	-0.0423487	0.00621944	mg/L	14.69%
Na 589.594	7513.5	0.353664	0.0067859	mg/L	0.353664	0.0067859	mg/L	1.92%
Ni 231.603	350.6	0.153223	0.0002567	mg/L	0.153223	0.0002567	mg/L	0.17%
Pb 220.353	-8.6	0.195390	0.0184725	mg/L	0.195390	0.0184725	mg/L	9.45%
Sb 206.831	-121.7	-0.0908690	0.03260281	mg/L	-0.0908690	0.03260281	mg/L	35.88%
Se 196.026	68.0	-0.0055702	0.01798622	mg/L	-0.0055702	0.01798622	mg/L	322.90%
Si 251.611	135644.3	21.6121	0.07004	mg/L	21.6121	0.07004	mg/L	0.32%
Sn 189.933	418.7	0.314674	0.0013522	mg/L	0.314674	0.0013522	mg/L	0.43%
Sr 407.771	135311.4	0.0789943	0.00027417	mg/L	0.0789943	0.00027417	mg/L	0.35%
Ti 334.941	1155909.4	10.2793	0.00357	mg/L	10.2793	0.00357	mg/L	0.03%
Tl 190.800	-8.4	-0.0384461	0.00070496	mg/L	-0.0384461	0.00070496	mg/L	1.83%
V 292.402	16022.8	0.779616	0.0023779	mg/L	0.779616	0.0023779	mg/L	0.31%
Zn 206.200	2395.2	0.669880	0.0042189	mg/L	0.669880	0.0042189	mg/L	0.63%

Replicate Data ----------

ID: 0908228-03 Date: 8/18/09 11:46:54 AM

Repl# Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1 Sc 357.253	522322.6	522322.6	101.1	mg/L		
1 Y 360.064	336276.0	336276.0	103.3	mg/L		
1 Ag 328.068	-781.0	-772.8	0.109787	mg/L	0.109787	mg/L
1 Al 396.140	2155512.4	2132792.1	243.512	mg/L	243.512	mg/L
1 As 188.979	49.9	49.3	0.163532	mg/L	0.163532	mg/L
1 B 249.773	15111.2	14951.9	0.0279981	mg/L	0.0279981	mg/L
1 Ba 455.403	804646.3	796164.9	0.997629	mg/L	0.997629	mg/L

1 Be 234.861	6501.9	6433.3	0.0147464 mg/L	0.0147464 mg/L
1 Ca 315.887	383598.5	379555.1	28.3800 mg/L	28.3800 mg/L
1 Cd 214.438	665.3	658.3	0.0054717 mg/L	0.0054717 mg/L
1 Ce 413.765	7018.3	6944.3	0.740422 mg/L	0.740422 mg/L
1 Co 228.616	1569.4	1552.9	0.147436 mg/L	0.147436 mg/L
1 Cr 205.560	631.3	624.6	0.307543 mg/L	0.307543 mg/L
1 Cu 327.394	3467.9	3431.3	0.188491 mg/L	0.188491 mg/L
1 Fe 238.204	5184120.3	5129476.8	384.255 mg/L	384.255 mg/L
1 K 766.514	77780.7	76960.9	18.5162 mg/L	18.5162 mg/L
1 Li 670.781	30448.0	30127.0	0.173709 mg/L	0.173709 mg/L
1 Mg 279.074	61137.4	60493.0	37.0524 mg/L	37.0524 mg/L
1 Mn 257.610	631809.2	625149.6	6.19440 mg/L	6.19440 mg/L
1 Mo 202.031	-29.1	-28.7	-0.0336989 mg/L	-0.0336989 mg/L
1 Na 589.594	7849.5	7766.7	0.367828 mg/L	0.367828 mg/L
1 Ni 231.603	352.2	348.5	0.152693 mg/L	0.152693 mg/L
1 Pb 220.353	-4.7	-4.7	0.198114 mg/L	0.198114 mg/L
1 Sb 206.831	-106.4	-105.2	-0.0387033 mg/L	-0.0387033 mg/L
1 Se 196.026	66.2	65.5	-0.0167235 mg/L	-0.0167235 mg/L
1 Si 251.611	134222.8	132808.0	21.1218 mg/L	21.1218 mg/L
1 Sn 189.933	424.0	419.5	0.395385 mg/L	0.395385 mg/L
1 Sr 407.771	146379.9	144837.0	0.0846323 mg/L	0.0846323 mg/L
1 Ti 334.941	1188168.4	1175644.4	10.4551 mg/L	10.4551 mg/L
1 Tl 190.800	-2.1	-2.1	-0.112043 mg/L	-0.112043 mg/L
1 V 292.402	15998.7	15830.1	0.770371 mg/L	0.770371 mg/L
1 Zn 206.200	2336.5	2311.9	0.646060 mg/L	0.646060 mg/L
2 Sc 357.253	525232.6	525232.6	101.6 mg/L	
2 Y 360.064	334710.5	334710.5	102.9 mg/L	
2 Ag 328.068	-725.7	-714.1	0.110838 mg/L	0.110838 mg/L
2 Al 396.140	2154752.0	2120227.2	242.077 mg/L	242.077 mg/L
2 As 188.979	52.0	51.1	0.170118 mg/L	0.170118 mg/L
2 B 249.773	15053.2	14812.0	0.0246404 mg/L	0.0246404 mg/L
2 Ba 455.403	805105.2	792205.3	0.992615 mg/L	0.992615 mg/L
2 Be 234.861	6501.9	6397.7	0.0147207 mg/L	0.0147207 mg/L
2 Ca 315.887	382996.4	376859.8	28.1791 mg/L	28.1791 mg/L
2 Cd 214.438	675.8	665.0	0.0064372 mg/L	0.0064372 mg/L
2 Ce 413.765	6992.9	6880.9	0.732712 mg/L	0.732712 mg/L
2 Co 228.616	1574.6	1549.4	0.147786 mg/L	0.147786 mg/L
2 Cr 205.560	643.8	633.5	0.312951 mg/L	0.312951 mg/L
2 Cu 327.394	3422.8	3367.9	0.184820 mg/L	0.184820 mg/L
2 Fe 238.204	5178620.1	5095645.0	381.721 mg/L	381.721 mg/L
2 K 766.514	77589.0	76345.8	18.3655 mg/L	18.3655 mg/L
2 Li 670.781	30140.5	29657.6	0.170996 mg/L	0.170996 mg/L
2 Mg 279.074	60757.7	59784.2	36.6182 mg/L	36.6182 mg/L
2 Mn 257.610	631610.9	621490.8	6.15814 mg/L	6.15814 mg/L
2 Mo 202.031	-32.4	-31.9	-0.0363456 mg/L	-0.0363456 mg/L
2 Na 589.594	7832.9	7707.4	0.364507 mg/L	0.364507 mg/L
2 Ni 231.603	340.6	335.1	0.147861 mg/L	0.147861 mg/L
2 Pb 220.353	-14.5	-14.3	0.176017 mg/L	0.176017 mg/L
2 Sb 206.831	-98.8	-97.2	-0.0138123 mg/L	-0.0138123 mg/L
2 Se 196.026	67.2	66.1	-0.0139266 mg/L	-0.0139266 mg/L
2 Si 251.611	133525.2	131385.8	20.8920 mg/L	20.8920 mg/L
2 Sn 189.933	419.3	412.6	0.380006 mg/L	0.380006 mg/L
2 Sr 407.771	146090.3	143749.6	0.0839887 mg/L	0.0839887 mg/L
2 Ti 334.941	1188647.3	1169602.0	10.4013 mg/L	10.4013 mg/L
2 Tl 190.800	1.1	1.1	-0.0980692 mg/L	-0.0980692 mg/L
2 V 292.402	15985.8	15729.6	0.765627 mg/L	0.765627 mg/L
2 Zn 206.200	2327.1	2289.8	0.639811 mg/L	0.639811 mg/L

Mean Data ----------

ID: 0908228-03
Sample Qty: 1.0000 mL
Seq. No.: 36
Prep. Vol.:
Data: Original
Sample No.: 26
1.0 mL
A/S Pos: 42
Dilution: 1.0: 1.0
Date: 8/18/09 11:46:54 AM

Element	Mean Corr. Intensity	Mean Conc.	Calib Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	523777.6	101.3	0.40	mg/L				0.39%
Y 360.064	335493.2	103.1	0.34	mg/L				0.33%
Ag 328.068	-743.4	0.110313	0.0007430	mg/L	0.110313	0.0007430	mg/L	0.67%
Al 396.140	2126509.6	242.794	1.0144	mg/L	242.794	1.0144	mg/L	0.42%
As 188.979	50.2	0.166825	0.0046573	mg/L	0.166825	0.0046573	mg/L	2.79%
B 249.773	14882.0	0.0263193	0.00237429	mg/L	0.0263193	0.00237429	mg/L	9.02%

Ba 455.403	794185.1	0.995122	0.0035450	mg/L	0.995122	0.0035450	mg/L	0.36%
Be 234.861	6415.5	0.0147335	0.00001815	mg/L	0.0147335	0.00001815	mg/L	0.12%
Ca 315.887	378207.4	28.2796	0.14202	mg/L	28.2796	0.14202	mg/L	0.50%
Cd 214.438	661.6	0.0059544	0.00068270	mg/L	0.0059544	0.00068270	mg/L	11.47%
Ce 413.765	6912.6	0.736567	0.0054515	mg/L	0.736567	0.0054515	mg/L	0.74%
Co 228.616	1551.2	0.147611	0.0002473	mg/L	0.147611	0.0002473	mg/L	0.17%
Cr 205.560	629.1	0.310247	0.0038243	mg/L	0.310247	0.0038243	mg/L	1.23%
Cu 327.394	3399.6	0.186656	0.0025957	mg/L	0.186656	0.0025957	mg/L	1.39%
Fe 238.204	5112560.9	382.988	1.7922	mg/L	382.988	1.7922	mg/L	0.47%
K 766.514	76653.4	18.4409	0.10655	mg/L	18.4409	0.10655	mg/L	0.58%
Li 670.781	29892.3	0.172353	0.0019185	mg/L	0.172353	0.0019185	mg/L	1.11%
Mg 279.074	60138.6	36.8353	0.30697	mg/L	36.8353	0.30697	mg/L	0.83%
Mn 257.610	623320.2	6.17627	0.025638	mg/L	6.17627	0.025638	mg/L	0.42%
Mo 202.031	-30.3	-0.0350222	0.00187154	mg/L	-0.0350222	0.00187154	mg/L	5.34%
Na 589.594	7737.1	0.366167	0.0023481	mg/L	0.366167	0.0023481	mg/L	0.64%
Ni 231.603	341.8	0.150277	0.0034171	mg/L	0.150277	0.0034171	mg/L	2.27%
Pb 220.353	-9.5	0.187066	0.0156254	mg/L	0.187066	0.0156254	mg/L	8.35%
Sb 206.831	-101.2	-0.0262578	0.01760061	mg/L	-0.0262578	0.01760061	mg/L	67.03%
Se 196.026	65.8	-0.0153251	0.00197770	mg/L	-0.0153251	0.00197770	mg/L	12.90%
Si 251.611	132096.9	21.0069	0.16249	mg/L	21.0069	0.16249	mg/L	0.77%
Sn 189.933	416.1	0.387695	0.0108750	mg/L	0.387695	0.0108750	mg/L	2.81%
Sr 407.771	144293.3	0.0843105	0.00045511	mg/L	0.0843105	0.00045511	mg/L	0.54%
Ti 334.941	1172623.2	10.4282	0.03806	mg/L	10.4282	0.03806	mg/L	0.36%
Tl 190.800	-0.5	-0.105056	0.0098806	mg/L	-0.105056	0.0098806	mg/L	9.41%
V 292.402	15779.9	0.767999	0.0033547	mg/L	0.767999	0.0033547	mg/L	0.44%
Zn 206.200	2300.8	0.642935	0.0044187	mg/L	0.642935	0.0044187	mg/L	0.69%

Replicate Data ----------

ID: 0908228-04

Date: 8/18/09 11:50:34 AM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	510986.4	510986.4	98.9	mg/L		
1	Y 360.064	320942.4	320942.4	98.6	mg/L		
1	Ag 328.068	-584.8	-591.5	0.0890221	mg/L	0.0890221	mg/L
1	Al 396.140	1966595.7	1989035.3	227.098	mg/L	227.098	mg/L
1	As 188.979	56.8	57.5	0.193289	mg/L	0.193289	mg/L
1	B 249.773	11480.9	11611.9	0.0122810	mg/L	0.0122810	mg/L
1	Ba 455.403	905692.0	916026.3	1.14939	mg/L	1.14939	mg/L
1	Be 234.861	4812.2	4867.1	0.0103834	mg/L	0.0103834	mg/L
1	Ca 315.887	2363273.3	2390239.1	178.355	mg/L	178.355	mg/L
1	Cd 214.438	653.4	660.9	0.0133982	mg/L	0.0133982	mg/L
1	Ce 413.765	4940.1	4996.5	0.503786	mg/L	0.503786	mg/L
1	Co 228.616	1293.2	1308.0	0.132096	mg/L	0.132096	mg/L
1	Cr 205.560	661.2	668.7	0.341121	mg/L	0.341121	mg/L
1	Cu 327.394	2617.8	2647.7	0.161819	mg/L	0.161819	mg/L
1	Fe 238.204	3964528.2	4009764.9	300.371	mg/L	300.371	mg/L
1	K 766.514	84482.1	85446.0	20.5951	mg/L	20.5951	mg/L
1	Li 670.781	26034.0	26331.0	0.151769	mg/L	0.151769	mg/L
1	Mg 279.074	185923.9	188045.3	115.355	mg/L	115.355	mg/L
1	Mn 257.610	661151.3	668695.3	6.62593	mg/L	6.62593	mg/L
1	Mo 202.031	-23.0	-23.3	-0.0290578	mg/L	-0.0290578	mg/L
1	Na 589.594	8894.7	8996.2	0.436599	mg/L	0.436599	mg/L
1	Ni 231.603	323.0	326.7	0.151033	mg/L	0.151033	mg/L
1	Pb 220.353	-0.4	-0.4	0.176258	mg/L	0.176258	mg/L
1	Sb 206.831	-85.0	-85.9	-0.0280062	mg/L	-0.0280062	mg/L
1	Se 196.026	56.3	56.9	-0.0556064	mg/L	-0.0556064	mg/L
1	Si 251.611	130683.7	132174.9	20.7672	mg/L	20.7672	mg/L
1	Sn 189.933	576.1	582.7	0.598782	mg/L	0.598782	mg/L
1	Sr 407.771	260584.0	263557.4	0.154901	mg/L	0.154901	mg/L
1	Ti 334.941	1046100.8	1058037.2	9.40747	mg/L	9.40747	mg/L
1	Tl 190.800	-5.0	-5.0	-0.0230102	mg/L	-0.0230102	mg/L
1	V 292.402	12435.2	12577.1	0.617016	mg/L	0.617016	mg/L
1	Zn 206.200	2414.1	2441.6	0.687388	mg/L	0.687388	mg/L
2	Sc 357.253	510585.2	510585.2	98.8	mg/L		
2	Y 360.064	320740.2	320740.2	98.6	mg/L		
2	Ag 328.068	-612.0	-619.4	0.0881318	mg/L	0.0881318	mg/L
2	Al 396.140	1965233.7	1989219.8	227.119	mg/L	227.119	mg/L
2	As 188.979	44.0	44.5	0.145840	mg/L	0.145840	mg/L
2	B 249.773	11460.1	11599.9	0.0114760	mg/L	0.0114760	mg/L

2 Ba 455.403	905921.6	916978.6	1.15059 mg/L	1.15059 mg/L	
2 Be 234.861	4937.4	4997.6	0.0115000 mg/L	0.0115000 mg/L	
2 Ca 315.887	2359795.3	2388597.2	178.233 mg/L	178.233 mg/L	
2 Cd 214.438	642.0	649.8	0.0123224 mg/L	0.0123224 mg/L	
2 Ce 413.765	4948.1	5008.5	0.505244 mg/L	0.505244 mg/L	
2 Co 228.616	1280.8	1296.4	0.129797 mg/L	0.129797 mg/L	
2 Cr 205.560	662.3	670.4	0.342080 mg/L	0.342080 mg/L	
2 Cu 327.394	2583.1	2614.7	0.159894 mg/L	0.159894 mg/L	
2 Fe 238.204	3961031.4	4009376.8	300.342 mg/L	300.342 mg/L	
2 K 766.514	84485.5	85516.7	20.6124 mg/L	20.6124 mg/L	
2 Li 670.781	25953.8	26270.6	0.151420 mg/L	0.151420 mg/L	
2 Mg 279.074	185045.6	187304.1	114.900 mg/L	114.900 mg/L	
2 Mn 257.610	660548.9	668611.1	6.62510 mg/L	6.62510 mg/L	
2 Mo 202.031	-21.5	-21.8	-0.0277870 mg/L	-0.0277870 mg/L	
2 Na 589.594	8697.6	8803.8	0.425833 mg/L	0.425833 mg/L	
2 Ni 231.603	324.7	328.7	0.151780 mg/L	0.151780 mg/L	
2 Pb 220.353	-22.5	-22.7	0.127796 mg/L	0.127796 mg/L	
2 Sb 206.831	-93.4	-94.5	-0.0563739 mg/L	-0.0563739 mg/L	
2 Se 196.026	50.2	50.8	-0.0830702 mg/L	-0.0830702 mg/L	
2 Si 251.611	130597.8	132191.8	20.7715 mg/L	20.7715 mg/L	
2 Sn 189.933	576.0	583.0	0.602041 mg/L	0.602041 mg/L	
2 Sr 407.771	260578.0	263758.4	0.155020 mg/L	0.155020 mg/L	
2 Ti 334.941	1045620.2	1058382.3	9.41054 mg/L	9.41054 mg/L	
2 Tl 190.800	-9.7	-9.8	-0.0439822 mg/L	-0.0439822 mg/L	
2 V 292.402	12355.9	12506.7	0.613473 mg/L	0.613473 mg/L	
2 Zn 206.200	2407.1	2436.5	0.685917 mg/L	0.685917 mg/L	

Mean Data ----------

ID: 0908228-04
Sample Qty: 1.0000 mL
Seq. No.: 37 Sample No.: 27
Prep. Vol.: 1.0 mL
Data: Original
A/S Pos: 43
Dilution: 1.0: 1.0
Date: 8/18/09 11:50:34 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	510785.8	98.8	0.05	mg/L				0.06%
Y 360.064	320841.3	98.6	0.04	mg/L				0.04%
Ag 328.068	-605.5	0.0885769	0.00062952	mg/L	0.0885769	0.00062952	mg/L	0.71%
Al 396.140	1989127.6	227.109	0.0149	mg/L	227.109	0.0149	mg/L	0.01%
As 188.979	51.0	0.169564	0.0335516	mg/L	0.169564	0.0335516	mg/L	19.79%
B 249.773	11605.9	0.0118785	0.00056917	mg/L	0.0118785	0.00056917	mg/L	4.79%
Ba 455.403	916502.4	1.14999	0.000853	mg/L	1.14999	0.000853	mg/L	0.07%
Be 234.861	4932.4	0.0109417	0.00078954	mg/L	0.0109417	0.00078954	mg/L	7.22%
Ca 315.887	2389418.2	178.294	0.0866	mg/L	178.294	0.0866	mg/L	0.05%
Cd 214.438	655.3	0.0128603	0.00076066	mg/L	0.0128603	0.00076066	mg/L	5.91%
Ce 413.765	5002.5	0.504515	0.0010308	mg/L	0.504515	0.0010308	mg/L	0.20%
Co 228.616	1302.2	0.130946	0.0016258	mg/L	0.130946	0.0016258	mg/L	1.24%
Cr 205.560	669.6	0.341601	0.0006783	mg/L	0.341601	0.0006783	mg/L	0.20%
Cu 327.394	2631.2	0.160857	0.0013615	mg/L	0.160857	0.0013615	mg/L	0.85%
Fe 238.204	4009570.8	300.356	0.0206	mg/L	300.356	0.0206	mg/L	0.01%
K 766.514	85481.4	20.6037	0.01225	mg/L	20.6037	0.01225	mg/L	0.06%
Li 670.781	26300.8	0.151594	0.0002468	mg/L	0.151594	0.0002468	mg/L	0.16%
Mg 279.074	187674.7	115.128	0.3216	mg/L	115.128	0.3216	mg/L	0.28%
Mn 257.610	668653.2	6.62552	0.000590	mg/L	6.62552	0.000590	mg/L	0.01%
Mo 202.031	-22.5	-0.0284224	0.00089858	mg/L	-0.0284224	0.00089858	mg/L	3.16%
Na 589.594	8900.0	0.431216	0.0076127	mg/L	0.431216	0.0076127	mg/L	1.77%
Ni 231.603	327.7	0.151407	0.0005282	mg/L	0.151407	0.0005282	mg/L	0.35%
Pb 220.353	-11.6	0.152027	0.0342682	mg/L	0.152027	0.0342682	mg/L	22.54%
Sb 206.831	-90.2	-0.0421900	0.02005896	mg/L	-0.0421900	0.02005896	mg/L	47.54%
Se 196.026	53.9	-0.0693383	0.01941985	mg/L	-0.0693383	0.01941985	mg/L	28.01%
Si 251.611	132183.3	20.7694	0.00305	mg/L	20.7694	0.00305	mg/L	0.01%
Sn 189.933	582.8	0.600412	0.0023046	mg/L	0.600412	0.0023046	mg/L	0.38%
Sr 407.771	263657.9	0.154960	0.0000841	mg/L	0.154960	0.0000841	mg/L	0.05%
Ti 334.941	1058209.8	9.40900	0.002173	mg/L	9.40900	0.002173	mg/L	0.02%
Tl 190.800	-7.4	-0.0334962	0.01482942	mg/L	-0.0334962	0.01482942	mg/L	44.27%
V 292.402	12541.9	0.615244	0.0025056	mg/L	0.615244	0.0025056	mg/L	0.41%
Zn 206.200	2439.1	0.686652	0.0010396	mg/L	0.686652	0.0010396	mg/L	0.15%

Replicate Data ----------

ID: 0908228-05
Date: 8/18/09 11:54:11 AM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units

1 Sc 357.253	520915.2	520915.2	100.8	mg/L	
1 Y 360.064	323202.0	323202.0	99.3	mg/L	
1 Ag 328.068	-518.8	-514.7	0.0895173	mg/L	0.0895173 mg/L
1 Al 396.140	2061601.6	2045382.2	233.532	mg/L	233.532 mg/L
1 As 188.979	35.5	35.2	0.111867	mg/L	0.111867 mg/L
1 B 249.773	11533.1	11442.4	0.0165806	mg/L	0.0165806 mg/L
1 Ba 455.403	1103886.8	1095202.0	1.37625	mg/L	1.37625 mg/L
1 Be 234.861	5087.1	5047.1	0.0125222	mg/L	0.0125222 mg/L
1 Ca 315.887	170662.4	169319.7	12.7038	mg/L	12.7038 mg/L
1 Cd 214.438	600.3	595.6	0.0069254	mg/L	0.0069254 mg/L
1 Ce 413.765	6236.6	6187.6	0.648486	mg/L	0.648486 mg/L
1 Co 228.616	2296.9	2278.8	0.328327	mg/L	0.328327 mg/L
1 Cr 205.560	726.2	720.5	0.371800	mg/L	0.371800 mg/L
1 Cu 327.394	2667.8	2646.8	0.143085	mg/L	0.143085 mg/L
1 Fe 238.204	3959382.8	3928232.8	294.263	mg/L	294.263 mg/L
1 K 766.514	67115.2	66587.2	15.9747	mg/L	15.9747 mg/L
1 Li 670.781	27502.4	27286.1	0.157289	mg/L	0.157289 mg/L
1 Mg 279.074	55213.0	54778.6	33.5172	mg/L	33.5172 mg/L
1 Mn 257.610	2254819.7	2237080.1	22.1685	mg/L	22.1685 mg/L
1 Mo 202.031	-25.4	-25.2	-0.0307135	mg/L	-0.0307135 mg/L
1 Na 589.594	7037.0	6981.6	0.323910	mg/L	0.323910 mg/L
1 Ni 231.603	316.8	314.3	0.146832	mg/L	0.146832 mg/L
1 Pb 220.353	29.5	29.3	0.240379	mg/L	0.240379 mg/L
1 Sb 206.831	-96.9	-96.1	-0.0654979	mg/L	-0.0654979 mg/L
1 Se 196.026	32.4	32.2	-0.0353084	mg/L	-0.0353084 mg/L
1 Si 251.611	124827.1	123845.1	19.7112	mg/L	19.7112 mg/L
1 Sn 189.933	396.7	393.6	0.379779	mg/L	0.379779 mg/L
1 Sr 407.771	142057.5	140939.9	0.0823257	mg/L	0.0823257 mg/L
1 Ti 334.941	1016658.4	1008659.9	8.96763	mg/L	8.96763 mg/L
1 Tl 190.800	-52.3	-51.9	0.0103569	mg/L	0.0103569 mg/L
1 V 292.402	12630.7	12531.3	0.615484	mg/L	0.615484 mg/L
1 Zn 206.200	2756.0	2734.3	0.772018	mg/L	0.772018 mg/L
2 Sc 357.253	521416.6	521416.6	100.9	mg/L	
2 Y 360.064	323072.4	323072.4	99.3	mg/L	
2 Ag 328.068	-615.6	-610.2	0.0862982	mg/L	0.0862982 mg/L
2 Al 396.140	2060129.3	2041955.9	233.140	mg/L	233.140 mg/L
2 As 188.979	37.3	37.0	0.118296	mg/L	0.118296 mg/L
2 B 249.773	11507.3	11405.8	0.0156657	mg/L	0.0156657 mg/L
2 Ba 455.403	1103630.0	1093894.3	1.37459	mg/L	1.37459 mg/L
2 Be 234.861	4967.0	4923.2	0.0115362	mg/L	0.0115362 mg/L
2 Ca 315.887	170077.6	168577.2	12.6485	mg/L	12.6485 mg/L
2 Cd 214.438	586.6	581.4	0.0056308	mg/L	0.0056308 mg/L
2 Ce 413.765	6198.3	6143.6	0.643149	mg/L	0.643149 mg/L
2 Co 228.616	2295.7	2275.4	0.327918	mg/L	0.327918 mg/L
2 Cr 205.560	731.4	724.9	0.374436	mg/L	0.374436 mg/L
2 Cu 327.394	2629.3	2606.1	0.140727	mg/L	0.140727 mg/L
2 Fe 238.204	3954451.4	3919567.3	293.613	mg/L	293.613 mg/L
2 K 766.514	66902.3	66312.1	15.9073	mg/L	15.9073 mg/L
2 Li 670.781	27436.6	27194.6	0.156760	mg/L	0.156760 mg/L
2 Mg 279.074	55137.0	54650.6	33.4390	mg/L	33.4390 mg/L
2 Mn 257.610	2252386.9	2232517.5	22.1232	mg/L	22.1232 mg/L
2 Mo 202.031	-19.9	-19.7	-0.0260494	mg/L	-0.0260494 mg/L
2 Na 589.594	6920.6	6859.6	0.317087	mg/L	0.317087 mg/L
2 Ni 231.603	307.9	305.1	0.143435	mg/L	0.143435 mg/L
2 Pb 220.353	37.8	37.4	0.257819	mg/L	0.257819 mg/L
2 Sb 206.831	-90.3	-89.5	-0.0441633	mg/L	-0.0441633 mg/L
2 Se 196.026	39.2	38.8	-0.0055446	mg/L	-0.0055446 mg/L
2 Si 251.611	124660.9	123561.2	19.6655	mg/L	19.6655 mg/L
2 Sn 189.933	394.9	391.4	0.374660	mg/L	0.374660 mg/L
2 Sr 407.771	142158.8	140904.8	0.0823049	mg/L	0.0823049 mg/L
2 Ti 334.941	1015953.9	1006991.7	8.95277	mg/L	8.95277 mg/L
2 Tl 190.800	-62.1	-61.6	-0.0327885	mg/L	-0.0327885 mg/L
2 V 292.402	12578.1	12467.1	0.612328	mg/L	0.612328 mg/L
2 Zn 206.200	2741.5	2717.3	0.767140	mg/L	0.767140 mg/L

Mean Data ----------

ID: 0908228-05 Seq. No.: 38 Sample No.: 28 A/S Pos: 44

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 8/18/09 11:54:11 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	521165.9	100.8	0.07	mg/L				0.07%
Y 360.064	323137.2	99.3	0.03	mg/L				0.03%
Ag 328.068	-562.4	0.0879077	0.00227624	mg/L	0.0879077	0.00227624	mg/L	2.59%
Al 396.140	2043669.0	233.336	0.2766	mg/L	233.336	0.2766	mg/L	0.12%
As 188.979	36.1	0.115082	0.0045460	mg/L	0.115082	0.0045460	mg/L	3.95%
B 249.773	11424.1	0.0161231	0.00064692	mg/L	0.0161231	0.00064692	mg/L	4.01%
Ba 455.403	1094548.2	1.37542	0.001171	mg/L	1.37542	0.001171	mg/L	0.09%
Be 234.861	4985.1	0.0120292	0.00069725	mg/L	0.0120292	0.00069725	mg/L	5.80%
Ca 315.887	168948.5	12.6761	0.03912	mg/L	12.6761	0.03912	mg/L	0.31%
Cd 214.438	588.5	0.0062781	0.00091541	mg/L	0.0062781	0.00091541	mg/L	14.58%
Ce 413.765	6165.6	0.645817	0.0037735	mg/L	0.645817	0.0037735	mg/L	0.58%
Co 228.616	2277.1	0.328122	0.0002894	mg/L	0.328122	0.0002894	mg/L	0.09%
Cr 205.560	722.7	0.373118	0.0018639	mg/L	0.373118	0.0018639	mg/L	0.50%
Cu 327.394	2626.5	0.141906	0.0016672	mg/L	0.141906	0.0016672	mg/L	1.17%
Fe 238.204	3923900.0	293.938	0.4590	mg/L	293.938	0.4590	mg/L	0.16%
K 766.514	66449.6	15.9410	0.04765	mg/L	15.9410	0.04765	mg/L	0.30%
Li 670.781	27240.3	0.157024	0.0003740	mg/L	0.157024	0.0003740	mg/L	0.24%
Mg 279.074	54714.6	33.4781	0.05531	mg/L	33.4781	0.05531	mg/L	0.17%
Mn 257.610	2234798.8	22.1458	0.03197	mg/L	22.1458	0.03197	mg/L	0.14%
Mo 202.031	-22.5	-0.0283815	0.00329796	mg/L	-0.0283815	0.00329796	mg/L	11.62%
Na 589.594	6920.6	0.320499	0.0048251	mg/L	0.320499	0.0048251	mg/L	1.51%
Ni 231.603	309.7	0.145133	0.0024023	mg/L	0.145133	0.0024023	mg/L	1.66%
Pb 220.353	33.4	0.249099	0.0123318	mg/L	0.249099	0.0123318	mg/L	4.95%
Sb 206.831	-92.8	-0.0548306	0.01508583	mg/L	-0.0548306	0.01508583	mg/L	27.51%
Se 196.026	35.5	-0.0204265	0.02104617	mg/L	-0.0204265	0.02104617	mg/L	103.03%
Si 251.611	123703.1	19.6884	0.03236	mg/L	19.6884	0.03236	mg/L	0.16%
Sn 189.933	392.5	0.377220	0.0036199	mg/L	0.377220	0.0036199	mg/L	0.96%
Sr 407.771	140922.3	0.0823153	0.00001471	mg/L	0.0823153	0.00001471	mg/L	0.02%
Ti 334.941	1007825.8	8.96020	0.010508	mg/L	8.96020	0.010508	mg/L	0.12%
Tl 190.800	-56.7	-0.0112158	0.03050837	mg/L	-0.0112158	0.03050837	mg/L	272.01%
V 292.402	12499.2	0.613906	0.0022317	mg/L	0.613906	0.0022317	mg/L	0.36%
Zn 206.200	2725.8	0.769579	0.0034490	mg/L	0.769579	0.0034490	mg/L	0.45%

Replicate Data

ID: 0909502-MS1 Date: 8/18/09 11:57:51 AM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	522922.4	522922.4	101.2	mg/L		
1	Y 360.064	323260.7	323260.7	99.3	mg/L		
1	Ag 328.068	6921.5	6840.7	0.320201	mg/L	0.320201	mg/L
1	Al 396.140	2388878.0	2360986.4	269.565	mg/L	269.565	mg/L
1	As 188.979	337.3	333.3	1.20118	mg/L	1.20118	mg/L
1	B 249.773	14250.4	14084.0	0.223885	mg/L	0.223885	mg/L
1	Ba 455.403	1122937.3	1109826.3	1.39476	mg/L	1.39476	mg/L
1	Be 234.861	7921.7	7829.2	0.0364848	mg/L	0.0364848	mg/L
1	Ca 315.887	329612.9	325764.5	24.3707	mg/L	24.3707	mg/L
1	Cd 214.438	3055.9	3020.2	0.239855	mg/L	0.239855	mg/L
1	Ce 413.765	5268.8	5207.3	0.529396	mg/L	0.529396	mg/L
1	Co 228.616	2675.0	2643.8	0.402248	mg/L	0.402248	mg/L
1	Cr 205.560	1190.0	1176.1	0.637175	mg/L	0.637175	mg/L
1	Cu 327.394	7180.5	7096.7	0.400633	mg/L	0.400633	mg/L
1	Fe 238.204	3915268.7	3869555.6	289.857	mg/L	289.857	mg/L
1	K 766.514	125217.0	123755.0	29.9806	mg/L	29.9806	mg/L
1	Li 670.781	72402.5	71557.1	0.413171	mg/L	0.413171	mg/L
1	Mg 279.074	76840.5	75943.3	46.5466	mg/L	46.5466	mg/L
1	Mn 257.610	1114958.9	1101941.1	10.9194	mg/L	10.9194	mg/L
1	Mo 202.031	193.4	191.2	0.153137	mg/L	0.153137	mg/L
1	Na 589.594	227330.4	224676.1	12.5006	mg/L	12.5006	mg/L
1	Ni 231.603	994.9	983.3	0.399478	mg/L	0.399478	mg/L
1	Pb 220.353	132.2	130.7	0.468835	mg/L	0.468835	mg/L
1	Sb 206.831	26.3	26.0	0.335934	mg/L	0.335934	mg/L
1	Se 196.026	311.8	308.2	1.07868	mg/L	1.07868	mg/L
1	Si 251.611	114374.3	113039.0	17.8867	mg/L	17.8867	mg/L
1	Sn 189.933	871.3	861.1	1.47294	mg/L	1.47294	mg/L
1	Sr 407.771	573461.7	566766.2	0.334364	mg/L	0.334364	mg/L
1	Ti 334.941	1047730.5	1035497.6	9.20669	mg/L	9.20669	mg/L
1	Tl 190.800	269.0	265.9	1.23231	mg/L	1.23231	mg/L
1	V 292.402	17552.5	17347.6	0.858851	mg/L	0.858851	mg/L

2	Li 670.781	-144.3	-152.6	-0.0013037 mg/L
2	Mg 279.074	-161.9	-171.2	-0.0515570 mg/L
2	Mn 257.610	-26.3	-27.8	-0.0010372 mg/L
2	Mo 202.031	5.5	5.9	-0.0043019 mg/L
2	Na 589.594	560.2	592.6	-0.0334554 mg/L
2	Ni 231.603	-147.5	-156.0	-0.0075759 mg/L
2	Pb 220.353	-15.1	-15.9	-0.0152106 mg/L
2	Sb 206.831	-14.6	-15.5	0.0150419 mg/L
2	Se 196.026	65.3	69.1	-0.0006254 mg/L
2	Si 251.611	854.3	903.6	-0.0363637 mg/L
2	Sn 189.933	151.0	159.7	0.0374389 mg/L
2	Sr 407.771	200.8	212.4	-0.0009683 mg/L
2	Ti 334.941	1731.3	1831.3	-0.0009156 mg/L
2	Tl 190.800	25.5	27.0	0.0154710 mg/L
2	V 292.402	-393.4	-416.1	0.0000831 mg/L
2	Zn 206.200	5.9	6.3	-0.0001565 mg/L

Mean Data

ID: 9H18017-CCB Seq. No.: 42 Sample No.: 9 A/S Pos: 1
Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 12:14:22 PM

Element	Mean Corr. Intensity	Mean Conc.	Calib Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	488851.0	94.6	0.07	mg/L				0.07%
Y 360.064	307322.5	94.4	0.16	mg/L				0.17%
Ag 328.068	-476.4	-0.0021786	0.00054465	mg/L				25.00%
Al 396.140	-94.0	-0.0074255	0.01015041	mg/L				136.70%
As 188.979	-0.5	-0.0186635	0.02693098	mg/L				144.30%
B 249.773	175.7	-0.0053162	0.00024293	mg/L				4.57%
Ba 455.403	7974.7	-0.0003210	0.00003080	mg/L				9.59%
Be 234.861	-268.1	-0.0000413	0.00001304	mg/L				31.57%
Ca 315.887	-1254.4	0.0058607	0.00525871	mg/L				89.73%
Cd 214.438	85.8	-0.0000193	0.00012518	mg/L				650.00%
Ce 413.765	832.5	-0.0020873	0.00438028	mg/L				209.86%
Co 228.616	-4.1	-0.0004146	0.00006733	mg/L				16.24%
Cr 205.560	34.6	0.0007543	0.00270708	mg/L				358.88%
Cu 327.394	137.8	-0.0021341	0.00202627	mg/L				94.95%
Fe 238.204	419.2	0.0060585	0.00162178	mg/L				26.77%
K 766.514	1472.6	0.0219715	0.01061830	mg/L				48.33%
Li 670.781	-147.0	-0.0012711	0.00004617	mg/L				3.63%
Mg 279.074	-131.2	-0.0269964	0.03473388	mg/L				128.66%
Mn 257.610	-25.7	-0.0010159	0.00003013	mg/L				2.97%
Mo 202.031	12.3	0.0011752	0.00774577	mg/L				659.12%
Na 589.594	611.0	-0.0324235	0.00145923	mg/L				4.50%
Ni 231.603	-140.0	-0.0015279	0.00855314	mg/L				559.81%
Pb 220.353	-11.3	-0.0052018	0.01415464	mg/L				272.11%
Sb 206.831	-20.8	-0.0027855	0.02521175	mg/L				905.10%
Se 196.026	73.4	0.0187300	0.02737269	mg/L				146.14%
Si 251.611	902.2	-0.0366016	0.00033657	mg/L				0.92%
Sn 189.933	155.1	0.0250559	0.01751228	mg/L				69.89%
Sr 407.771	232.7	-0.0009563	0.00001693	mg/L				1.77%
Ti 334.941	1814.0	-0.0010697	0.00021786	mg/L				20.37%
Tl 190.800	23.3	-0.0004200	0.02247327	mg/L				>999.9%
V 292.402	-408.0	0.0004900	0.00057542	mg/L				117.43%
Zn 206.200	2.1	-0.0013441	0.00167953	mg/L				124.95%

Replicate Data

ID: 9H18017-SRD2 Date: 8/18/09 12:17:47 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	511540.4	511540.4	99.0	mg/L		
1	Y 360.064	318234.7	318234.7	97.8	mg/L		
1	Ag 328.068	-382.7	-386.7	0.0193662	mg/L	0.0968312	mg/L
1	Al 396.140	397847.3	401951.2	45.8955	mg/L	229.477	mg/L
1	As 188.979	16.8	16.9	0.0451525	mg/L	0.225763	mg/L
1	B 249.773	2382.3	2406.9	-0.0037373	mg/L	-0.0186863	mg/L
1	Ba 455.403	219457.6	221721.3	0.270309	mg/L	1.35155	mg/L
1	Be 234.861	744.1	751.7	0.0023805	mg/L	0.0119027	mg/L
1	Ca 315.887	32113.2	32444.4	2.51491	mg/L	12.5746	mg/L

1	Y 360.064	308408.2	308408.2	94.8 mg/L	
1	Ag 328.068	-547.8	-564.0	0.0957964 mg/L	0.0957964 mg/L
1	Al 396.140	1980261.3	2038899.4	232.792 mg/L	232.792 mg/L
1	As 188.979	48.8	50.2	0.166859 mg/L	0.166859 mg/L
1	B 249.773	12043.4	12400.0	0.0189655 mg/L	0.0189655 mg/L
1	Ba 455.403	839288.4	864140.8	1.08369 mg/L	1.08369 mg/L
1	Be 234.861	5097.9	5248.8	0.0116181 mg/L	0.0116181 mg/L
1	Ca 315.887	2997768.7	3086536.5	230.288 mg/L	230.288 mg/L
1	Cd 214.438	651.9	671.2	0.0125142 mg/L	0.0125142 mg/L
1	Ce 413.765	4722.4	4862.2	0.487469 mg/L	0.487469 mg/L
1	Co 228.616	1439.7	1482.3	0.159835 mg/L	0.159835 mg/L
1	Cr 205.560	724.6	746.1	0.384323 mg/L	0.384323 mg/L
1	Cu 327.394	3290.9	3388.3	0.210126 mg/L	0.210126 mg/L
1	Fe 238.204	4137049.2	4259552.5	319.084 mg/L	319.084 mg/L
1	K 766.514	103927.5	107005.0	25.8769 mg/L	25.8769 mg/L
1	Li 670.781	29663.7	30542.0	0.176108 mg/L	0.176108 mg/L
1	Mg 279.074	234893.1	241848.5	148.367 mg/L	148.367 mg/L
1	Mn 257.610	685074.3	705360.2	6.98928 mg/L	6.98928 mg/L
1	Mo 202.031	-25.4	-26.1	-0.0314855 mg/L	-0.0314855 mg/L
1	Na 589.594	17386.0	17900.8	0.934673 mg/L	0.934673 mg/L
1	Ni 231.603	314.8	324.1	0.148592 mg/L	0.148592 mg/L
1	Pb 220.353	-8.5	-8.7	0.165702 mg/L	0.165702 mg/L
1	Sb 206.831	-107.1	-110.2	-0.0965592 mg/L	-0.0965592 mg/L
1	Se 196.026	36.8	37.9	-0.141406 mg/L	-0.141406 mg/L
1	Si 251.611	124949.6	128649.5	20.0728 mg/L	20.0728 mg/L
1	Sn 189.933	650.0	669.2	0.694333 mg/L	0.694333 mg/L
1	Sr 407.771	293895.9	302598.6	0.178008 mg/L	0.178008 mg/L
1	Ti 334.941	1019005.8	1049179.9	9.32857 mg/L	9.32857 mg/L
1	Tl 190.800	-0.4	-0.4	0.0028322 mg/L	0.0028322 mg/L
1	V 292.402	12534.5	12905.7	0.631207 mg/L	0.631207 mg/L
1	Zn 206.200	2471.9	2545.1	0.716335 mg/L	0.716335 mg/L
2	Sc 357.253	503559.7	503559.7	97.4 mg/L	
2	Y 360.064	307600.4	307600.4	94.5 mg/L	
2	Ag 328.068	-594.9	-610.6	0.0937288 mg/L	0.0937288 mg/L
2	Al 396.140	1976256.3	2028285.5	231.580 mg/L	231.580 mg/L
2	As 188.979	58.4	59.9	0.202117 mg/L	0.202117 mg/L
2	B 249.773	11951.7	12266.4	0.0143215 mg/L	0.0143215 mg/L
2	Ba 455.403	837883.6	859942.7	1.07838 mg/L	1.07838 mg/L
2	Be 234.861	4947.6	5077.9	0.0103691 mg/L	0.0103691 mg/L
2	Ca 315.887	2987246.7	3065892.5	228.749 mg/L	228.749 mg/L
2	Cd 214.438	633.0	649.7	0.0106693 mg/L	0.0106693 mg/L
2	Ce 413.765	4678.4	4801.6	0.480107 mg/L	0.480107 mg/L
2	Co 228.616	1409.1	1446.2	0.153449 mg/L	0.153449 mg/L
2	Cr 205.560	729.2	748.4	0.385866 mg/L	0.385866 mg/L
2	Cu 327.394	3214.0	3298.6	0.204770 mg/L	0.204770 mg/L
2	Fe 238.204	4125593.6	4234208.9	317.185 mg/L	317.185 mg/L
2	K 766.514	103126.3	105841.4	25.5918 mg/L	25.5918 mg/L
2	Li 670.781	29550.7	30328.7	0.174875 mg/L	0.174875 mg/L
2	Mg 279.074	234139.0	240303.2	147.420 mg/L	147.420 mg/L
2	Mn 257.610	683165.5	701151.3	6.94757 mg/L	6.94757 mg/L
2	Mo 202.031	-30.9	-31.7	-0.0362308 mg/L	-0.0362308 mg/L
2	Na 589.594	17439.3	17898.4	0.934539 mg/L	0.934539 mg/L
2	Ni 231.603	347.8	357.0	0.161131 mg/L	0.161131 mg/L
2	Pb 220.353	-9.9	-10.1	0.161675 mg/L	0.161675 mg/L
2	Sb 206.831	-104.3	-107.1	-0.0873187 mg/L	-0.0873187 mg/L
2	Se 196.026	49.1	50.4	-0.0849747 mg/L	-0.0849747 mg/L
2	Si 251.611	124594.5	127874.7	19.9508 mg/L	19.9508 mg/L
2	Sn 189.933	650.2	667.4	0.693836 mg/L	0.693836 mg/L
2	Sr 407.771	293831.8	301567.5	0.177398 mg/L	0.177398 mg/L
2	Ti 334.941	1016862.7	1043633.8	9.27916 mg/L	9.27916 mg/L
2	Tl 190.800	-1.4	-1.5	-0.0023973 mg/L	-0.0023973 mg/L
2	V 292.402	12476.5	12804.9	0.626368 mg/L	0.626368 mg/L
2	Zn 206.200	2472.9	2538.0	0.714373 mg/L	0.714373 mg/L

Mean Data ----------

ID: 0908228-06 Seq. No.: 45 Sample No.: 33 A/S Pos: 49

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 8/18/09 12:24:56 PM

Element	Mean Corr. Intensity	Mean Conc.	Calib Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD

Sc 357.253	502756.6	97.3	0.22	mg/L				0.23%
Y 360.064	308004.3	94.7	0.18	mg/L				0.19%
Ag 328.068	-587.3	0.0947626	0.00146199	mg/L	0.0947626	0.00146199	mg/L	1.54%
Al 396.140	2033592.5	232.186	0.8569	mg/L	232.186	0.8569	mg/L	0.37%
As 188.979	55.1	0.184488	0.0249307	mg/L	0.184488	0.0249307	mg/L	13.51%
B 249.773	12333.2	0.0166435	0.00328383	mg/L	0.0166435	0.00328383	mg/L	19.73%
Ba 455.403	862041.8	1.08104	0.003758	mg/L	1.08104	0.003758	mg/L	0.35%
Be 234.861	5163.4	0.0109936	0.00088322	mg/L	0.0109936	0.00088322	mg/L	8.03%
Ca 315.887	3076214.5	229.519	1.0887	mg/L	229.519	1.0887	mg/L	0.47%
Cd 214.438	660.5	0.0115918	0.00130453	mg/L	0.0115918	0.00130453	mg/L	11.25%
Ce 413.765	4831.9	0.483788	0.0052056	mg/L	0.483788	0.0052056	mg/L	1.08%
Co 228.616	1464.3	0.156642	0.0045159	mg/L	0.156642	0.0045159	mg/L	2.88%
Cr 205.560	747.2	0.385094	0.0010916	mg/L	0.385094	0.0010916	mg/L	0.28%
Cu 327.394	3343.5	0.207448	0.0037869	mg/L	0.207448	0.0037869	mg/L	1.83%
Fe 238.204	4246880.7	318.135	1.3425	mg/L	318.135	1.3425	mg/L	0.42%
K 766.514	106423.2	25.7344	0.20158	mg/L	25.7344	0.20158	mg/L	0.78%
Li 670.781	30435.4	0.175492	0.0008719	mg/L	0.175492	0.0008719	mg/L	0.50%
Mg 279.074	241075.9	147.894	0.6701	mg/L	147.894	0.6701	mg/L	0.45%
Mn 257.610	703255.8	6.96843	0.029493	mg/L	6.96843	0.029493	mg/L	0.42%
Mo 202.031	-28.9	-0.0338582	0.00335543	mg/L	-0.0338582	0.00335543	mg/L	9.91%
Na 589.594	17899.6	0.934606	0.0000947	mg/L	0.934606	0.0000947	mg/L	0.01%
Ni 231.603	340.5	0.154862	0.0088664	mg/L	0.154862	0.0088664	mg/L	5.73%
Pb 220.353	-9.4	0.163688	0.0028475	mg/L	0.163688	0.0028475	mg/L	1.74%
Sb 206.831	-108.6	-0.0919389	0.00653405	mg/L	-0.0919389	0.00653405	mg/L	7.11%
Se 196.026	44.2	-0.113191	0.0399032	mg/L	-0.113191	0.0399032	mg/L	35.25%
Si 251.611	128262.1	20.0118	0.08627	mg/L	20.0118	0.08627	mg/L	0.43%
Sn 189.933	668.3	0.694085	0.0003514	mg/L	0.694085	0.0003514	mg/L	0.05%
Sr 407.771	302083.0	0.177703	0.0004315	mg/L	0.177703	0.0004315	mg/L	0.24%
Ti 334.941	1046406.8	9.30387	0.034933	mg/L	9.30387	0.034933	mg/L	0.38%
Tl 190.800	-0.9	0.0002175	0.00369778	mg/L	0.0002175	0.00369778	mg/L	>999.9%
V 292.402	12855.3	0.628788	0.0034218	mg/L	0.628788	0.0034218	mg/L	0.54%
Zn 206.200	2541.6	0.715354	0.0013871	mg/L	0.715354	0.0013871	mg/L	0.19%

Replicate Data ----------

ID: 0908228-07 Date: 8/18/09 12:28:28 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	520915.1	520915.1	100.8	mg/L		
1	Y 360.064	337628.5	337628.5	103.8	mg/L		
1	Ag 328.068	-588.7	-584.1	0.0830356	mg/L	0.0830356	mg/L
1	Al 396.140	1734307.0	1720663.0	196.457	mg/L	196.457	mg/L
1	As 188.979	38.3	38.0	0.122050	mg/L	0.122050	mg/L
1	B 249.773	10983.0	10896.6	0.0137039	mg/L	0.0137039	mg/L
1	Ba 455.403	894077.0	887043.2	1.11269	mg/L	1.11269	mg/L
1	Be 234.861	4896.7	4858.2	0.0126072	mg/L	0.0126072	mg/L
1	Ca 315.887	156130.6	154902.3	11.6309	mg/L	11.6309	mg/L
1	Cd 214.438	561.1	556.7	0.0074642	mg/L	0.0074642	mg/L
1	Ce 413.765	4759.7	4722.2	0.470464	mg/L	0.470464	mg/L
1	Co 228.616	1136.8	1127.9	0.102009	mg/L	0.102009	mg/L
1	Cr 205.560	540.3	536.1	0.265827	mg/L	0.265827	mg/L
1	Cu 327.394	2093.1	2076.7	0.110085	mg/L	0.110085	mg/L
1	Fe 238.204	3776454.2	3746744.3	280.666	mg/L	280.666	mg/L
1	K 766.514	87392.0	86704.4	20.9034	mg/L	20.9034	mg/L
1	Li 670.781	26948.8	26736.8	0.154114	mg/L	0.154114	mg/L
1	Mg 279.074	60611.7	60134.9	36.8626	mg/L	36.8626	mg/L
1	Mn 257.610	503670.9	499708.5	4.95129	mg/L	4.95129	mg/L
1	Mo 202.031	-25.5	-25.3	-0.0307382	mg/L	-0.0307382	mg/L
1	Na 589.594	10584.2	10500.9	0.520762	mg/L	0.520762	mg/L
1	Ni 231.603	324.1	321.6	0.150639	mg/L	0.150639	mg/L
1	Pb 220.353	-16.5	-16.3	0.127005	mg/L	0.127005	mg/L
1	Sb 206.831	-93.4	-92.7	-0.0628785	mg/L	-0.0628785	mg/L
1	Se 196.026	57.2	56.7	-0.0564292	mg/L	-0.0564292	mg/L
1	Si 251.611	113366.6	112474.8	17.7907	mg/L	17.7907	mg/L
1	Sn 189.933	394.3	391.2	0.362267	mg/L	0.362267	mg/L
1	Sr 407.771	163406.5	162120.9	0.0948623	mg/L	0.0948623	mg/L
1	Ti 334.941	1187327.1	1177986.2	10.4759	mg/L	10.4759	mg/L
1	Tl 190.800	2.1	2.1	-0.0937855	mg/L	-0.0937855	mg/L
1	V 292.402	11772.0	11679.4	0.574259	mg/L	0.574259	mg/L
1	Zn 206.200	2278.6	2260.7	0.636182	mg/L	0.636182	mg/L

2 Sc 357.253	528542.8	528542.8	102.3 mg/L		
2 Y 360.064	353780.3	353780.3	108.7 mg/L		
2 Ag 328.068	-602.6	-589.2	0.0806820 mg/L	0.0806820 mg/L	
2 Al 396.140	1718221.4	1680102.3	191.826 mg/L	191.826 mg/L	
2 As 188.979	32.4	31.6	0.0988688 mg/L	0.0988688 mg/L	
2 B 249.773	10705.9	10468.3	0.0011828 mg/L	0.0011828 mg/L	
2 Ba 455.403	886732.5	867060.2	1.08739 mg/L	1.08739 mg/L	
2 Be 234.861	4781.5	4675.5	0.0118151 mg/L	0.0118151 mg/L	
2 Ca 315.887	152640.1	149253.8	11.2102 mg/L	11.2102 mg/L	
2 Cd 214.438	552.6	540.3	0.0068000 mg/L	0.0068000 mg/L	
2 Ce 413.765	4711.7	4607.2	0.456485 mg/L	0.456485 mg/L	
2 Co 228.616	1099.7	1075.3	0.0945838 mg/L	0.0945838 mg/L	
2 Cr 205.560	523.0	511.4	0.252167 mg/L	0.252167 mg/L	
2 Cu 327.394	2037.2	1992.0	0.105184 mg/L	0.105184 mg/L	
2 Fe 238.204	3736996.8	3654090.7	273.725 mg/L	273.725 mg/L	
2 K 766.514	85927.8	84021.5	20.2461 mg/L	20.2461 mg/L	
2 Li 670.781	26497.4	25909.5	0.149333 mg/L	0.149333 mg/L	
2 Mg 279.074	59295.4	57979.9	35.5425 mg/L	35.5425 mg/L	
2 Mn 257.610	498551.3	487490.9	4.83022 mg/L	4.83022 mg/L	
2 Mo 202.031	-30.9	-30.2	-0.0349534 mg/L	-0.0349534 mg/L	
2 Na 589.594	10447.1	10215.3	0.504786 mg/L	0.504786 mg/L	
2 Ni 231.603	330.0	322.7	0.151604 mg/L	0.151604 mg/L	
2 Pb 220.353	-15.8	-15.4	0.125475 mg/L	0.125475 mg/L	
2 Sb 206.831	-77.4	-75.7	-0.0108924 mg/L	-0.0108924 mg/L	
2 Se 196.026	57.7	56.4	-0.0580238 mg/L	-0.0580238 mg/L	
2 Si 251.611	111276.5	108807.8	17.2025 mg/L	17.2025 mg/L	
2 Sn 189.933	404.3	395.3	0.382993 mg/L	0.382993 mg/L	
2 Sr 407.771	160045.2	156494.6	0.0915322 mg/L	0.0915322 mg/L	
2 Ti 334.941	1175192.3	1149120.4	10.2188 mg/L	10.2188 mg/L	
2 Tl 190.800	5.9	5.8	-0.0773825 mg/L	-0.0773825 mg/L	
2 V 292.402	11473.3	11218.8	0.551917 mg/L	0.551917 mg/L	
2 Zn 206.200	2247.4	2197.5	0.618308 mg/L	0.618308 mg/L	

Mean Data ----------

ID: 0908228-07 Seq. No.: 46 Sample No.: 34 A/S Pos: 50
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 12:28:28 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	524729.0	101.5	1.04	mg/L				1.03%
Y 360.064	345704.4	106.2	3.51	mg/L				3.30%
Ag 328.068	-586.6	0.0818588	0.00166426	mg/L	0.0818588	0.00166426	mg/L	2.03%
Al 396.140	1700382.6	194.142	3.2746	mg/L	194.142	3.2746	mg/L	1.69%
As 188.979	34.8	0.110460	0.0163919	mg/L	0.110460	0.0163919	mg/L	14.84%
B 249.773	10682.5	0.0074433	0.00885376	mg/L	0.0074433	0.00885376	mg/L	118.95%
Ba 455.403	877051.7	1.10004	0.017891	mg/L	1.10004	0.017891	mg/L	1.63%
Be 234.861	4766.8	0.0122112	0.00056012	mg/L	0.0122112	0.00056012	mg/L	4.59%
Ca 315.887	152078.0	11.4206	0.29751	mg/L	11.4206	0.29751	mg/L	2.61%
Cd 214.438	548.5	0.0071321	0.00046961	mg/L	0.0071321	0.00046961	mg/L	6.58%
Ce 413.765	4664.7	0.463474	0.0098843	mg/L	0.463474	0.0098843	mg/L	2.13%
Co 228.616	1101.6	0.0982965	0.00525053	mg/L	0.0982965	0.00525053	mg/L	5.34%
Cr 205.560	523.7	0.258997	0.0096591	mg/L	0.258997	0.0096591	mg/L	3.73%
Cu 327.394	2034.3	0.107634	0.0034656	mg/L	0.107634	0.0034656	mg/L	3.22%
Fe 238.204	3700417.5	277.196	4.9082	mg/L	277.196	4.9082	mg/L	1.77%
K 766.514	85363.0	20.5747	0.46479	mg/L	20.5747	0.46479	mg/L	2.26%
Li 670.781	26323.1	0.151723	0.0033809	mg/L	0.151723	0.0033809	mg/L	2.23%
Mg 279.074	59057.4	36.2026	0.93344	mg/L	36.2026	0.93344	mg/L	2.58%
Mn 257.610	493599.7	4.89076	0.085613	mg/L	4.89076	0.085613	mg/L	1.75%
Mo 202.031	-27.7	-0.0328458	0.00298060	mg/L	-0.0328458	0.00298060	mg/L	9.07%
Na 589.594	10358.1	0.512774	0.0112973	mg/L	0.512774	0.0112973	mg/L	2.20%
Ni 231.603	322.1	0.151122	0.0006820	mg/L	0.151122	0.0006820	mg/L	0.45%
Pb 220.353	-15.9	0.126240	0.0010815	mg/L	0.126240	0.0010815	mg/L	0.86%
Sb 206.831	-84.2	-0.0368854	0.03675977	mg/L	-0.0368854	0.03675977	mg/L	99.66%
Se 196.026	56.6	-0.0572265	0.00112758	mg/L	-0.0572265	0.00112758	mg/L	1.97%
Si 251.611	110641.3	17.4966	0.41590	mg/L	17.4966	0.41590	mg/L	2.38%
Sn 189.933	393.2	0.372630	0.0146557	mg/L	0.372630	0.0146557	mg/L	3.93%
Sr 407.771	159307.7	0.0931973	0.00235475	mg/L	0.0931973	0.00235475	mg/L	2.53%
Ti 334.941	1163553.3	10.3474	0.18182	mg/L	10.3474	0.18182	mg/L	1.76%
Tl 190.800	3.9	-0.0855840	0.01159868	mg/L	-0.0855840	0.01159868	mg/L	13.55%
V 292.402	11449.1	0.563088	0.0157984	mg/L	0.563088	0.0157984	mg/L	2.81%
Zn 206.200	2229.1	0.627245	0.0126389	mg/L	0.627245	0.0126389	mg/L	2.01%

Mean Data

ID: 0908228-08 Seq. No.: 47 Sample No.: 35 A/S Pos: 51
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 12:32:02 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	508619.6	98.4	0.81	mg/L				0.82%
Y 360.064	322432.4	99.1	0.73	mg/L				0.73%
Ag 328.068	-574.9	0.0864264	0.00067209	mg/L	0.0864264	0.00067209	mg/L	0.78%
Al 396.140	2094112.6	239.095	2.1356	mg/L	239.095	2.1356	mg/L	0.89%
As 188.979	43.5	0.142121	0.0266559	mg/L	0.142121	0.0266559	mg/L	18.76%
B 249.773	11344.9	0.0197560	0.00216413	mg/L	0.0197560	0.00216413	mg/L	10.95%
Ba 455.403	1103818.7	1.38716	0.011708	mg/L	1.38716	0.011708	mg/L	0.84%
Be 234.861	4871.8	0.0113870	0.00037334	mg/L	0.0113870	0.00037334	mg/L	3.28%
Ca 315.887	624245.8	46.6356	0.46388	mg/L	46.6356	0.46388	mg/L	0.99%
Cd 214.438	610.6	0.0081711	0.00056328	mg/L	0.0081711	0.00056328	mg/L	6.89%
Ce 413.765	5352.7	0.547057	0.0082776	mg/L	0.547057	0.0082776	mg/L	1.51%
Co 228.616	1275.8	0.131141	0.0006601	mg/L	0.131141	0.0006601	mg/L	0.50%
Cr 205.560	684.8	0.351381	0.0061733	mg/L	0.351381	0.0061733	mg/L	1.76%
Cu 327.394	2598.2	0.140273	0.0005891	mg/L	0.140273	0.0005891	mg/L	0.42%
Fe 238.204	3877928.1	290.494	2.7517	mg/L	290.494	2.7517	mg/L	0.95%
K 766.514	73638.2	17.7022	0.04061	mg/L	17.7022	0.04061	mg/L	0.23%
Li 670.781	29913.9	0.172478	0.0001400	mg/L	0.172478	0.0001400	mg/L	0.08%
Mg 279.074	73968.5	45.3442	0.23450	mg/L	45.3442	0.23450	mg/L	0.52%
Mn 257.610	806008.1	7.98669	0.076493	mg/L	7.98669	0.076493	mg/L	0.96%
Mo 202.031	-15.2	-0.0221614	0.00952907	mg/L	-0.0221614	0.00952907	mg/L	43.00%
Na 589.594	6664.9	0.306196	0.0067182	mg/L	0.306196	0.0067182	mg/L	2.19%
Ni 231.603	318.2	0.148585	0.0076808	mg/L	0.148585	0.0076808	mg/L	5.17%
Pb 220.353	6.9	0.192190	0.0187601	mg/L	0.192190	0.0187601	mg/L	9.76%
Sb 206.831	-96.5	-0.0692876	0.04909021	mg/L	-0.0692876	0.04909021	mg/L	70.85%
Se 196.026	62.6	-0.0297197	0.04664088	mg/L	-0.0297197	0.04664088	mg/L	156.94%
Si 251.611	124145.2	19.7372	0.04026	mg/L	19.7372	0.04026	mg/L	0.20%
Sn 189.933	416.1	0.382718	0.0081706	mg/L	0.382718	0.0081706	mg/L	2.13%
Sr 407.771	178035.5	0.104282	0.0009373	mg/L	0.104282	0.0009373	mg/L	0.90%
Ti 334.941	937206.4	8.33114	0.065338	mg/L	8.33114	0.065338	mg/L	0.78%
Tl 190.800	-8.5	-0.0172628	0.03846527	mg/L	-0.0172628	0.03846527	mg/L	222.82%
V 292.402	12011.3	0.589745	0.0006720	mg/L	0.589745	0.0006720	mg/L	0.11%
Zn 206.200	2492.2	0.702428	0.0029487	mg/L	0.702428	0.0029487	mg/L	0.42%

Replicate Data

ID: 0908228-09 Date: 8/18/09 12:35:35 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	510877.6	510877.6	98.9	mg/L		
1	Y 360.064	327600.6	327600.6	100.7	mg/L		
1	Ag 328.068	-599.5	-606.5	0.0936037	mg/L	0.0936037	mg/L
1	Al 396.140	2077938.8	2102096.6	240.007	mg/L	240.007	mg/L
1	As 188.979	37.2	37.6	0.120723	mg/L	0.120723	mg/L
1	B 249.773	12200.8	12342.7	0.0221832	mg/L	0.0221832	mg/L
1	Ba 455.403	1175993.0	1189664.9	1.49585	mg/L	1.49585	mg/L
1	Be 234.861	5307.6	5369.3	0.0128835	mg/L	0.0128835	mg/L
1	Ca 315.887	278273.8	281509.0	21.0705	mg/L	21.0705	mg/L
1	Cd 214.438	618.6	625.8	0.0076499	mg/L	0.0076499	mg/L
1	Ce 413.765	5750.2	5817.1	0.603478	mg/L	0.603478	mg/L
1	Co 228.616	1373.5	1389.5	0.142396	mg/L	0.142396	mg/L
1	Cr 205.560	724.0	732.4	0.376633	mg/L	0.376633	mg/L
1	Cu 327.394	2979.6	3014.2	0.164349	mg/L	0.164349	mg/L
1	Fe 238.204	4174883.2	4223419.8	316.377	mg/L	316.377	mg/L
1	K 766.514	85453.6	86447.1	20.8403	mg/L	20.8403	mg/L
1	Li 670.781	28844.2	29179.5	0.168233	mg/L	0.168233	mg/L
1	Mg 279.074	63155.2	63889.4	39.1454	mg/L	39.1454	mg/L
1	Mn 257.610	921743.6	932459.6	9.23981	mg/L	9.23981	mg/L
1	Mo 202.031	-29.6	-30.0	-0.0347451	mg/L	-0.0347451	mg/L
1	Na 589.594	6697.4	6775.3	0.312372	mg/L	0.312372	mg/L
1	Ni 231.603	347.2	351.3	0.159046	mg/L	0.159046	mg/L
1	Pb 220.353	2.9	3.0	0.192187	mg/L	0.192187	mg/L
1	Sb 206.831	-87.6	-88.6	-0.0267775	mg/L	-0.0267775	mg/L
1	Se 196.026	56.4	57.1	-0.0549018	mg/L	-0.0549018	mg/L

1	Si 251.611	101749.1	102932.0	16.2540	mg/L	16.2540 mg/L
1	Sn 189.933	414.0	418.8	0.410709	mg/L	0.410709 mg/L
1	Sr 407.771	166452.9	168388.0	0.0985717	mg/L	0.0985717 mg/L
1	Ti 334.941	1036338.1	1048386.4	9.32150	mg/L	9.32150 mg/L
1	Tl 190.800	-13.1	-13.3	-0.0190158	mg/L	-0.0190158 mg/L
1	V 292.402	12675.9	12823.2	0.627394	mg/L	0.627394 mg/L
1	Zn 206.200	2629.7	2660.2	0.749623	mg/L	0.749623 mg/L
2	Sc 357.253	512884.3	512884.3	99.2	mg/L	
2	Y 360.064	328894.9	328894.9	101.1	mg/L	
2	Ag 328.068	-575.8	-580.2	0.0941354	mg/L	0.0941354 mg/L
2	Al 396.140	2081148.3	2097106.3	239.437	mg/L	239.437 mg/L
2	As 188.979	49.5	49.9	0.165695	mg/L	0.165695 mg/L
2	B 249.773	12211.5	12305.2	0.0220062	mg/L	0.0220062 mg/L
2	Ba 455.403	1178790.9	1187829.7	1.49353	mg/L	1.49353 mg/L
2	Be 234.861	5222.5	5262.6	0.0120764	mg/L	0.0120764 mg/L
2	Ca 315.887	278630.6	280767.1	21.0153	mg/L	21.0153 mg/L
2	Cd 214.438	601.2	605.8	0.0058259	mg/L	0.0058259 mg/L
2	Ce 413.765	5749.7	5793.8	0.600644	mg/L	0.600644 mg/L
2	Co 228.616	1385.0	1395.6	0.143996	mg/L	0.143996 mg/L
2	Cr 205.560	730.9	736.5	0.379111	mg/L	0.379111 mg/L
2	Cu 327.394	2876.5	2898.5	0.157652	mg/L	0.157652 mg/L
2	Fe 238.204	4178811.2	4210853.6	315.436	mg/L	315.436 mg/L
2	K 766.514	85313.4	85967.6	20.7228	mg/L	20.7228 mg/L
2	Li 670.781	28838.2	29059.4	0.167538	mg/L	0.167538 mg/L
2	Mg 279.074	63166.0	63650.4	38.9990	mg/L	38.9990 mg/L
2	Mn 257.610	923051.6	930129.4	9.21672	mg/L	9.21672 mg/L
2	Mo 202.031	-35.2	-35.5	-0.0394490	mg/L	-0.0394490 mg/L
2	Na 589.594	6746.1	6797.8	0.313631	mg/L	0.313631 mg/L
2	Ni 231.603	369.2	372.1	0.166966	mg/L	0.166966 mg/L
2	Pb 220.353	-8.8	-8.9	0.165949	mg/L	0.165949 mg/L
2	Sb 206.831	-82.6	-83.2	-0.0095273	mg/L	-0.0095273 mg/L
2	Se 196.026	54.7	55.1	-0.0638873	mg/L	-0.0638873 mg/L
2	Si 251.611	101990.4	102772.4	16.2289	mg/L	16.2289 mg/L
2	Sn 189.933	413.3	416.5	0.405689	mg/L	0.405689 mg/L
2	Sr 407.771	167162.7	168444.5	0.0986051	mg/L	0.0986051 mg/L
2	Ti 334.941	1038757.4	1046722.4	9.30668	mg/L	9.30668 mg/L
2	Tl 190.800	-14.2	-14.4	-0.0240344	mg/L	-0.0240344 mg/L
2	V 292.402	12688.2	12785.5	0.625609	mg/L	0.625609 mg/L
2	Zn 206.200	2620.4	2640.5	0.743972	mg/L	0.743972 mg/L

Mean Data

ID: 0908228-09 Seq. No.: 48 Sample No.: 36 A/S Pos: 52
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 12:35:35 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	511880.9	99.0	0.27	mg/L				0.28%
Y 360.064	328247.8	100.9	0.28	mg/L				0.28%
Ag 328.068	-593.3	0.0938696	0.00037596	mg/L	0.0938696	0.00037596	mg/L	0.40%
Al 396.140	2099601.4	239.722	0.4029	mg/L	239.722	0.4029	mg/L	0.17%
As 188.979	43.8	0.143209	0.0318000	mg/L	0.143209	0.0318000	mg/L	22.21%
B 249.773	12323.9	0.0220947	0.00012516	mg/L	0.0220947	0.00012516	mg/L	0.57%
Ba 455.403	1188747.3	1.49469	0.001643	mg/L	1.49469	0.001643	mg/L	0.11%
Be 234.861	5315.9	0.0124800	0.00057074	mg/L	0.0124800	0.00057074	mg/L	4.57%
Ca 315.887	281138.1	21.0429	0.03908	mg/L	21.0429	0.03908	mg/L	0.19%
Cd 214.438	615.8	0.0067379	0.00128975	mg/L	0.0067379	0.00128975	mg/L	19.14%
Ce 413.765	5805.4	0.602061	0.0020040	mg/L	0.602061	0.0020040	mg/L	0.33%
Co 228.616	1392.5	0.143196	0.0011319	mg/L	0.143196	0.0011319	mg/L	0.79%
Cr 205.560	734.5	0.377872	0.0017521	mg/L	0.377872	0.0017521	mg/L	0.46%
Cu 327.394	2956.4	0.161000	0.0047353	mg/L	0.161000	0.0047353	mg/L	2.94%
Fe 238.204	4217136.7	315.906	0.6657	mg/L	315.906	0.6657	mg/L	0.21%
K 766.514	86207.3	20.7816	0.08308	mg/L	20.7816	0.08308	mg/L	0.40%
Li 670.781	29119.4	0.167886	0.0004911	mg/L	0.167886	0.0004911	mg/L	0.29%
Mg 279.074	63769.9	39.0722	0.10349	mg/L	39.0722	0.10349	mg/L	0.26%
Mn 257.610	931294.5	9.22826	0.016329	mg/L	9.22826	0.016329	mg/L	0.18%
Mo 202.031	-32.7	-0.0370971	0.00332620	mg/L	-0.0370971	0.00332620	mg/L	8.97%
Na 589.594	6786.6	0.313001	0.0008905	mg/L	0.313001	0.0008905	mg/L	0.28%
Ni 231.603	361.7	0.163006	0.0056009	mg/L	0.163006	0.0056009	mg/L	3.44%
Pb 220.353	-3.0	0.179068	0.0185533	mg/L	0.179068	0.0185533	mg/L	10.36%
Sb 206.831	-85.9	-0.0181524	0.01219773	mg/L	-0.0181524	0.01219773	mg/L	67.20%

Se 196.026	56.1	-0.0593945	0.00635370	mg/L	-0.0593945	0.00635370 mg/L	10.70%
Si 251.611	102852.2	16.2415	0.01779	mg/L	16.2415	0.01779 mg/L	0.11%
Sn 189.933	417.6	0.408199	0.0035497	mg/L	0.408199	0.0035497 mg/L	0.87%
Sr 407.771	168416.3	0.0985884	0.00002362	mg/L	0.0985884	0.00002362 mg/L	0.02%
Ti 334.941	1047554.4	9.31409	0.010481	mg/L	9.31409	0.010481 mg/L	0.11%
Tl 190.800	-13.8	-0.0215251	0.00354873	mg/L	-0.0215251	0.00354873 mg/L	16.49%
V 292.402	12804.4	0.626501	0.0012619	mg/L	0.626501	0.0012619 mg/L	0.20%
Zn 206.200	2650.3	0.746798	0.0039964	mg/L	0.746798	0.0039964 mg/L	0.54%

Replicate Data ----------

ID: 0908228-10 Date: 8/18/09 12:39:09 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	500391.4	500391.4	96.8	mg/L		
1	Y 360.064	312381.2	312381.2	96.0	mg/L		
1	Ag 328.068	-526.1	-543.4	0.0732034	mg/L	0.0732034	mg/L
1	Al 396.140	1804048.7	1863267.4	212.739	mg/L	212.739	mg/L
1	As 188.979	39.9	41.2	0.133968	mg/L	0.133968	mg/L
1	B 249.773	9250.5	9554.2	0.0114986	mg/L	0.0114986	mg/L
1	Ba 455.403	1202021.5	1241478.3	1.56145	mg/L	1.56145	mg/L
1	Be 234.861	3801.8	3926.6	0.0082752	mg/L	0.0082752	mg/L
1	Ca 315.887	3162071.9	3265868.3	243.670	mg/L	243.670	mg/L
1	Cd 214.438	561.7	580.2	0.0108988	mg/L	0.0108988	mg/L
1	Ce 413.765	3866.1	3993.0	0.381873	mg/L	0.381873	mg/L
1	Co 228.616	982.2	1014.5	0.109427	mg/L	0.109427	mg/L
1	Cr 205.560	581.1	600.1	0.306417	mg/L	0.306417	mg/L
1	Cu 327.394	1774.1	1832.3	0.121468	mg/L	0.121468	mg/L
1	Fe 238.204	3172645.8	3276789.3	245.459	mg/L	245.459	mg/L
1	K 766.514	55044.5	56851.4	13.5895	mg/L	13.5895	mg/L
1	Li 670.781	25657.9	26500.2	0.152746	mg/L	0.152746	mg/L
1	Mg 279.074	201613.7	208231.7	127.765	mg/L	127.765	mg/L
1	Mn 257.610	596650.0	616235.3	6.10606	mg/L	6.10606	mg/L
1	Mo 202.031	-30.5	-31.5	-0.0360489	mg/L	-0.0360489	mg/L
1	Na 589.594	18003.1	18594.1	0.973450	mg/L	0.973450	mg/L
1	Ni 231.603	184.7	190.7	0.104045	mg/L	0.104045	mg/L
1	Pb 220.353	-20.9	-21.6	0.108984	mg/L	0.108984	mg/L
1	Sb 206.831	-84.5	-87.3	-0.0672850	mg/L	-0.0672850	mg/L
1	Se 196.026	45.4	46.9	-0.100884	mg/L	-0.100884	mg/L
1	Si 251.611	106524.2	110020.9	17.1909	mg/L	17.1909	mg/L
1	Sn 189.933	552.4	570.5	0.570780	mg/L	0.570780	mg/L
1	Sr 407.771	528416.8	545762.3	0.321932	mg/L	0.321932	mg/L
1	Ti 334.941	674217.0	696348.4	6.18565	mg/L	6.18565	mg/L
1	Tl 190.800	3.2	3.3	-0.0883689	mg/L	-0.0883689	mg/L
1	V 292.402	10173.5	10507.4	0.519641	mg/L	0.519641	mg/L
1	Zn 206.200	1890.3	1952.3	0.548998	mg/L	0.548998	mg/L
2	Sc 357.253	498881.0	498881.0	96.5	mg/L		
2	Y 360.064	312023.2	312023.2	95.9	mg/L		
2	Ag 328.068	-453.9	-470.2	0.0757744	mg/L	0.0757744	mg/L
2	Al 396.140	1806368.0	1871311.4	213.657	mg/L	213.657	mg/L
2	As 188.979	46.7	48.3	0.159928	mg/L	0.159928	mg/L
2	B 249.773	9288.8	9622.8	0.0142841	mg/L	0.0142841	mg/L
2	Ba 455.403	1203313.0	1246575.1	1.56791	mg/L	1.56791	mg/L
2	Be 234.861	3751.8	3886.7	0.0078402	mg/L	0.0078402	mg/L
2	Ca 315.887	3161142.4	3274793.5	244.335	mg/L	244.335	mg/L
2	Cd 214.438	558.4	578.4	0.0105844	mg/L	0.0105844	mg/L
2	Ce 413.765	3914.3	4055.0	0.389403	mg/L	0.389403	mg/L
2	Co 228.616	957.8	992.2	0.104679	mg/L	0.104679	mg/L
2	Cr 205.560	586.3	607.4	0.310550	mg/L	0.310550	mg/L
2	Cu 327.394	1777.4	1841.3	0.122059	mg/L	0.122059	mg/L
2	Fe 238.204	3173759.7	3287864.3	246.289	mg/L	246.289	mg/L
2	K 766.514	54952.3	56928.0	13.6083	mg/L	13.6083	mg/L
2	Li 670.781	25648.2	26570.3	0.153152	mg/L	0.153152	mg/L
2	Mg 279.074	201408.4	208649.6	128.021	mg/L	128.021	mg/L
2	Mn 257.610	597255.2	618728.0	6.13077	mg/L	6.13077	mg/L
2	Mo 202.031	-15.0	-15.5	-0.0224829	mg/L	-0.0224829	mg/L
2	Na 589.594	17911.5	18555.4	0.971289	mg/L	0.971289	mg/L
2	Ni 231.603	194.9	201.9	0.108177	mg/L	0.108177	mg/L
2	Pb 220.353	-5.7	-5.9	0.143546	mg/L	0.143546	mg/L
2	Sb 206.831	-77.2	-80.0	-0.0424863	mg/L	-0.0424863	mg/L

2 Se 196.026	56.9	58.9	-0.0466312 mg/L	-0.0466312 mg/L	
2 Si 251.611	106264.7	110085.2	17.1996 mg/L	17.1996 mg/L	
2 Sn 189.933	568.7	589.1	0.620083 mg/L	0.620083 mg/L	
2 Sr 407.771	528725.8	547734.8	0.323100 mg/L	0.323100 mg/L	
2 Ti 334.941	675355.2	699635.9	6.21493 mg/L	6.21493 mg/L	
2 Tl 190.800	4.1	4.3	-0.0840419 mg/L	-0.0840419 mg/L	
2 V 292.402	10166.8	10532.3	0.520793 mg/L	0.520793 mg/L	
2 Zn 206.200	1880.6	1948.2	0.547780 mg/L	0.547780 mg/L	

Mean Data ----------

ID: 0908228-10 Seq. No.: 49 Sample No.: 37 A/S Pos: 53
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 12:39:09 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	499636.2	96.7	0.21	mg/L				0.21%
Y 360.064	312202.2	95.9	0.08	mg/L				0.08%
Ag 328.068	-506.8	0.0744889	0.00181797	mg/L	0.0744889	0.00181797	mg/L	2.44%
Al 396.140	1867289.4	213.198	0.6494	mg/L	213.198	0.6494	mg/L	0.30%
As 188.979	44.8	0.146948	0.0183565	mg/L	0.146948	0.0183565	mg/L	12.49%
B 249.773	9588.5	0.0128914	0.00196962	mg/L	0.0128914	0.00196962	mg/L	15.28%
Ba 455.403	1244026.7	1.56468	0.004563	mg/L	1.56468	0.004563	mg/L	0.29%
Be 234.861	3906.6	0.0080577	0.00030757	mg/L	0.0080577	0.00030757	mg/L	3.82%
Ca 315.887	3270330.9	244.003	0.4707	mg/L	244.003	0.4707	mg/L	0.19%
Cd 214.438	579.3	0.0107416	0.00022234	mg/L	0.0107416	0.00022234	mg/L	2.07%
Ce 413.765	4024.0	0.385638	0.0053241	mg/L	0.385638	0.0053241	mg/L	1.38%
Co 228.616	1003.4	0.107053	0.0033570	mg/L	0.107053	0.0033570	mg/L	3.14%
Cr 205.560	603.8	0.308484	0.0029225	mg/L	0.308484	0.0029225	mg/L	0.95%
Cu 327.394	1836.8	0.121763	0.0004180	mg/L	0.121763	0.0004180	mg/L	0.34%
Fe 238.204	3282326.8	245.874	0.5867	mg/L	245.874	0.5867	mg/L	0.24%
K 766.514	56889.7	13.5989	0.01328	mg/L	13.5989	0.01328	mg/L	0.10%
Li 670.781	26535.3	0.152949	0.0002868	mg/L	0.152949	0.0002868	mg/L	0.19%
Mg 279.074	208440.7	127.893	0.1811	mg/L	127.893	0.1811	mg/L	0.14%
Mn 257.610	617481.7	6.11841	0.017467	mg/L	6.11841	0.017467	mg/L	0.29%
Mo 202.031	-23.5	-0.0292659	0.00959262	mg/L	-0.0292659	0.00959262	mg/L	32.78%
Na 589.594	18574.8	0.972370	0.0015287	mg/L	0.972370	0.0015287	mg/L	0.16%
Ni 231.603	196.3	0.106111	0.0029219	mg/L	0.106111	0.0029219	mg/L	2.75%
Pb 220.353	-13.7	0.126265	0.0244390	mg/L	0.126265	0.0244390	mg/L	19.36%
Sb 206.831	-83.6	-0.0548856	0.01753532	mg/L	-0.0548856	0.01753532	mg/L	31.95%
Se 196.026	52.9	-0.0737575	0.03836234	mg/L	-0.0737575	0.03836234	mg/L	52.01%
Si 251.611	110053.1	17.1953	0.00617	mg/L	17.1953	0.00617	mg/L	0.04%
Sn 189.933	579.8	0.595432	0.0348623	mg/L	0.595432	0.0348623	mg/L	5.85%
Sr 407.771	546748.5	0.322516	0.0008256	mg/L	0.322516	0.0008256	mg/L	0.26%
Ti 334.941	697992.2	6.20029	0.020707	mg/L	6.20029	0.020707	mg/L	0.33%
Tl 190.800	3.8	-0.0862054	0.00305967	mg/L	-0.0862054	0.00305967	mg/L	3.55%
V 292.402	10519.9	0.520217	0.0008143	mg/L	0.520217	0.0008143	mg/L	0.16%
Zn 206.200	1950.3	0.548389	0.0008616	mg/L	0.548389	0.0008616	mg/L	0.16%

Replicate Data ----------

ID: 0908228-11 Date: 8/18/09 12:42:44 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	503758.4	503758.4	97.5	mg/L		
1	Y 360.064	311272.1	311272.1	95.7	mg/L		
1	Ag 328.068	-618.4	-634.5	0.113554	mg/L	0.113554	mg/L
1	Al 396.140	2775128.4	2847066.1	325.063	mg/L	325.063	mg/L
1	As 188.979	57.0	58.4	0.196771	mg/L	0.196771	mg/L
1	B 249.773	14715.5	15096.9	0.0439185	mg/L	0.0439185	mg/L
1	Ba 455.403	958807.8	983662.2	1.23502	mg/L	1.23502	mg/L
1	Be 234.861	6301.9	6465.2	0.0146557	mg/L	0.0146557	mg/L
1	Ca 315.887	2027921.1	2080489.4	155.244	mg/L	155.244	mg/L
1	Cd 214.438	776.7	796.8	0.0118008	mg/L	0.0118008	mg/L
1	Ce 413.765	5924.4	6078.0	0.635173	mg/L	0.635173	mg/L
1	Co 228.616	1535.0	1574.8	0.152420	mg/L	0.152420	mg/L
1	Cr 205.560	831.1	852.7	0.440330	mg/L	0.440330	mg/L
1	Cu 327.394	2650.7	2719.5	0.163553	mg/L	0.163553	mg/L
1	Fe 238.204	4975280.2	5104250.7	382.353	mg/L	382.353	mg/L
1	K 766.514	77160.5	79160.6	19.0552	mg/L	19.0552	mg/L
1	Li 670.781	45688.6	46873.0	0.270499	mg/L	0.270499	mg/L

1 Mg 279.074	200550.5	205749.2	126.198 mg/L	126.198 mg/L	
1 Mn 257.610	615040.4	630983.6	6.25222 mg/L	6.25222 mg/L	
1 Mo 202.031	-20.1	-20.6	-0.0268010 mg/L	-0.0268010 mg/L	
1 Na 589.594	29063.2	29816.6	1.60117 mg/L	1.60117 mg/L	
1 Ni 231.603	410.5	421.1	0.180249 mg/L	0.180249 mg/L	
1 Pb 220.353	-27.9	-28.7	0.167902 mg/L	0.167902 mg/L	
1 Sb 206.831	-109.7	-112.5	-0.0641034 mg/L	-0.0641034 mg/L	
1 Se 196.026	63.7	65.3	-0.0175806 mg/L	-0.0175806 mg/L	
1 Si 251.611	134416.8	137901.1	21.6324 mg/L	21.6324 mg/L	
1 Sn 189.933	664.6	681.9	0.631432 mg/L	0.631432 mg/L	
1 Sr 407.771	237015.3	243159.2	0.142827 mg/L	0.142827 mg/L	
1 Ti 334.941	1152520.8	1182396.7	10.5152 mg/L	10.5152 mg/L	
1 Tl 190.800	-0.2	-0.2	-0.103866 mg/L	-0.103866 mg/L	
1 V 292.402	14297.5	14668.1	0.712031 mg/L	0.712031 mg/L	
1 Zn 206.200	2594.0	2661.3	0.746808 mg/L	0.746808 mg/L	
2 Sc 357.253	507471.5	507471.5	98.2 mg/L		
2 Y 360.064	312470.1	312470.1	96.0 mg/L		
2 Ag 328.068	-706.4	-719.4	0.111044 mg/L	0.111044 mg/L	
2 Al 396.140	2801789.8	2853387.0	325.784 mg/L	325.784 mg/L	
2 As 188.979	50.9	51.9	0.172748 mg/L	0.172748 mg/L	
2 B 249.773	14676.9	14947.2	0.0313626 mg/L	0.0313626 mg/L	
2 Ba 455.403	968726.9	986566.8	1.23870 mg/L	1.23870 mg/L	
2 Be 234.861	6101.8	6214.2	0.0124511 mg/L	0.0124511 mg/L	
2 Ca 315.887	2045076.7	2082738.4	155.412 mg/L	155.412 mg/L	
2 Cd 214.438	758.0	772.0	0.0092825 mg/L	0.0092825 mg/L	
2 Ce 413.765	5955.0	6064.6	0.633551 mg/L	0.633551 mg/L	
2 Co 228.616	1541.7	1570.1	0.151215 mg/L	0.151215 mg/L	
2 Cr 205.560	837.1	852.5	0.440203 mg/L	0.440203 mg/L	
2 Cu 327.394	2693.0	2742.6	0.164908 mg/L	0.164908 mg/L	
2 Fe 238.204	5019039.8	5111469.5	382.894 mg/L	382.894 mg/L	
2 K 766.514	77335.8	78760.0	18.9570 mg/L	18.9570 mg/L	
2 Li 670.781	46000.0	46847.1	0.270350 mg/L	0.270350 mg/L	
2 Mg 279.074	201047.6	204750.1	125.585 mg/L	125.585 mg/L	
2 Mn 257.610	620767.0	632198.9	6.26426 mg/L	6.26426 mg/L	
2 Mo 202.031	-23.8	-24.2	-0.0298348 mg/L	-0.0298348 mg/L	
2 Na 589.594	29109.4	29645.5	1.59160 mg/L	1.59160 mg/L	
2 Ni 231.603	416.9	424.6	0.181519 mg/L	0.181519 mg/L	
2 Pb 220.353	-7.4	-7.5	0.214055 mg/L	0.214055 mg/L	
2 Sb 206.831	-105.5	-107.5	-0.0470238 mg/L	-0.0470238 mg/L	
2 Se 196.026	47.6	48.4	-0.0939075 mg/L	-0.0939075 mg/L	
2 Si 251.611	134910.6	137395.1	21.5508 mg/L	21.5508 mg/L	
2 Sn 189.933	656.1	668.2	0.597073 mg/L	0.597073 mg/L	
2 Sr 407.771	239514.4	243925.2	0.143281 mg/L	0.143281 mg/L	
2 Ti 334.941	1164398.9	1185842.3	10.5459 mg/L	10.5459 mg/L	
2 Tl 190.800	3.2	3.2	-0.0887233 mg/L	-0.0887233 mg/L	
2 V 292.402	14341.0	14605.1	0.708782 mg/L	0.708782 mg/L	
2 Zn 206.200	2585.7	2633.3	0.738738 mg/L	0.738738 mg/L	

Mean Data ----------

ID: 0908228-11 Seq. No.: 50 Sample No.: 38 A/S Pos: 54

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 8/18/09 12:42:44 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	505615.0	97.8	0.51	mg/L				0.52%
Y 360.064	311871.1	95.8	0.26	mg/L				0.27%
Ag 328.068	-676.9	0.112299	0.0017746	mg/L	0.112299	0.0017746	mg/L	1.58%
Al 396.140	2850226.5	325.424	0.5103	mg/L	325.424	0.5103	mg/L	0.16%
As 188.979	55.1	0.184760	0.0169866	mg/L	0.184760	0.0169866	mg/L	9.19%
B 249.773	15022.0	0.0376406	0.00887837	mg/L	0.0376406	0.00887837	mg/L	23.59%
Ba 455.403	985114.5	1.23686	0.002600	mg/L	1.23686	0.002600	mg/L	0.21%
Be 234.861	6339.7	0.0135534	0.00155888	mg/L	0.0135534	0.00155888	mg/L	11.50%
Ca 315.887	2081613.9	155.328	0.1186	mg/L	155.328	0.1186	mg/L	0.08%
Cd 214.438	784.4	0.0105416	0.00178076	mg/L	0.0105416	0.00178076	mg/L	16.89%
Ce 413.765	6071.3	0.634362	0.0011473	mg/L	0.634362	0.0011473	mg/L	0.18%
Co 228.616	1572.4	0.151817	0.0008525	mg/L	0.151817	0.0008525	mg/L	0.56%
Cr 205.560	852.6	0.440266	0.0000896	mg/L	0.440266	0.0000896	mg/L	0.02%
Cu 327.394	2731.0	0.164230	0.0009583	mg/L	0.164230	0.0009583	mg/L	0.58%
Fe 238.204	5107860.1	382.624	0.3824	mg/L	382.624	0.3824	mg/L	0.10%
K 766.514	78960.3	19.0061	0.06940	mg/L	19.0061	0.06940	mg/L	0.37%

Li 670.781	46860.1	0.270425	0.0001056	mg/L	0.270425	0.0001056 mg/L	0.04%
Mg 279.074	205249.6	125.892	0.4336	mg/L	125.892	0.4336 mg/L	0.34%
Mn 257.610	631591.3	6.25824	0.008516	mg/L	6.25824	0.008516 mg/L	0.14%
Mo 202.031	-22.4	-0.0283179	0.00214520	mg/L	-0.0283179	0.00214520 mg/L	7.58%
Na 589.594	29731.0	1.59639	0.006767	mg/L	1.59639	0.006767 mg/L	0.42%
Ni 231.603	422.9	0.180884	0.0008980	mg/L	0.180884	0.0008980 mg/L	0.50%
Pb 220.353	-18.1	0.190979	0.0326355	mg/L	0.190979	0.0326355 mg/L	17.09%
Sb 206.831	-110.0	-0.0555636	0.01207707	mg/L	-0.0555636	0.01207707 mg/L	21.74%
Se 196.026	56.9	-0.0557440	0.05397131	mg/L	-0.0557440	0.05397131 mg/L	96.82%
Si 251.611	137648.1	21.5916	0.05772	mg/L	21.5916	0.05772 mg/L	0.27%
Sn 189.933	675.0	0.614252	0.0242951	mg/L	0.614252	0.0242951 mg/L	3.96%
Sr 407.771	243542.2	0.143054	0.0003206	mg/L	0.143054	0.0003206 mg/L	0.22%
Ti 334.941	1184119.5	10.5306	0.02170	mg/L	10.5306	0.02170 mg/L	0.21%
Tl 190.800	1.5	-0.0962947	0.01070754	mg/L	-0.0962947	0.01070754 mg/L	11.12%
V 292.402	14636.6	0.710406	0.0022973	mg/L	0.710406	0.0022973 mg/L	0.32%
Zn 206.200	2647.3	0.742773	0.0057069	mg/L	0.742773	0.0057069 mg/L	0.77%

Replicate Data

ID: 0908228-12 Date: 8/18/09 12:46:18 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	503893.5	503893.5	97.5	mg/L		
1	Y 360.064	327313.8	327313.8	100.6	mg/L		
1	Ag 328.068	-523.7	-537.2	0.0546737	mg/L	0.0546737	mg/L
1	Al 396.140	1262679.0	1295063.3	147.865	mg/L	147.865	mg/L
1	As 188.979	23.3	23.9	0.0705864	mg/L	0.0705864	mg/L
1	B 249.773	7112.4	7294.8	0.0079397	mg/L	0.0079397	mg/L
1	Ba 455.403	1105093.7	1133436.3	1.42466	mg/L	1.42466	mg/L
1	Be 234.861	3151.7	3232.5	0.0090854	mg/L	0.0090854	mg/L
1	Ca 315.887	158007.2	162059.6	12.1715	mg/L	12.1715	mg/L
1	Cd 214.438	426.1	437.1	0.0071626	mg/L	0.0071626	mg/L
1	Ce 413.765	4938.8	5065.5	0.512163	mg/L	0.512163	mg/L
1	Co 228.616	1020.0	1046.2	0.138169	mg/L	0.138169	mg/L
1	Cr 205.560	515.3	528.5	0.270357	mg/L	0.270357	mg/L
1	Cu 327.394	2293.5	2352.3	0.126040	mg/L	0.126040	mg/L
1	Fe 238.204	2422942.3	2485084.3	186.148	mg/L	186.148	mg/L
1	K 766.514	51381.3	52699.1	12.5722	mg/L	12.5722	mg/L
1	Li 670.781	17827.7	18285.0	0.105264	mg/L	0.105264	mg/L
1	Mg 279.074	30991.1	31786.0	19.4768	mg/L	19.4768	mg/L
1	Mn 257.610	999677.0	1025316.0	10.1600	mg/L	10.1600	mg/L
1	Mo 202.031	-5.7	-5.8	-0.0142079	mg/L	-0.0142079	mg/L
1	Na 589.594	4756.7	4878.7	0.206284	mg/L	0.206284	mg/L
1	Ni 231.603	153.6	157.5	0.0961400	mg/L	0.0961400	mg/L
1	Pb 220.353	12.4	12.7	0.146604	mg/L	0.146604	mg/L
1	Sb 206.831	-66.6	-68.4	-0.0421557	mg/L	-0.0421557	mg/L
1	Se 196.026	57.6	59.1	-0.0456894	mg/L	-0.0456894	mg/L
1	Si 251.611	92148.4	94511.8	15.1465	mg/L	15.1465	mg/L
1	Sn 189.933	295.1	302.6	0.424454	mg/L	0.424454	mg/L
1	Sr 407.771	115956.4	118930.3	0.0692986	mg/L	0.0692986	mg/L
1	Ti 334.941	553530.5	567727.1	5.03992	mg/L	5.03992	mg/L
1	Tl 190.800	-20.2	-20.8	-0.0376615	mg/L	-0.0376615	mg/L
1	V 292.402	7412.9	7603.1	0.380746	mg/L	0.380746	mg/L
1	Zn 206.200	1937.5	1987.2	0.570622	mg/L	0.570622	mg/L
2	Sc 357.253	505859.2	505859.2	97.9	mg/L		
2	Y 360.064	329009.9	329009.9	101.1	mg/L		
2	Ag 328.068	-546.9	-558.7	0.0533911	mg/L	0.0533911	mg/L
2	Al 396.140	1254481.2	1281655.4	146.334	mg/L	146.334	mg/L
2	As 188.979	21.4	21.8	0.0631268	mg/L	0.0631268	mg/L
2	B 249.773	7107.4	7261.4	0.0107285	mg/L	0.0107285	mg/L
2	Ba 455.403	1099501.8	1123318.9	1.41185	mg/L	1.41185	mg/L
2	Be 234.861	3301.7	3373.2	0.0104992	mg/L	0.0104992	mg/L
2	Ca 315.887	156953.9	160353.8	12.0444	mg/L	12.0444	mg/L
2	Cd 214.438	412.8	421.7	0.0059513	mg/L	0.0059513	mg/L
2	Ce 413.765	4833.4	4938.1	0.496687	mg/L	0.496687	mg/L
2	Co 228.616	1042.4	1064.9	0.142629	mg/L	0.142629	mg/L
2	Cr 205.560	505.6	516.6	0.263605	mg/L	0.263605	mg/L
2	Cu 327.394	2318.6	2368.8	0.126995	mg/L	0.126995	mg/L
2	Fe 238.204	2407456.3	2459605.9	184.239	mg/L	184.239	mg/L
2	K 766.514	50931.0	52034.2	12.4093	mg/L	12.4093	mg/L

2 Li 670.781	17831.3	18217.5	0.104874 mg/L	0.104874 mg/L	
2 Mg 279.074	30788.3	31455.2	19.2746 mg/L	19.2746 mg/L	
2 Mn 257.610	993390.1	1014908.6	10.0569 mg/L	10.0569 mg/L	
2 Mo 202.031	-6.6	-6.8	-0.0150402 mg/L	-0.0150402 mg/L	
2 Na 589.594	4659.5	4760.4	0.199671 mg/L	0.199671 mg/L	
2 Ni 231.603	173.6	177.3	0.103767 mg/L	0.103767 mg/L	
2 Pb 220.353	14.8	15.1	0.150887 mg/L	0.150887 mg/L	
2 Sb 206.831	-68.2	-69.7	-0.0477154 mg/L	-0.0477154 mg/L	
2 Se 196.026	50.1	51.2	-0.0814300 mg/L	-0.0814300 mg/L	
2 Si 251.611	91760.2	93747.9	15.0228 mg/L	15.0228 mg/L	
2 Sn 189.933	290.7	297.0	0.409191 mg/L	0.409191 mg/L	
2 Sr 407.771	115392.9	117892.5	0.0686844 mg/L	0.0686844 mg/L	
2 Ti 334.941	550541.8	562467.4	4.99307 mg/L	4.99307 mg/L	
2 Tl 190.800	-13.3	-13.6	-0.0076335 mg/L	-0.0076335 mg/L	
2 V 292.402	7402.2	7562.5	0.378944 mg/L	0.378944 mg/L	
2 Zn 206.200	1943.4	1985.5	0.570127 mg/L	0.570127 mg/L	

Mean Data ----------

ID: 0908228-12 Seq. No.: 51 Sample No.: 39 A/S Pos: 55
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 12:46:18 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	504876.3	97.7	0.27	mg/L				0.28%
Y 360.064	328161.8	100.9	0.37	mg/L				0.37%
Ag 328.068	-547.9	0.0540324	0.00090690	mg/L	0.0540324	0.00090690	mg/L	1.68%
Al 396.140	1288359.3	147.100	1.0825	mg/L	147.100	1.0825	mg/L	0.74%
As 188.979	22.9	0.0668566	0.00527475	mg/L	0.0668566	0.00527475	mg/L	7.89%
B 249.773	7278.1	0.0093341	0.00197204	mg/L	0.0093341	0.00197204	mg/L	21.13%
Ba 455.403	1128377.6	1.41825	0.009058	mg/L	1.41825	0.009058	mg/L	0.64%
Be 234.861	3302.8	0.0097923	0.00099968	mg/L	0.0097923	0.00099968	mg/L	10.21%
Ca 315.887	161206.7	12.1080	0.08986	mg/L	12.1080	0.08986	mg/L	0.74%
Cd 214.438	429.4	0.0065570	0.00085649	mg/L	0.0065570	0.00085649	mg/L	13.06%
Ce 413.765	5001.8	0.504425	0.0109434	mg/L	0.504425	0.0109434	mg/L	2.17%
Co 228.616	1055.5	0.140399	0.0031535	mg/L	0.140399	0.0031535	mg/L	2.25%
Cr 205.560	522.5	0.266981	0.0047744	mg/L	0.266981	0.0047744	mg/L	1.79%
Cu 327.394	2360.6	0.126518	0.0006755	mg/L	0.126518	0.0006755	mg/L	0.53%
Fe 238.204	2472345.1	185.193	1.3497	mg/L	185.193	1.3497	mg/L	0.73%
K 766.514	52366.7	12.4908	0.11517	mg/L	12.4908	0.11517	mg/L	0.92%
Li 670.781	18251.3	0.105069	0.0002757	mg/L	0.105069	0.0002757	mg/L	0.26%
Mg 279.074	31620.6	19.3757	0.14293	mg/L	19.3757	0.14293	mg/L	0.74%
Mn 257.610	1020112.3	10.1084	0.07293	mg/L	10.1084	0.07293	mg/L	0.72%
Mo 202.031	-6.3	-0.0146240	0.00058851	mg/L	-0.0146240	0.00058851	mg/L	4.02%
Na 589.594	4819.5	0.202977	0.0046762	mg/L	0.202977	0.0046762	mg/L	2.30%
Ni 231.603	167.4	0.0999533	0.00539295	mg/L	0.0999533	0.00539295	mg/L	5.40%
Pb 220.353	13.9	0.148745	0.0030289	mg/L	0.148745	0.0030289	mg/L	2.04%
Sb 206.831	-69.0	-0.0449355	0.00393132	mg/L	-0.0449355	0.00393132	mg/L	8.75%
Se 196.026	55.2	-0.0635597	0.02527243	mg/L	-0.0635597	0.02527243	mg/L	39.76%
Si 251.611	94129.8	15.0846	0.08749	mg/L	15.0846	0.08749	mg/L	0.58%
Sn 189.933	299.8	0.416823	0.0107924	mg/L	0.416823	0.0107924	mg/L	2.59%
Sr 407.771	118411.4	0.0689915	0.00043435	mg/L	0.0689915	0.00043435	mg/L	0.63%
Ti 334.941	565097.2	5.01650	0.033129	mg/L	5.01650	0.033129	mg/L	0.66%
Tl 190.800	-17.2	-0.0226475	0.02123298	mg/L	-0.0226475	0.02123298	mg/L	93.75%
V 292.402	7582.8	0.379845	0.0012740	mg/L	0.379845	0.0012740	mg/L	0.34%
Zn 206.200	1986.4	0.570375	0.0003497	mg/L	0.570375	0.0003497	mg/L	0.06%

Replicate Data ----------

ID: 0908228-13 Date: 8/18/09 12:49:52 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	510775.9	510775.9	98.8	mg/L		
1	Y 360.064	324577.8	324577.8	99.8	mg/L		
1	Ag 328.068	-642.9	-650.5	0.113466	mg/L	0.113466	mg/L
1	Al 396.140	2792917.9	2825950.7	322.652	mg/L	322.652	mg/L
1	As 188.979	38.9	39.4	0.127118	mg/L	0.127118	mg/L
1	B 249.773	14845.9	15021.4	0.0346919	mg/L	0.0346919	mg/L
1	Ba 455.403	1154884.2	1168543.4	1.46911	mg/L	1.46911	mg/L
1	Be 234.861	6501.8	6578.7	0.0155009	mg/L	0.0155009	mg/L
1	Ca 315.887	165541.4	167499.3	12.5608	mg/L	12.5608	mg/L

1	Cd 214.438	740.3	749.0	0.0072706	mg/L	0.0072706 mg/L
1	Ce 413.765	4579.2	4633.4	0.459673	mg/L	0.459673 mg/L
1	Co 228.616	1433.4	1450.3	0.128723	mg/L	0.128723 mg/L
1	Cr 205.560	901.4	912.1	0.474754	mg/L	0.474754 mg/L
1	Cu 327.394	2859.3	2893.1	0.157341	mg/L	0.157341 mg/L
1	Fe 238.204	5062066.7	5121937.5	383.678	mg/L	383.678 mg/L
1	K 766.514	73744.0	74616.1	17.9418	mg/L	17.9418 mg/L
1	Li 670.781	47545.6	48108.0	0.277637	mg/L	0.277637 mg/L
1	Mg 279.074	66650.4	67438.7	41.3134	mg/L	41.3134 mg/L
1	Mn 257.610	761672.0	770680.5	7.63660	mg/L	7.63660 mg/L
1	Mo 202.031	-25.6	-26.0	-0.0313226	mg/L	-0.0313226 mg/L
1	Na 589.594	12638.7	12788.2	0.648701	mg/L	0.648701 mg/L
1	Ni 231.603	404.4	409.2	0.175632	mg/L	0.175632 mg/L
1	Pb 220.353	-30.0	-30.3	0.164046	mg/L	0.164046 mg/L
1	Sb 206.831	-112.0	-113.3	-0.0658087	mg/L	-0.0658087 mg/L
1	Se 196.026	65.0	65.8	-0.0156422	mg/L	-0.0156422 mg/L
1	Si 251.611	137113.4	138735.1	22.1059	mg/L	22.1059 mg/L
1	Sn 189.933	461.0	466.4	0.370663	mg/L	0.370663 mg/L
1	Sr 407.771	166527.2	168496.8	0.0986361	mg/L	0.0986361 mg/L
1	Ti 334.941	1057906.4	1070418.6	9.51776	mg/L	9.51776 mg/L
1	Tl 190.800	-6.3	-6.3	-0.0131428	mg/L	-0.0131428 mg/L
1	V 292.402	14832.2	15007.7	0.728979	mg/L	0.728979 mg/L
1	Zn 206.200	2893.0	2927.2	0.823370	mg/L	0.823370 mg/L
2	Sc 357.253	512380.9	512380.9	99.1	mg/L	
2	Y 360.064	323039.0	323039.0	99.3	mg/L	
2	Ag 328.068	-578.4	-583.4	0.114942	mg/L	0.114942 mg/L
2	Al 396.140	2787214.5	2811345.7	320.984	mg/L	320.984 mg/L
2	As 188.979	46.7	47.2	0.155566	mg/L	0.155566 mg/L
2	B 249.773	14800.7	14928.8	0.0334470	mg/L	0.0334470 mg/L
2	Ba 455.403	1153145.9	1163129.7	1.46225	mg/L	1.46225 mg/L
2	Be 234.861	6501.8	6558.1	0.0155520	mg/L	0.0155520 mg/L
2	Ca 315.887	164454.2	165878.1	12.4400	mg/L	12.4400 mg/L
2	Cd 214.438	761.1	767.7	0.0093860	mg/L	0.0093860 mg/L
2	Ce 413.765	4683.7	4724.2	0.470706	mg/L	0.470706 mg/L
2	Co 228.616	1466.6	1479.3	0.135325	mg/L	0.135325 mg/L
2	Cr 205.560	893.7	901.5	0.468778	mg/L	0.468778 mg/L
2	Cu 327.394	2790.2	2814.4	0.152782	mg/L	0.152782 mg/L
2	Fe 238.204	5051075.6	5094807.0	381.646	mg/L	381.646 mg/L
2	K 766.514	73339.7	73974.7	17.7846	mg/L	17.7846 mg/L
2	Li 670.781	47121.1	47529.1	0.274292	mg/L	0.274292 mg/L
2	Mg 279.074	66182.4	66755.4	40.8947	mg/L	40.8947 mg/L
2	Mn 257.610	760163.4	766744.8	7.59760	mg/L	7.59760 mg/L
2	Mo 202.031	-28.9	-29.2	-0.0340627	mg/L	-0.0340627 mg/L
2	Na 589.594	12690.0	12799.8	0.649350	mg/L	0.649350 mg/L
2	Ni 231.603	402.0	405.5	0.174399	mg/L	0.174399 mg/L
2	Pb 220.353	-9.2	-9.3	0.208618	mg/L	0.208618 mg/L
2	Sb 206.831	-98.9	-99.7	-0.0221093	mg/L	-0.0221093 mg/L
2	Se 196.026	73.4	74.0	0.0217250	mg/L	0.0217250 mg/L
2	Si 251.611	136123.2	137301.8	21.8739	mg/L	21.8739 mg/L
2	Sn 189.933	451.6	455.5	0.344721	mg/L	0.344721 mg/L
2	Sr 407.771	165192.2	166622.4	0.0975267	mg/L	0.0975267 mg/L
2	Ti 334.941	1056496.3	1065643.3	9.47522	mg/L	9.47522 mg/L
2	Tl 190.800	-0.4	-0.4	0.0120938	mg/L	0.0120938 mg/L
2	V 292.402	14824.3	14952.6	0.726461	mg/L	0.726461 mg/L
2	Zn 206.200	2880.9	2905.9	0.817326	mg/L	0.817326 mg/L

Mean Data ----------

ID: 0908228-13 Seq. No.: 52 Sample No.: 40 A/S Pos: 56
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 12:49:52 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	511578.4	99.0	0.22	mg/L				0.22%
Y 360.064	323808.4	99.5	0.33	mg/L				0.34%
Ag 328.068	-617.0	0.114204	0.0010438	mg/L	0.114204	0.0010438	mg/L	0.91%
Al 396.140	2818648.2	321.818	1.1791	mg/L	321.818	1.1791	mg/L	0.37%
As 188.979	43.3	0.141342	0.0201160	mg/L	0.141342	0.0201160	mg/L	14.23%
B 249.773	14975.1	0.0340695	0.00088031	mg/L	0.0340695	0.00088031	mg/L	2.58%
Ba 455.403	1165836.5	1.46568	0.004847	mg/L	1.46568	0.004847	mg/L	0.33%
Be 234.861	6568.4	0.0155264	0.00003610	mg/L	0.0155264	0.00003610	mg/L	0.23%

Ca 315.887	166688.7	12.5004	0.08542	mg/L	12.5004	0.08542 mg/L	0.68%
Cd 214.438	758.4	0.0083283	0.00149580	mg/L	0.0083283	0.00149580 mg/L	17.96%
Ce 413.765	4678.8	0.465190	0.0078018	mg/L	0.465190	0.0078018 mg/L	1.68%
Co 228.616	1464.8	0.132024	0.0046685	mg/L	0.132024	0.0046685 mg/L	3.54%
Cr 205.560	906.8	0.471766	0.0042258	mg/L	0.471766	0.0042258 mg/L	0.90%
Cu 327.394	2853.8	0.155062	0.0032239	mg/L	0.155062	0.0032239 mg/L	2.08%
Fe 238.204	5108372.2	382.662	1.4372	mg/L	382.662	1.4372 mg/L	0.38%
K 766.514	74295.4	17.8632	0.11113	mg/L	17.8632	0.11113 mg/L	0.62%
Li 670.781	47818.5	0.275964	0.0023659	mg/L	0.275964	0.0023659 mg/L	0.86%
Mg 279.074	67097.1	41.1041	0.29603	mg/L	41.1041	0.29603 mg/L	0.72%
Mn 257.610	768712.7	7.61710	0.027579	mg/L	7.61710	0.027579 mg/L	0.36%
Mo 202.031	-27.6	-0.0326927	0.00193753	mg/L	-0.0326927	0.00193753 mg/L	5.93%
Na 589.594	12794.0	0.649026	0.0004588	mg/L	0.649026	0.0004588 mg/L	0.07%
Ni 231.603	407.3	0.175015	0.0008720	mg/L	0.175015	0.0008720 mg/L	0.50%
Pb 220.353	-19.8	0.186332	0.0315174	mg/L	0.186332	0.0315174 mg/L	16.91%
Sb 206.831	-106.5	-0.0439590	0.03090011	mg/L	-0.0439590	0.03090011 mg/L	70.29%
Se 196.026	69.9	0.0030414	0.02642258	mg/L	0.0030414	0.02642258 mg/L	868.75%
Si 251.611	138018.4	21.9899	0.16406	mg/L	21.9899	0.16406 mg/L	0.75%
Sn 189.933	461.0	0.357692	0.0183440	mg/L	0.357692	0.0183440 mg/L	5.13%
Sr 407.771	167559.6	0.0980814	0.00078448	mg/L	0.0980814	0.00078448 mg/L	0.80%
Ti 334.941	1068031.0	9.49649	0.030079	mg/L	9.49649	0.030079 mg/L	0.32%
Tl 190.800	-3.4	-0.0005245	0.01784498	mg/L	-0.0005245	0.01784498 mg/L	>999.9%
V 292.402	14980.1	0.727720	0.0017807	mg/L	0.727720	0.0017807 mg/L	0.24%
Zn 206.200	2916.5	0.820348	0.0042737	mg/L	0.820348	0.0042737 mg/L	0.52%

Replicate Data ----------

ID: 9H18017-CCV Date: 8/18/09 12:53:23 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	498803.3	498803.3	96.5	mg/L		
1	Y 360.064	308758.8	308758.8	94.9	mg/L		
1	Ag 328.068	14926.9	15465.9	0.500819	mg/L		
1	Al 396.140	21496.8	22273.1	2.54631	mg/L		
1	As 188.979	653.7	677.3	2.45794	mg/L		
1	B 249.773	6438.4	6671.0	0.474638	mg/L		
1	Ba 455.403	384678.1	398570.3	0.494223	mg/L		
1	Be 234.861	5347.9	5541.1	0.0495411	mg/L		
1	Ca 315.887	63547.3	65842.2	5.00661	mg/L		
1	Cd 214.438	5014.8	5195.9	0.496993	mg/L		
1	Ce 413.765	4906.8	5084.0	0.514415	mg/L		
1	Co 228.616	2427.0	2514.7	0.500873	mg/L		
1	Cr 205.560	864.6	895.8	0.501590	mg/L		
1	Cu 327.394	8460.9	8766.5	0.497277	mg/L		
1	Fe 238.204	7617.1	7892.1	0.565906	mg/L		
1	K 766.514	21098.4	21860.4	5.01687	mg/L		
1	Li 670.781	82274.1	85245.4	0.492288	mg/L		
1	Mg 279.074	7819.7	8102.1	5.02445	mg/L		
1	Mn 257.610	49135.1	50909.6	0.503747	mg/L		
1	Mo 202.031	580.9	601.9	0.502015	mg/L		
1	Na 589.594	86469.9	89592.7	4.94472	mg/L		
1	Ni 231.603	1135.7	1176.7	0.495022	mg/L		
1	Pb 220.353	212.3	219.9	0.496270	mg/L		
1	Sb 206.831	705.3	730.8	2.48641	mg/L		
1	Se 196.026	606.3	628.2	2.52349	mg/L		
1	Si 251.611	16228.0	16814.1	2.57030	mg/L		
1	Sn 189.933	1038.1	1075.6	2.51758	mg/L		
1	Sr 407.771	809829.5	839075.6	0.495539	mg/L		
1	Ti 334.941	56685.5	58732.7	0.505946	mg/L		
1	Tl 190.800	569.2	589.7	2.48616	mg/L		
1	V 292.402	9064.5	9391.8	0.494546	mg/L		
1	Zn 206.200	1702.1	1763.6	0.506173	mg/L		
2	Sc 357.253	494372.0	494372.0	95.7	mg/L		
2	Y 360.064	306347.5	306347.5	94.1	mg/L		
2	Ag 328.068	15026.4	15708.6	0.508476	mg/L		
2	Al 396.140	21473.5	22448.4	2.56633	mg/L		
2	As 188.979	661.2	691.2	2.50850	mg/L		
2	B 249.773	6487.1	6781.6	0.482815	mg/L		
2	Ba 455.403	387268.2	404850.6	0.502175	mg/L		
2	Be 234.861	5313.6	5554.9	0.0496590	mg/L		

1 Sn 189.933	141.5	147.6	0.0045940	mg/L
1 Sr 407.771	329.0	343.0	-0.0008910	mg/L
1 Ti 334.941	1692.5	1764.7	-0.0015084	mg/L
1 Tl 190.800	26.9	28.1	0.0204542	mg/L
1 V 292.402	-462.2	-481.9	-0.0032338	mg/L
1 Zn 206.200	4.5	4.7	-0.0006004	mg/L
2 Sc 357.253	493923.2	493923.2	95.6	mg/L
2 Y 360.064	310822.2	310822.2	95.5	mg/L
2 Ag 328.068	-349.0	-365.2	0.0013278	mg/L
2 Al 396.140	3.3	3.5	0.0037049	mg/L
2 As 188.979	-10.9	-11.4	-0.0582758	mg/L
2 B 249.773	166.1	173.8	-0.0054564	mg/L
2 Ba 455.403	7507.6	7855.6	-0.0004718	mg/L
2 Be 234.861	-244.4	-255.7	0.0000645	mg/L
2 Ca 315.887	-1205.5	-1261.3	0.0053439	mg/L
2 Cd 214.438	76.1	79.6	-0.0006209	mg/L
2 Ce 413.765	853.1	892.6	0.0052142	mg/L
2 Co 228.616	6.6	6.9	0.0017739	mg/L
2 Cr 205.560	31.0	32.4	-0.0005089	mg/L
2 Cu 327.394	156.9	164.2	-0.0006047	mg/L
2 Fe 238.204	410.3	429.3	0.0068211	mg/L
2 K 766.514	1344.0	1406.3	0.0057068	mg/L
2 Li 670.781	-177.2	-185.4	-0.0014934	mg/L
2 Mg 279.074	-110.7	-115.8	-0.0175624	mg/L
2 Mn 257.610	-43.1	-45.1	-0.0012089	mg/L
2 Mo 202.031	13.5	14.1	0.0027247	mg/L
2 Na 589.594	636.2	665.7	-0.0293651	mg/L
2 Ni 231.603	-144.9	-151.7	-0.0059251	mg/L
2 Pb 220.353	0.7	0.7	0.0209530	mg/L
2 Sb 206.831	-19.0	-19.9	0.0004564	mg/L
2 Se 196.026	80.3	84.0	0.0666815	mg/L
2 Si 251.611	853.5	893.1	-0.0380920	mg/L
2 Sn 189.933	141.1	147.6	0.0046387	mg/L
2 Sr 407.771	177.4	185.6	-0.0009841	mg/L
2 Ti 334.941	1763.2	1844.9	-0.0007943	mg/L
2 Tl 190.800	17.9	18.7	-0.0207134	mg/L
2 V 292.402	-390.1	-408.2	0.0004823	mg/L
2 Zn 206.200	3.2	3.3	-0.0009991	mg/L

Mean Data ----------

ID: 9H18017-CCB Seq. No.: 54 Sample No.: 9 A/S Pos: 1

Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0

Data: Original Date: 8/18/09 1:06:54 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Units	RSD
Sc 357.253	494793.8	95.7	0.24	mg/L				0.25%
Y 360.064	311279.7	95.7	0.20	mg/L				0.21%
Ag 328.068	-416.3	-0.0002830	0.00227795	mg/L				805.06%
Al 396.140	-31.9	-0.0003271	0.00570204	mg/L				>999.9%
As 188.979	-6.6	-0.0409530	0.02449815	mg/L				59.82%
B 249.773	193.3	-0.0040121	0.00204252	mg/L				50.91%
Ba 455.403	7903.0	-0.0004119	0.00008478	mg/L				20.58%
Be 234.861	-257.6	0.0000483	0.00002287	mg/L				47.33%
Ca 315.887	-1204.4	0.0095921	0.00600788	mg/L				62.63%
Cd 214.438	87.6	0.0001633	0.00110900	mg/L				679.04%
Ce 413.765	870.6	0.0025431	0.00377750	mg/L				148.54%
Co 228.616	2.9	0.0009680	0.00113979	mg/L				117.75%
Cr 205.560	31.9	-0.0007867	0.00039294	mg/L				49.95%
Cu 327.394	137.3	-0.0021592	0.00219842	mg/L				101.81%
Fe 238.204	430.2	0.0068830	0.00008762	mg/L				1.27%
K 766.514	1453.5	0.0172824	0.01637033	mg/L				94.72%
Li 670.781	-118.7	-0.0011080	0.00054509	mg/L				49.20%
Mg 279.074	-126.3	-0.0239847	0.00908257	mg/L				37.87%
Mn 257.610	-41.9	-0.0011766	0.00004558	mg/L				3.87%
Mo 202.031	14.5	0.0030444	0.00045217	mg/L				14.85%
Na 589.594	626.4	-0.0315625	0.00310762	mg/L				9.85%
Ni 231.603	-139.5	-0.0013473	0.00647389	mg/L				480.50%
Pb 220.353	-7.9	0.0021842	0.02654307	mg/L				>999.9%
Sb 206.831	-21.2	-0.0041348	0.00649291	mg/L				157.03%
Se 196.026	82.4	0.0594249	0.01026238	mg/L				17.27%

2 Si 251.611	135713.4	133769.3	21.2876 mg/L	21.2876 mg/L
2 Sn 189.933	470.9	464.1	0.361246 mg/L	0.361246 mg/L
2 Sr 407.771	175757.0	173239.3	0.101443 mg/L	0.101443 mg/L
2 Ti 334.941	1090759.2	1075133.9	9.55976 mg/L	9.55976 mg/L
2 Tl 190.800	-3.3	-3.3	-0.117131 mg/L	-0.117131 mg/L
2 V 292.402	14931.9	14718.0	0.715374 mg/L	0.715374 mg/L
2 Zn 206.200	3061.0	3017.1	0.849655 mg/L	0.849655 mg/L

Mean Data ----------

ID: 0908228-14 Seq. No.: 55 Sample No.: 41 A/S Pos: 57
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 1:10:26 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	523725.7	101.3	0.16	mg/L				0.16%
Y 360.064	333400.3	102.5	0.46	mg/L				0.45%
Ag 328.068	-606.6	0.112555	0.0012823	mg/L	0.112555	0.0012823	mg/L	1.14%
Al 396.140	2863348.2	326.922	0.6663	mg/L	326.922	0.6663	mg/L	0.20%
As 188.979	43.2	0.141184	0.0471662	mg/L	0.141184	0.0471662	mg/L	33.41%
B 249.773	14738.2	0.0337872	0.00372388	mg/L	0.0337872	0.00372388	mg/L	11.02%
Ba 455.403	1178983.0	1.48233	0.001997	mg/L	1.48233	0.001997	mg/L	0.13%
Be 234.861	6169.4	0.0127484	0.00058822	mg/L	0.0127484	0.00058822	mg/L	4.61%
Ca 315.887	173957.5	13.0427	0.04762	mg/L	13.0427	0.04762	mg/L	0.37%
Cd 214.438	749.5	0.0074753	0.00059268	mg/L	0.0074753	0.00059268	mg/L	7.93%
Ce 413.765	4823.5	0.482770	0.0090039	mg/L	0.482770	0.0090039	mg/L	1.87%
Co 228.616	1324.2	0.106289	0.0041581	mg/L	0.106289	0.0041581	mg/L	3.91%
Cr 205.560	874.0	0.453302	0.0037235	mg/L	0.453302	0.0037235	mg/L	0.82%
Cu 327.394	2906.7	0.158124	0.0044383	mg/L	0.158124	0.0044383	mg/L	2.81%
Fe 238.204	5024892.6	376.408	0.8343	mg/L	376.408	0.8343	mg/L	0.22%
K 766.514	74541.6	17.9235	0.05847	mg/L	17.9235	0.05847	mg/L	0.33%
Li 670.781	49059.2	0.283135	0.0007173	mg/L	0.283135	0.0007173	mg/L	0.25%
Mg 279.074	69307.4	42.4681	0.26710	mg/L	42.4681	0.26710	mg/L	0.63%
Mn 257.610	595918.3	5.90472	0.013752	mg/L	5.90472	0.013752	mg/L	0.23%
Mo 202.031	-33.3	-0.0375902	0.00483065	mg/L	-0.0375902	0.00483065	mg/L	12.85%
Na 589.594	12886.0	0.654171	0.0081268	mg/L	0.654171	0.0081268	mg/L	1.24%
Ni 231.603	422.8	0.181328	0.0041565	mg/L	0.181328	0.0041565	mg/L	2.29%
Pb 220.353	-19.0	0.187531	0.0138120	mg/L	0.187531	0.0138120	mg/L	7.37%
Sb 206.831	-107.9	-0.0523706	0.00319306	mg/L	-0.0523706	0.00319306	mg/L	6.10%
Se 196.026	58.6	-0.0481372	0.02290051	mg/L	-0.0481372	0.02290051	mg/L	47.57%
Si 251.611	134039.6	21.3308	0.06109	mg/L	21.3308	0.06109	mg/L	0.29%
Sn 189.933	466.9	0.367451	0.0087751	mg/L	0.367451	0.0087751	mg/L	2.39%
Sr 407.771	173537.8	0.101620	0.0002499	mg/L	0.101620	0.0002499	mg/L	0.25%
Ti 334.941	1076584.1	9.57268	0.018268	mg/L	9.57268	0.018268	mg/L	0.19%
Tl 190.800	-2.9	-0.115374	0.0024849	mg/L	-0.115374	0.0024849	mg/L	2.15%
V 292.402	14751.2	0.716972	0.0022603	mg/L	0.716972	0.0022603	mg/L	0.32%
Zn 206.200	3023.0	0.851332	0.0023725	mg/L	0.851332	0.0023725	mg/L	0.28%

Replicate Data ----------

ID: 0908228-15 Date: 8/18/09 1:14:01 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	522320.7	522320.7	101.1	mg/L		
1	Y 360.064	325585.0	325585.0	100.1	mg/L		
1	Ag 328.068	-642.4	-635.6	0.0953714	mg/L	0.0953714	mg/L
1	Al 396.140	2100194.0	2078064.1	237.263	mg/L	237.263	mg/L
1	As 188.979	35.5	35.1	0.111541	mg/L	0.111541	mg/L
1	B 249.773	12797.7	12662.8	0.0223974	mg/L	0.0223974	mg/L
1	Ba 455.403	894821.1	885392.3	1.11060	mg/L	1.11060	mg/L
1	Be 234.861	5357.8	5301.3	0.0114206	mg/L	0.0114206	mg/L
1	Ca 315.887	241091.8	238551.4	17.8663	mg/L	17.8663	mg/L
1	Cd 214.438	629.1	622.5	0.0069420	mg/L	0.0069420	mg/L
1	Ce 413.765	5328.6	5272.5	0.537311	mg/L	0.537311	mg/L
1	Co 228.616	1394.8	1380.1	0.138119	mg/L	0.138119	mg/L
1	Cr 205.560	706.6	699.1	0.356461	mg/L	0.356461	mg/L
1	Cu 327.394	2847.2	2817.2	0.152948	mg/L	0.152948	mg/L
1	Fe 238.204	4383199.2	4337013.0	324.887	mg/L	324.887	mg/L
1	K 766.514	81716.1	80855.1	19.4703	mg/L	19.4703	mg/L
1	Li 670.781	27596.2	27305.4	0.157401	mg/L	0.157401	mg/L
1	Mg 279.074	57139.2	56537.2	34.6391	mg/L	34.6391	mg/L

1	Mn 257.610	712302.5	704796.9	6.98370	mg/L	6.98370 mg/L
1	Mo 202.031	-14.3	-14.1	-0.0212616	mg/L	-0.0212616 mg/L
1	Na 589.594	5755.4	5694.7	0.251931	mg/L	0.251931 mg/L
1	Ni 231.603	323.0	319.6	0.146429	mg/L	0.146429 mg/L
1	Pb 220.353	-16.5	-16.3	0.152228	mg/L	0.152228 mg/L
1	Sb 206.831	-105.1	-104.0	-0.0723340	mg/L	-0.0723340 mg/L
1	Se 196.026	65.8	65.1	-0.0186099	mg/L	-0.0186099 mg/L
1	Si 251.611	130135.7	128764.5	20.5179	mg/L	20.5179 mg/L
1	Sn 189.933	412.0	407.6	0.399912	mg/L	0.399912 mg/L
1	Sr 407.771	148489.1	146924.5	0.0858679	mg/L	0.0858679 mg/L
1	Ti 334.941	1002268.2	991707.2	8.81662	mg/L	8.81662 mg/L
1	Tl 190.800	-8.8	-8.7	-0.0337455	mg/L	-0.0337455 mg/L
1	V 292.402	13592.2	13449.0	0.657861	mg/L	0.657861 mg/L
1	Zn 206.200	2490.7	2464.4	0.692806	mg/L	0.692806 mg/L
2	Sc 357.253	519709.7	519709.7	100.6	mg/L	
2	Y 360.064	327025.4	327025.4	100.5	mg/L	
2	Ag 328.068	-644.9	-641.3	0.0957887	mg/L	0.0957887 mg/L
2	Al 396.140	2102431.9	2090729.5	238.709	mg/L	238.709 mg/L
2	As 188.979	31.1	30.9	0.0961143	mg/L	0.0961143 mg/L
2	B 249.773	12739.5	12668.6	0.0176133	mg/L	0.0176133 mg/L
2	Ba 455.403	895093.8	890111.6	1.11658	mg/L	1.11658 mg/L
2	Be 234.861	5432.9	5402.6	0.0120745	mg/L	0.0120745 mg/L
2	Ca 315.887	240923.0	239582.0	17.9430	mg/L	17.9430 mg/L
2	Cd 214.438	632.0	628.5	0.0072619	mg/L	0.0072619 mg/L
2	Ce 413.765	5295.7	5266.2	0.536549	mg/L	0.536549 mg/L
2	Co 228.616	1366.7	1359.1	0.133138	mg/L	0.133138 mg/L
2	Cr 205.560	719.1	715.1	0.365584	mg/L	0.365584 mg/L
2	Cu 327.394	2830.5	2814.7	0.152804	mg/L	0.152804 mg/L
2	Fe 238.204	4386696.6	4362279.7	326.780	mg/L	326.780 mg/L
2	K 766.514	81538.6	81084.7	19.5266	mg/L	19.5266 mg/L
2	Li 670.781	27805.4	27650.6	0.159396	mg/L	0.159396 mg/L
2	Mg 279.074	56906.9	56590.1	34.6709	mg/L	34.6709 mg/L
2	Mn 257.610	712905.1	708936.9	7.02473	mg/L	7.02473 mg/L
2	Mo 202.031	-22.2	-22.1	-0.0280444	mg/L	-0.0280444 mg/L
2	Na 589.594	5739.5	5707.6	0.252650	mg/L	0.252650 mg/L
2	Ni 231.603	330.1	328.2	0.149550	mg/L	0.149550 mg/L
2	Pb 220.353	-12.5	-12.4	0.161691	mg/L	0.161691 mg/L
2	Sb 206.831	-93.8	-93.3	-0.0355067	mg/L	-0.0355067 mg/L
2	Se 196.026	66.1	65.7	-0.0159347	mg/L	-0.0159347 mg/L
2	Si 251.611	130464.9	129738.7	20.6757	mg/L	20.6757 mg/L
2	Sn 189.933	412.4	410.1	0.405613	mg/L	0.405613 mg/L
2	Sr 407.771	148493.7	147667.2	0.0863074	mg/L	0.0863074 mg/L
2	Ti 334.941	1003480.3	997894.8	8.87173	mg/L	8.87173 mg/L
2	Tl 190.800	-2.1	-2.1	-0.0040667	mg/L	-0.0040667 mg/L
2	V 292.402	13575.5	13500.0	0.660190	mg/L	0.660190 mg/L
2	Zn 206.200	2476.6	2462.9	0.692263	mg/L	0.692263 mg/L

Mean Data ----------

ID: 0908228-15 Seq. No.: 56 Sample No.: 42 A/S Pos: 58
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 1:14:01 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	521015.2	100.8	0.36	mg/L				0.35%
Y 360.064	326305.2	100.3	0.31	mg/L				0.31%
Ag 328.068	-638.4	0.0955800	0.00029503	mg/L	0.0955800	0.00029503	mg/L	0.31%
Al 396.140	2084396.8	237.986	1.0225	mg/L	237.986	1.0225	mg/L	0.43%
As 188.979	33.0	0.103828	0.0109084	mg/L	0.103828	0.0109084	mg/L	10.51%
B 249.773	12665.7	0.0200054	0.00338286	mg/L	0.0200054	0.00338286	mg/L	16.91%
Ba 455.403	887752.0	1.11359	0.004225	mg/L	1.11359	0.004225	mg/L	0.38%
Be 234.861	5352.0	0.0117475	0.00046240	mg/L	0.0117475	0.00046240	mg/L	3.94%
Ca 315.887	239066.7	17.9047	0.05427	mg/L	17.9047	0.05427	mg/L	0.30%
Cd 214.438	625.5	0.0071020	0.00022627	mg/L	0.0071020	0.00022627	mg/L	3.19%
Ce 413.765	5269.3	0.536930	0.0005386	mg/L	0.536930	0.0005386	mg/L	0.10%
Co 228.616	1369.6	0.135628	0.0035219	mg/L	0.135628	0.0035219	mg/L	2.60%
Cr 205.560	707.1	0.361023	0.0064511	mg/L	0.361023	0.0064511	mg/L	1.79%
Cu 327.394	2816.0	0.152876	0.0001017	mg/L	0.152876	0.0001017	mg/L	0.07%
Fe 238.204	4349646.4	325.833	1.3385	mg/L	325.833	1.3385	mg/L	0.41%
K 766.514	80969.9	19.4984	0.03978	mg/L	19.4984	0.03978	mg/L	0.20%
Li 670.781	27478.0	0.158398	0.0014108	mg/L	0.158398	0.0014108	mg/L	0.89%

Mg 279.074	56563.6	34.6550	0.02253 mg/L	34.6550	0.02253 mg/L	0.07%
Mn 257.610	706866.9	7.00421	0.029011 mg/L	7.00421	0.029011 mg/L	0.41%
Mo 202.031	-18.1	-0.0246530	0.00479621 mg/L	-0.0246530	0.00479621 mg/L	19.45%
Na 589.594	5701.2	0.252290	0.0005086 mg/L	0.252290	0.0005086 mg/L	0.20%
Ni 231.603	323.9	0.147989	0.0022069 mg/L	0.147989	0.0022069 mg/L	1.49%
Pb 220.353	-14.4	0.156959	0.0066918 mg/L	0.156959	0.0066918 mg/L	4.26%
Sb 206.831	-98.6	-0.0539203	0.02604087 mg/L	-0.0539203	0.02604087 mg/L	48.30%
Se 196.026	65.4	-0.0172723	0.00189159 mg/L	-0.0172723	0.00189159 mg/L	10.95%
Si 251.611	129251.6	20.5968	0.11160 mg/L	20.5968	0.11160 mg/L	0.54%
Sn 189.933	408.9	0.402762	0.0040309 mg/L	0.402762	0.0040309 mg/L	1.00%
Sr 407.771	147295.8	0.0860876	0.00031083 mg/L	0.0860876	0.00031083 mg/L	0.36%
Ti 334.941	994801.0	8.84418	0.038974 mg/L	8.84418	0.038974 mg/L	0.44%
Tl 190.800	-5.4	-0.0189061	0.02098611 mg/L	-0.0189061	0.02098611 mg/L	111.00%
V 292.402	13474.5	0.659025	0.0016467 mg/L	0.659025	0.0016467 mg/L	0.25%
Zn 206.200	2463.6	0.692535	0.0003842 mg/L	0.692535	0.0003842 mg/L	0.06%

Replicate Data ---------- Date: 8/18/09 1:17:39 PM

ID: 0908228-16

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	525533.1	525533.1	101.7	mg/L		
1	Y 360.064	335367.0	335367.0	103.1	mg/L		
1	Ag 328.068	-663.2	-652.2	0.0981864	mg/L	0.0981864	mg/L
1	Al 396.140	2335687.7	2296949.6	262.254	mg/L	262.254	mg/L
1	As 188.979	40.5	39.8	0.128837	mg/L	0.128837	mg/L
1	B 249.773	13199.1	12980.2	0.0167014	mg/L	0.0167014	mg/L
1	Ba 455.403	995432.3	978922.7	1.22902	mg/L	1.22902	mg/L
1	Be 234.861	5501.8	5410.5	0.0110583	mg/L	0.0110583	mg/L
1	Ca 315.887	189952.7	186802.3	14.0050	mg/L	14.0050	mg/L
1	Cd 214.438	667.8	656.7	0.0072592	mg/L	0.0072592	mg/L
1	Ce 413.765	5203.3	5117.0	0.518425	mg/L	0.518425	mg/L
1	Co 228.616	1196.9	1177.1	0.0918729	mg/L	0.0918729	mg/L
1	Cr 205.560	880.1	865.5	0.452219	mg/L	0.452219	mg/L
1	Cu 327.394	2981.2	2931.7	0.159576	mg/L	0.159576	mg/L
1	Fe 238.204	4553759.6	4478234.2	335.467	mg/L	335.467	mg/L
1	K 766.514	71230.5	70049.1	16.8229	mg/L	16.8229	mg/L
1	Li 670.781	42198.4	41498.5	0.239435	mg/L	0.239435	mg/L
1	Mg 279.074	77075.7	75797.4	46.4634	mg/L	46.4634	mg/L
1	Mn 257.610	465035.7	457323.0	4.53126	mg/L	4.53126	mg/L
1	Mo 202.031	-31.4	-30.8	-0.0354709	mg/L	-0.0354709	mg/L
1	Na 589.594	7793.0	7663.7	0.362066	mg/L	0.362066	mg/L
1	Ni 231.603	376.0	369.8	0.164541	mg/L	0.164541	mg/L
1	Pb 220.353	-29.0	-28.5	0.136162	mg/L	0.136162	mg/L
1	Sb 206.831	-91.2	-89.7	-0.0181647	mg/L	-0.0181647	mg/L
1	Se 196.026	81.6	80.2	0.0495148	mg/L	0.0495148	mg/L
1	Si 251.611	137347.5	135069.6	21.4733	mg/L	21.4733	mg/L
1	Sn 189.933	464.5	456.8	0.362904	mg/L	0.362904	mg/L
1	Sr 407.771	183005.4	179970.2	0.105427	mg/L	0.105427	mg/L
1	Ti 334.941	1139580.3	1120680.0	9.96547	mg/L	9.96547	mg/L
1	Tl 190.800	5.7	5.6	-0.0780964	mg/L	-0.0780964	mg/L
1	V 292.402	13333.2	13112.0	0.639530	mg/L	0.639530	mg/L
1	Zn 206.200	2835.3	2788.3	0.785623	mg/L	0.785623	mg/L
2	Sc 357.253	523124.1	523124.1	101.2	mg/L		
2	Y 360.064	339309.0	339309.0	104.3	mg/L		
2	Ag 328.068	-595.5	-588.4	0.0999621	mg/L	0.0999621	mg/L
2	Al 396.140	2317950.9	2290004.3	261.461	mg/L	261.461	mg/L
2	As 188.979	50.1	49.5	0.163970	mg/L	0.163970	mg/L
2	B 249.773	13276.4	13116.3	0.0288505	mg/L	0.0288505	mg/L
2	Ba 455.403	987856.0	975945.8	1.22525	mg/L	1.22525	mg/L
2	Be 234.861	5601.8	5534.2	0.0122000	mg/L	0.0122000	mg/L
2	Ca 315.887	190571.3	188273.7	14.1148	mg/L	14.1148	mg/L
2	Cd 214.438	675.2	667.1	0.0083926	mg/L	0.0083926	mg/L
2	Ce 413.765	5153.8	5091.7	0.515347	mg/L	0.515347	mg/L
2	Co 228.616	1189.4	1175.1	0.0918028	mg/L	0.0918028	mg/L
2	Cr 205.560	870.7	860.2	0.449216	mg/L	0.449216	mg/L
2	Cu 327.394	2996.2	2960.1	0.161216	mg/L	0.161216	mg/L
2	Fe 238.204	4522645.9	4468118.2	334.709	mg/L	334.709	mg/L
2	K 766.514	71647.0	70783.1	17.0027	mg/L	17.0027	mg/L
2	Li 670.781	42369.7	41858.9	0.241518	mg/L	0.241518	mg/L

2 Mg 279.074	77118.0	76188.2	46.7034 mg/L	46.7034 mg/L	
2 Mn 257.610	461320.2	455758.2	4.51575 mg/L	4.51575 mg/L	
2 Mo 202.031	-25.8	-25.5	-0.0309549 mg/L	-0.0309549 mg/L	
2 Na 589.594	8149.6	8051.3	0.383747 mg/L	0.383747 mg/L	
2 Ni 231.603	386.7	382.0	0.169222 mg/L	0.169222 mg/L	
2 Pb 220.353	-31.8	-31.5	0.129242 mg/L	0.129242 mg/L	
2 Sb 206.831	-99.8	-98.6	-0.0482310 mg/L	-0.0482310 mg/L	
2 Se 196.026	60.9	60.1	-0.0410796 mg/L	-0.0410796 mg/L	
2 Si 251.611	137971.4	136307.9	21.6760 mg/L	21.6760 mg/L	
2 Sn 189.933	473.3	467.6	0.391420 mg/L	0.391420 mg/L	
2 Sr 407.771	181666.8	179476.5	0.105135 mg/L	0.105135 mg/L	
2 Ti 334.941	1131837.9	1118191.8	9.94331 mg/L	9.94331 mg/L	
2 Tl 190.800	-0.2	-0.2	-0.103576 mg/L	-0.103576 mg/L	
2 V 292.402	13327.4	13166.7	0.642383 mg/L	0.642383 mg/L	
2 Zn 206.200	2807.6	2773.8	0.781478 mg/L	0.781478 mg/L	

Mean Data

ID: 0908228-16 Seq. No.: 57 Sample No.: 43 A/S Pos: 59
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 1:17:39 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	524328.6	101.5	0.33	mg/L				0.32%
Y 360.064	337338.0	103.7	0.86	mg/L				0.83%
Ag 328.068	-620.3	0.0990742	0.00125564	mg/L	0.0990742	0.00125564	mg/L	1.27%
Al 396.140	2293477.0	261.858	0.5607	mg/L	261.858	0.5607	mg/L	0.21%
As 188.979	44.6	0.146403	0.0248430	mg/L	0.146403	0.0248430	mg/L	16.97%
B 249.773	13048.2	0.0227759	0.00859069	mg/L	0.0227759	0.00859069	mg/L	37.72%
Ba 455.403	977434.3	1.22714	0.002665	mg/L	1.22714	0.002665	mg/L	0.22%
Be 234.861	5472.4	0.0116292	0.00080728	mg/L	0.0116292	0.00080728	mg/L	6.94%
Ca 315.887	187538.0	14.0599	0.07765	mg/L	14.0599	0.07765	mg/L	0.55%
Cd 214.438	661.9	0.0078259	0.00080144	mg/L	0.0078259	0.00080144	mg/L	10.24%
Ce 413.765	5104.3	0.516886	0.0021764	mg/L	0.516886	0.0021764	mg/L	0.42%
Co 228.616	1176.1	0.0918379	0.00004958	mg/L	0.0918379	0.00004958	mg/L	0.05%
Cr 205.560	862.8	0.450717	0.0021238	mg/L	0.450717	0.0021238	mg/L	0.47%
Cu 327.394	2945.9	0.160396	0.0011600	mg/L	0.160396	0.0011600	mg/L	0.72%
Fe 238.204	4473176.2	335.088	0.5359	mg/L	335.088	0.5359	mg/L	0.16%
K 766.514	70416.1	16.9128	0.12716	mg/L	16.9128	0.12716	mg/L	0.75%
Li 670.781	41678.7	0.240477	0.0014728	mg/L	0.240477	0.0014728	mg/L	0.61%
Mg 279.074	75992.8	46.5834	0.16973	mg/L	46.5834	0.16973	mg/L	0.36%
Mn 257.610	456540.6	4.52351	0.010965	mg/L	4.52351	0.010965	mg/L	0.24%
Mo 202.031	-28.2	-0.0332129	0.00319329	mg/L	-0.0332129	0.00319329	mg/L	9.61%
Na 589.594	7857.5	0.372906	0.0153305	mg/L	0.372906	0.0153305	mg/L	4.11%
Ni 231.603	375.9	0.166882	0.0033095	mg/L	0.166882	0.0033095	mg/L	1.98%
Pb 220.353	-30.0	0.132702	0.0048929	mg/L	0.132702	0.0048929	mg/L	3.69%
Sb 206.831	-94.2	-0.0331979	0.02126008	mg/L	-0.0331979	0.02126008	mg/L	64.04%
Se 196.026	70.2	0.0042176	0.06405990	mg/L	0.0042176	0.06405990	mg/L	>999.9%
Si 251.611	135688.7	21.5746	0.14332	mg/L	21.5746	0.14332	mg/L	0.66%
Sn 189.933	462.2	0.377162	0.0201633	mg/L	0.377162	0.0201633	mg/L	5.35%
Sr 407.771	179723.3	0.105281	0.0002066	mg/L	0.105281	0.0002066	mg/L	0.20%
Ti 334.941	1119435.9	9.95439	0.015673	mg/L	9.95439	0.015673	mg/L	0.16%
Tl 190.800	2.7	-0.0908360	0.01801655	mg/L	-0.0908360	0.01801655	mg/L	19.83%
V 292.402	13139.4	0.640957	0.0020171	mg/L	0.640957	0.0020171	mg/L	0.31%
Zn 206.200	2781.0	0.783551	0.0029306	mg/L	0.783551	0.0029306	mg/L	0.37%

Replicate Data

ID: 0909583-BLK1 Date: 8/18/09 1:21:09 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	514659.7	514659.7	99.6	mg/L		
1	Y 360.064	320886.3	320886.3	98.6	mg/L		
1	Ag 328.068	-470.5	-472.5	-0.0020557	mg/L	-0.0020557	mg/L
1	Al 396.140	151.7	152.3	0.0207007	mg/L	0.0207007	mg/L
1	As 188.979	4.9	4.9	0.0011773	mg/L	0.0011773	mg/L
1	B 249.773	96.8	97.2	-0.0111104	mg/L	-0.0111104	mg/L
1	Ba 455.403	7614.8	7646.7	-0.0007363	mg/L	-0.0007363	mg/L
1	Be 234.861	-249.9	-251.0	0.0001049	mg/L	0.0001049	mg/L
1	Ca 315.887	-1294.3	-1299.7	0.0024833	mg/L	0.0024833	mg/L
1	Cd 214.438	90.8	91.2	0.0005089	mg/L	0.0005089	mg/L

2	Ce 413.765	845.2	874.4	0.0029973 mg/L
2	Co 228.616	-5.5	-5.7	-0.0007386 mg/L
2	Cr 205.560	27.2	28.1	-0.0029935 mg/L
2	Cu 327.394	135.0	139.6	-0.0020273 mg/L
2	Fe 238.204	395.1	408.8	0.0052802 mg/L
2	K 766.514	1359.6	1406.6	0.0057857 mg/L
2	Li 670.781	0.3	0.3	-0.0004197 mg/L
2	Mg 279.074	-83.3	-86.1	0.0006375 mg/L
2	Mn 257.610	-28.1	-29.1	-0.0010499 mg/L
2	Mo 202.031	12.2	12.7	0.0014744 mg/L
2	Na 589.594	539.4	558.0	-0.0353880 mg/L
2	Ni 231.603	-136.2	-140.9	-0.0018709 mg/L
2	Pb 220.353	-6.2	-6.4	0.0055561 mg/L
2	Sb 206.831	-27.0	-27.9	-0.0261567 mg/L
2	Se 196.026	77.7	80.4	0.0503300 mg/L
2	Si 251.611	862.4	892.2	-0.0382403 mg/L
2	Sn 189.933	137.9	142.7	-0.0086237 mg/L
2	Sr 407.771	268.6	277.9	-0.0009295 mg/L
2	Ti 334.941	1747.2	1807.5	-0.0011273 mg/L
2	Tl 190.800	22.2	22.9	-0.0022502 mg/L
2	V 292.402	-360.0	-372.4	0.0022850 mg/L
2	Zn 206.200	-2.1	-2.2	-0.0026025 mg/L

Mean Data

ID: 9H18017-CCB Seq. No.: 66 Sample No.: 9 A/S Pos: 1
Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0
Data: Original Date: 8/18/09 1:55:26 PM

Element	Mean Corr. Intensity	Mean Conc.	Calib Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	500968.9	96.9	0.38	mg/L				0.39%
Y 360.064	315480.6	97.0	0.38	mg/L				0.39%
Ag 328.068	-445.9	-0.0012172	0.00112542	mg/L				92.46%
Al 396.140	-9.1	0.0022664	0.00661830	mg/L				292.02%
As 188.979	8.8	0.0154050	0.00429527	mg/L				27.88%
B 249.773	145.0	-0.0075821	0.00015743	mg/L				2.08%
Ba 455.403	7775.7	-0.0005730	0.00007121	mg/L				12.43%
Be 234.861	-262.4	0.0000076	0.00009039	mg/L				>999.9%
Ca 315.887	-1164.7	0.0125552	0.00040421	mg/L				3.22%
Cd 214.438	90.3	0.0004174	0.00021744	mg/L				52.10%
Ce 413.765	901.2	0.0062591	0.00461283	mg/L				73.70%
Co 228.616	-4.3	-0.0004590	0.00039549	mg/L				86.17%
Cr 205.560	28.5	-0.0027833	0.00029727	mg/L				10.68%
Cu 327.394	165.4	-0.0005342	0.00211168	mg/L				395.32%
Fe 238.204	405.2	0.0050124	0.00037873	mg/L				7.56%
K 766.514	1358.7	-0.0059554	0.01660445	mg/L				278.81%
Li 670.781	-113.8	-0.0010793	0.00093285	mg/L				86.43%
Mg 279.074	-96.3	-0.0056206	0.00885027	mg/L				157.46%
Mn 257.610	-34.3	-0.0011013	0.00007270	mg/L				6.60%
Mo 202.031	11.3	0.0003251	0.00162540	mg/L				499.96%
Na 589.594	591.6	-0.0335125	0.00265240	mg/L				7.91%
Ni 231.603	-143.5	-0.0028304	0.00135686	mg/L				47.94%
Pb 220.353	-11.4	-0.0053479	0.01542049	mg/L				288.35%
Sb 206.831	-26.7	-0.0221172	0.00571274	mg/L				25.83%
Se 196.026	76.3	0.0319780	0.02595362	mg/L				81.16%
Si 251.611	885.6	-0.0393222	0.00153006	mg/L				3.89%
*QC exceeds lower limit for Si 251.611 Action = Continue								
Sn 189.933	143.7	-0.0060527	0.00363590	mg/L				60.07%
Sr 407.771	263.9	-0.0009378	0.00001173	mg/L				1.25%
Ti 334.941	1803.7	-0.0011612	0.00004790	mg/L				4.13%
Tl 190.800	22.8	-0.0029486	0.00098763	mg/L				33.50%
V 292.402	-422.9	-0.0002572	0.00359513	mg/L				>999.9%
Zn 206.200	1.0	-0.0016655	0.00132510	mg/L				79.56%

Replicate Data

ID: 0909583-MS1 Date: 8/18/09 1:58:54 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	519916.0	519916.0	100.6	mg/L		
1	Y 360.064	328259.5	328259.5	100.9	mg/L		

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5078 g / 50 mL

Laboratory ID: 0909502-MS1

QC Batch: 0909502

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Aluminum, Total	123	23700	26600	2310 * ☆	80 - 120	mg/kg dry wt.
Barium, Total	24.6	135	138	11 * ☆	80 - 120	mg/kg dry wt.
Beryllium, Total	2.46	1.18	3.59	98	80 - 120	mg/kg dry wt.
Cadmium, Total	24.6	0.615	23.6	93	80 - 120	mg/kg dry wt.
Calcium, Total	1230	1240	2410	95	80 - 120	mg/kg dry wt.
Chromium, Total	24.6	36.6	62.8	106	80 - 120	mg/kg dry wt.
Cobalt, Total	24.6	32.2	39.6	30 *	80 - 120	mg/kg dry wt.
Iron, Total	24.6	32800	28600	-16900 * ☆	80 - 120	mg/kg dry wt.
Magnesium, Total	1230	3280	4590	107	80 - 120	mg/kg dry wt.
Manganese, Total	24.6	2280	1080	-4870 * ☆	80 - 120	mg/kg dry wt.
Potassium, Total	1230	1560	2960	114	80 - 120	mg/kg dry wt.
Sodium, Total	1230	31.4	1230	98	80 - 120	mg/kg dry wt.
Zinc, Total	24.6	75.4	98.2	93	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

☆ = [spike] ☆ $\frac{1}{4}$ [parent] ∴ no action

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.501 g / 50 mL

Laboratory ID: 0909502-MSD1
QC Batch: 0909502

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Aluminum, Total	125	26100	1880 *	2	20	80 - 120	mg/kg dry wt.
Barium, Total	25.0	144	36 *	4	20	80 - 120	mg/kg dry wt.
Beryllium, Total	2.50	3.61	98	0.7	20	80 - 120	mg/kg dry wt.
Cadmium, Total	25.0	23.9	93	1	20	80 - 120	mg/kg dry wt.
Calcium, Total	1250	2400	93	0.3	20	80 - 120	mg/kg dry wt.
Chromium, Total	25.0	62.1	102	1	20	80 - 120	mg/kg dry wt.
Cobalt, Total	25.0	42.7	42 *	8	20	80 - 120	mg/kg dry wt.
Iron, Total	25.0	27600	-20500 *	3	20	80 - 120	mg/kg dry wt.
Magnesium, Total	1250	4570	104	0.4	20	80 - 120	mg/kg dry wt.
Manganese, Total	25.0	1150	-4520 *	6	20	80 - 120	mg/kg dry wt.
Potassium, Total	1250	2930	110	1	20	80 - 120	mg/kg dry wt.
Sodium, Total	1250	1240	97	0.4	20	80 - 120	mg/kg dry wt.
Zinc, Total	25.0	98.8	94	0.5	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 0909502-PS1
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.040808 g / 4 mL
QC Batch: 0909502
Sequence: 9H18017

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Barium, Total	75 - 125	1.61	1.38	0.250	92	mg/L
Beryllium, Total	75 - 125	0.0361	0.0120	0.0250	96	mg/L
Cadmium, Total	75 - 125	0.241	0.00628	0.250	94	mg/L
Calcium, Total	75 - 125	24.3	12.7	12.5	93	mg/L
Chromium, Total	75 - 125	0.610	0.373	0.250	95	mg/L
Cobalt, Total	75 - 125	0.550	0.328	0.250	89	mg/L
Magnesium, Total	75 - 125	45.4	33.5	12.5	95	mg/L
Potassium, Total	75 - 125	28.0	15.9	12.5	97	mg/L
Sodium, Total	75 - 125	12.4	0.320	12.5	96	mg/L
Zinc, Total	75 - 125	1.00	0.770	0.250	93	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 0909502-PS2
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 2.0404E-04 g / 0.02 mL
QC Batch: 0909502
Sequence: 9H18017

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Iron, Total	75 - 125	449	334	125	91	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 0909502-PS3
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.0010202 g / 0.1 mL
QC Batch: 0909502
Sequence: 9H18017

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Aluminum, Total	75 - 125	364	242	125	97	mg/L
Manganese, Total	75 - 125	47.9	23.2	25.0	99	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 9H18017-SRD2
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
QC Batch: 9H18017
Sequence: 9H18017

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Barium, Total	1.38		1.36		1.0		mg/L	10
Beryllium, Total	0.0120		0.0131	J	9.0 #		mg/L	10
Cadmium, Total	0.00628	J	0.0513	J	717.0 #		mg/L	10
Calcium, Total	12.7		12.6		1.0		mg/L	10
Chromium, Total	0.373		0.419		12.0	*	mg/L	10
Cobalt, Total	0.328		0.357		9.0		mg/L	10
Magnesium, Total	33.5		33.0		1.0		mg/L	10
Potassium, Total	15.9		15.7		1.0		mg/L	10
Sodium, Total	0.320	J	0.153	U	52.0 #		mg/L	10
Zinc, Total	0.770		0.783		2.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 83.60
Laboratory ID: 9H18017-SRD7
Lab Source ID: 0908228-05

SDG: SS0809B
Project: RFAAP SSP at Six Sites
QC Batch: 9H18017
Sequence: 9H18017

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Iron, Total	0.668		0.666		0.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809B
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 83.60
Laboratory ID: 9H18017-SRD8
QC Batch: 9H18017
Lab Source ID: 0908228-05
Sequence: 9H18017

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Aluminum, Total	2.42		2.61		8.0		mg/L	10
Manganese, Total	0.232		0.238		3.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SAMPLE ID SUMMARY

USEPA-7470A

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809B

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
EQBK-2	0908228-17

SAMPLE ID SUMMARY

USEPA-7471A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-7471A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Initial/Final: 0.3002 g / 50 mL

Laboratory ID: 0909545-MS1
QC Batch: 0909545

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Mercury, Total	0.333	0.0458	0.375	99	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-7471A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 7471A Mercury Digestion

Initial/Final: 0.3054 g / 50 mL

Laboratory ID: 0909545-MSD1

QC Batch: 0909545

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Mercury, Total	0.327	0.366	98	2	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

SAMPLE ID SUMMARY

USEPA-9012A

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809B

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
72SB1B	0908228-02
DUP-2	0908228-03
18SB2A	0908228-04
18SB2B	0908228-05
18SB4A	0908228-06
18SB4B	0908228-07
18SB3A	0908228-08
18SB3B	0908228-09
18SB1A	0908228-10
18SB1B	0908228-11
18SB5A	0908228-12
18SB5B	0908228-13
DUP-3	0908228-14
18SB6A	0908228-15
18SB6B	0908228-16
EQBK-2	0908228-17

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.12 g / 250 mL

Laboratory ID: 0909426-MS2

QC Batch: 0909426

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Cyanide, Total	1.19	0.0838	1.18	92	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

18SB2B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.11 g / 250 mL

Laboratory ID: 0909426-MSD2

QC Batch: 0909426

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Cyanide, Total	1.19	1.14	89	4	20	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

18SB5A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.5 g / 250 mL

Laboratory ID: 0909551-MS1

QC Batch: 0909551

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Cyanide, Total	1.11	0.109	1.21	99	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

18SB5A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.51 g / 250 mL

Laboratory ID: 0909551-MSD1

QC Batch: 0909551

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Cyanide, Total	1.11	1.20	99	0.08	20	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Total Organic Carbon

Reviewer: Andrea Sansom
Date: November 3, 2009
DV Level: II III IV

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809B
Test Name: TOC
Method No.: Walkley Black

Review Document:

_X__ Region III Modified for National Functional Guidelines
_X__ SW-846 for aqueous by SW9060 or Methods of Soil Analyses for soil by Walkley Black
_X__ Project QAPP/SAP

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement? (4C and <2)	X		
	If samples were received with the cooler temperature exceeding 20 ^{O}C, then flag L(+)/UL(-).			
1.4	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Have any technical holding times (28 days), determined from date of sampling to date of analysis, been exceeded? If yes, J(+)/UJ(-).		X	
2.2	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.			X

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are two standards included in the calibration curve run with four injections each? If no, flag "R".			
4.2	Was a second source calibration verification analyzed for each calibration curve? If no, flag "R".			
4.3	Were continuing calibration standards analyzed every 10 samples? If no, flag "R".			
4.4	Are all calibration standard %RSD (<20%, r>0.995, or r^2<0.99), second source (±10%) or %D(≤10%) within			
For initial calibration: %RSD > 20%, but < 50%, J(+), only; %RSD > 50%, but < 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).				
For second source: %D>10%, J(+)/R(-).				
For continuing calibration: Positive Bias - %D >+ 10%, J(+), only. Negative Bias - %D>-10% but <-50%, J(+)/UJ(-) and %D>-50%, J(+)/R(-).				

Notes: N/A, this is a titration

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
5.2	Are there any %R for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
5.3	Are there any RPD for LCS/LCSD recoveries outside the QC limits? If Yes, J(+) only.		X	

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?			X
6.2	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?			X
6.3	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	Action: No action is required based on MS/MSd failure alone. Note in the report and use professional judgement.			

Notes: Laboratory only conducts sample duplicates

7.0 Field Duplicate		Yes	No	NA
7.1	Evaluate field duplicate results? Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria recommended should be noted during data validation and discussed in the DV report.			X

Notes:

8.0 Compound Identification and Detection Limit Verification		Yes	No	NA
8.1	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

9.0 Data Completeness		Yes	No	NA
9.1	Is % completeness for certainty? (Control limit 90%)	X		
9.1.1	Number of samples: 2			
9.1.2	Number of target compounds in each analysis: 1			
9.1.3	Number of results that are uncertain at comparison criteria standard: 0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)			
	% Completeness = 100%			

Notes:

SAMPLE ID SUMMARY

MSA 29-3.5.2

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809B

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
18SB2A	0908228-04
18SB1B	0908228-11

DUPLICATES
USEPA-9012A

18SB4B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
QC Batch: 0909551
Preparation: 9010B Cyanide Distillation
Source Sample Name: 18SB4B

SDG: SS0809B
Project: RFAAP SSP at Six Sites
Laboratory ID: 0909551-DUP1
Lab Source ID: 0908228-07
Initial/Final: 25.96 g / 250 mL
% Solids: 81.42

Analyte	Control Limit	Sample Conc.	C	Dup. Conc.	C	RPD %	Q	Method	Units
Cyanide, Total	20	0.37	U	0.37	U			USEPA-9012A	mg/kg dry

* Values outside of QC limits

SDG CASE NARRATIVE

URS Corporation
RFAAP SSP at Six Sites

SDG Executive Summary

This case narrative applies to samples received on August 13, 2009. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between URS Corporation and TriMatrix Laboratories, Inc..

Each sample receipt event was assigned a unique TriMatrix work order number. Sample receipt documentation is included in section A of this data package.

Project Technical Issues/Problems

Project-related data qualification designations and reporting conventions are included in Attachment 1 - *Project Technical Narrative.*

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG are presented in Attachment 2 - *Statement of Data Qualifications.* The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this data package are intended to comply with the documents referenced in the introductory section of this narrative. The EDD, if requested, will be issued separately from this hardcopy report. Hold time reports for each test procedure are presented following the CLP-like forms section of this report.

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC). Estimates of analytical uncertainties for the test results contained within the report are available upon request.

Lisa M. Harvey, Project Chemist

09-11-2009
Date

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SDG CASE NARRATIVE

Sample Receipt and Login -- Work Order: 0908228

TriMatrix Laboratories received the cooler(s) for this work order on August 13, 2009, at 09:10am. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix *Sample Receiving / Log-In Checklist* provided in section A of this package. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding COC form. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date Sampled
72SB1A	0908228-01	Soil	8/12/2009
72SB1B	0908228-02	Soil	8/12/2009
DUP-2	0908228-03	Soil	8/12/2009
18SB2A	0908228-04	Soil	8/12/2009
18SB2B	0908228-05	Soil	8/12/2009
18SB4A	0908228-06	Soil	8/12/2009
18SB4B	0908228-07	Soil	8/12/2009
18SB3A	0908228-08	Soil	8/12/2009
18SB3B	0908228-09	Soil	8/12/2009
18SB1A	0908228-10	Soil	8/12/2009
18SB1B	0908228-11	Soil	8/12/2009
18SB5A	0908228-12	Soil	8/12/2009
18SB5B	0908228-13	Soil	8/12/2009
DUP-3	0908228-14	Soil	8/12/2009
18SB6A	0908228-15	Soil	8/12/2009
18SB6B	0908228-16	Soil	8/12/2009
EQBK-2	0908228-17	Water	8/12/2009
Trip Blank	0908228-18	Water	8/12/2009

No administrative issues were encountered during the receipt and analysis of this work order.

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SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative

Sample Result Reporting Convention

Sample results are reported as RL 'U' (e.g., 0.001 U) if the target analyte was not detected above the MDL. If a sample for an organic parameter is reanalyzed and also reported, the second analysis includes the suffix 'REn' where n = the first, second, etc. reanalysis. If a sample is reanalyzed for confirmation purposes, is confirmed and also reported, the second analysis includes the suffix 'RE1'. If the confirmation was not performed simultaneously, the second set of sample results is reported on a second Form 1 since that confirmation analysis did not occur at the same time and/or date.

Method Detection Limits, Target Analytes, and Reporting Limits

All method detection limits (MDL) for analytes in this report are compliant with the DoD QSM specification that each reporting limit (RL) employed is to be at least three times the MDL. In addition, no RL is less than the equivalent concentration of the lowest instrument calibration standard.

Quality Control Limits

Quality control limits specified in the DoD QSM were employed. For cases in which the analyte is not listed in the QSM, internal laboratory control limits were used.

Data Qualifier Designation

If applicable, a sample result is qualified with:

- a "U" flag if the analyte was not detected at a concentration greater than the MDL,
- a "B", "J", and/or an "E" flag as defined in the Variance section,
- a LIMS-generated statement of qualification. Qualifying statements, if any, will be found in Attachment 2 to this narrative.

QC Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven digit number that associates all samples analyzed as a set under one analytical sequence.

SDG: ~~36440~~ S508098 11/3/09

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Variances

Data Qualifier Flags

Data qualifier flags other than those listed in the DoD QSM were employed or the definition of an existing flag was modified.

J – Estimated: the analyte was detected at a concentration greater than the limit of detection (i.e., MDL) but less than the reporting limit (i.e., MRL).

B – Blank contamination: The analyte was detected above one-half the reporting limit in an associated method blank. The same analyte in the sample was detected at less than five times the method blank concentration. (If a common laboratory contaminant is present in the method blank at a concentration greater than one-half the reporting limit but less than or equal to that reporting limit, any associated sample results are flagged but corrective action is not necessarily taken. A text qualifier is also associated with such a result.)

E – Exceeds calibration range: The analyte response exceeded the calibrated range of the instrument. (With the exception of metals for which only the final non-qualified result is reported, both the initial E-qualified result and final non-qualified result from reanalysis-at-dilution are reported.)

Text Qualifier

A LIMS-generated text qualifier is substituted for many instances in which the DoD QSM "Q" flag would otherwise apply. The text qualifiers are listed in a summary format by parameter with applicable samples identified.

Methods 6010B and 6020A

The acceptance criterion of < 2 x RL is substituted for < 2 x MDL for interference check solution ICS-A.

Project Correspondence

Any additional correspondence with the Client, and potentially any third parties also involved in the project, regarding sample receipt and/or analysis follows.

SDG: ~~36440~~ SS0809B 11/03/09

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	
0908228-05 18SB2B	Carbazole
0908228-05 18SB2B	Di-n-butyl Phthalate

Qualification: The MS and/or MSD recovery was less than 10%. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount. The non-spiked sample result is considered unusable.

Analysis: USEPA-8270C

Sample/Analyte:	
0908228-05 18SB2B	Benzaldehyde

Qualification: The LCS recovery exceeded the control limit but it was within the marginal exceedance for a compound that is not a project-specific analyte of concern. The result for this analyte in any sample from the associated QC batch is not considered qualified.

Analysis: USEPA-8270C

Sample/Analyte:	
0908228-05 18SB2B	4-Methylphenol
0908228-05 18SB2B	Carbazole
0908228-05 18SB2B	Di-n-butyl Phthalate
0908228-07 18SB4B	4-Methylphenol
0908228-07 18SB4B	Carbazole
0908228-07 18SB4B	Di-n-butyl Phthalate
0908228-08 18SB3A	4-Methylphenol
0908228-08 18SB3A	Carbazole
0908228-08 18SB3A	Di-n-butyl Phthalate
0908228-09 18SB3B	4-Methylphenol
0908228-09 18SB3B	Carbazole
0908228-09 18SB3B	Di-n-butyl Phthalate
0908228-10 18SB1A	4-Methylphenol
0908228-10 18SB1A	Carbazole
0908228-10 18SB1A	Di-n-butyl Phthalate
0908228-11 18SB1B	4-Methylphenol
0908228-11 18SB1B	Carbazole
0908228-12 18SB5A	4-Methylphenol

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Sample/Analyte:	0908228-12 18SB5A	Carbazole
	0908228-12 18SB5A	Di-n-butyl Phthalate
	0908228-13 18SB5B	4-Methylphenol
	0908228-13 18SB5B	Carbazole
	0908228-13 18SB5B	Di-n-butyl Phthalate
	0908228-14 DUP-3	4-Methylphenol
	0908228-14 DUP-3	Carbazole
	0908228-14 DUP-3	Di-n-butyl Phthalate
	0908228-15 18SB6A	4-Methylphenol
	0908228-15 18SB6A	Carbazole
	0908228-15 18SB6A	Di-n-butyl Phthalate
	0908228-16 18SB6B	4-Methylphenol
	0908228-16 18SB6B	Carbazole
	0908228-16 18SB6B	Di-n-butyl Phthalate

Qualification: The LCS recovery exceeded both the control limit and the marginal exceedance for a compound that is not a project-specific analyte of concern. The result for this analyte in any sample from the associated QC batch is considered qualified.

Analysis: USEPA-8270C

Sample/Analyte:	0908228-02 72SB1B	Benzaldehyde
	0908228-03 DUP-2	Benzaldehyde
	0908228-04 18SB2A	Benzaldehyde
	0908228-05 18SB2B	Benzaldehyde
	0908228-06 18SB4A	Benzaldehyde
	0908228-07 18SB4B	Benzaldehyde
	0908228-08 18SB3A	Benzaldehyde
	0908228-09 18SB3B	Benzaldehyde
	0908228-10 18SB1A	Benzaldehyde
	0908228-11 18SB1B	Benzaldehyde
	0908228-12 18SB5A	Benzaldehyde
	0908228-13 18SB5B	Benzaldehyde
	0908228-14 DUP-3	Benzaldehyde
	0908228-15 18SB6A	Benzaldehyde
	0908228-16 18SB6B	Benzaldehyde

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The LCS recovery was outside of the control limit with no allowed marginal exceedences. The result for this analyte in any sample from the associated QC batch is considered qualified.

Analysis: USEPA-8270C

Sample/Analyte:	
0908228-17 EQBK-2	2,4-Dichlorophenol
0908228-17 EQBK-2	2-Methylnaphthalene
0908228-17 EQBK-2	Benzo(a)pyrene
0908228-17 EQBK-2	Caprolactam
0908228-17 EQBK-2	Carbazole
0908228-17 EQBK-2	Dibenzofuran
0908228-17 EQBK-2	Hexachloroethane
0908228-17 EQBK-2	Naphthalene
0908228-17 EQBK-2	Pentachlorophenol

Qualification: The analyte concentration in the MB for this common lab contaminant was greater than 1/2 the RL, but less than the RL. The positive sample result, which was less than 5 times the MB value, is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	
0908228-05 18SB2B	Di-n-butyl Phthalate
0908228-07 18SB4B	Di-n-butyl Phthalate
0908228-08 18SB3A	Di-n-butyl Phthalate
0908228-09 18SB3B	Di-n-butyl Phthalate
0908228-11 18SB1B	Di-n-butyl Phthalate
0908228-12 18SB5A	Di-n-butyl Phthalate
0908228-13 18SB5B	Di-n-butyl Phthalate
0908228-14 DUP-3	Di-n-butyl Phthalate
0908228-15 18SB6A	Di-n-butyl Phthalate

Qualification: One or more surrogate recoveries in the GC/MS SVOC acid and/or base-neutral fraction(s) for the sample exceeded the upper control limit. Positive results from the same fraction are considered estimated, non-detect results are not qualified.

Analysis: USEPA-8270C

Sample/Analyte: 0908228-06 18SB4A

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Nitroaromatics & Nitramines by EPA Method 8330

Qualification:	The RPD between the detected values from the primary and confirmation analyses exceeded 40%. The higher concentration result has been reported.	
Analysis:	USEPA-8330	
Sample/Analyte:	0908228-17RE1 EQBK-2	2-Nitrotoluene
	0908228-17RE1 EQBK-2	Methyl-2,4,6-trinitropheny lnitramine (Tetryl)

Qualification:	Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.	
Analysis:	USEPA-8330	
Sample/Analyte:	9F26032-CAL1	4-Nitroaniline
	9F26032-CAL1	Hexahydro-1,3,5-trinitro-1 ,3,5-triazine (RDX)
	9F26032-CAL2	4-Nitroaniline
	9F26032-CAL2	Hexahydro-1,3,5-trinitro-1 ,3,5-triazine (RDX)
	9F26032-SCV1	4-Nitroaniline
	9F26032-SCV1	Hexahydro-1,3,5-trinitro-1 ,3,5-triazine (RDX)

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6010B

Sample/Analyte:		
	0908228-05 18SB2B	Cobalt

Analysis: USEPA-6020A

Sample/Analyte:		
	0908228-05 18SB2B	Arsenic
	0908228-05 18SB2B	Selenium

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:		
	0908228-05 18SB2B	Lead

Qualification: The % difference in results between the sample and a serial dilution of the sample exceeded the control limit. Sample matrix interference is suspected and the reported result is considered estimated.

Analysis: USEPA-6010B

Sample/Analyte:		
	0908228-05 18SB2B	Chromium

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was greater than or equal to 4 times the spiked amount; the non-spiked sample result is not qualified.

Analysis: USEPA-6010B

Sample/Analyte:		
	0908228-05 18SB2B	Aluminum
	0908228-05 18SB2B	Barium
	0908228-05 18SB2B	Iron
	0908228-05 18SB2B	Manganese

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TriMatrix Laboratories, Inc.

SAMPLE RECEIVING / LOG-IN CHECKLIST

Client: URS - Richmond | Project-Submittal No.: new / add to 0908228
Receipt Record Page/Line No.: 25-3 | Project Chemist: LMA | Sample Nos.: 01 - 18

Coolers Received

Recorded by (initials/date): WC 8-13-09

☑ Cooler ☐ Box ☐ Other ____ | Qty Received: 3

Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#____) | ☐ See Additional Cooler Information Form

Cooler No.	Time	Custody Seals	Coolant Location	Coolant / Temperature Taken Via	Alternate Temperature Taken Via
Tm 1523	0930	☐ none ☑ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☐ temperature blank (tb) ☐ 1 container
Tm 1346	0940	☐ none ☑ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☑ temperature blank (tb) ☐ 1 container
Tm 1067	0955	☐ none ☑ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☑ temperature blank (tb) ☐ 1 container
		☐ none ☐ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☐ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☐ temperature blank (tb) ☐ 1 container

Recorded °C	Correction Factor °C	Actual °C
tb		
tb location: representative / in ice		
1 5.1	-	5.1
2 5.6	-	5.6
3 5.4	-	5.4
Average °C		5.4

☐ Cooler ID on COC? ☐ VOC trip blank received?

Recorded °C	Correction Factor °C	Actual °C
tb 4.8	-	4.8
tb location: representative / in ice		
1 5.2	-	5.2
2 5.1	-	5.1
3 5.5	-	5.5
Average °C		5.3

☐ Cooler ID on COC? ☐ VOC trip blank received?

Recorded °C	Correction Factor °C	Actual °C
tb 3.1	-	3.1
tb location: representative / in ice		
1 3.6	-	3.6
2 3.8	-	3.8
3 4.0	-	4.0
Average °C		3.8

☐ Cooler ID on COC? ☑ VOC trip blank received?

Recorded °C	Correction Factor °C	Actual °C
tb		
tb location: representative / in ice		
1		
2		
3		
Average °C		

☐ Cooler ID on COC? ☐ VOC trip blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance Form

Paperwork Received

☐ No COC received

N/A	Yes	No	
	☑	☐	Chain of Custody Record(s)?
	☐		If No, COC initiated by ____
	☑		Rec'd for Lab signed/date/time?
☐	☑		Shipping Document?
☑	☐		Other ____

COC ID Nos.

☑ TriMatrix

☐ Other (name or ID#)____

Check COC for Accuracy

☐ No analysis requested

Yes	No	
☑	☐	Sample ID matches COC?
☑	☐	Sample date and time matches COC?
☑		Container type completed on COC?
☑	☐	All container types indicated are received?

Sample Condition Summary

☐ Non-TriMatrix containers, see Notes

N/A	Yes	No	
	☐	☑	Broken containers/lids?
	☐	☑	Missing or incomplete labels?
	☐	☑	Illegible information on labels?
	☐	☑	Low volume received?
	☐	☑	Inappropriate containers received?
☐	☐	☑	VOC vials / TOX containers have headspace?
☐	☐	☑	Extra sample locations / containers not listed on COC?

Check Sample Preservation

N/A	Yes	No	
	☑	☐	Average sample temperature ≤6° C?
☐	☑		Completed Sample Preservation Verification Form?
☐	☑		Samples preserved correctly?
☑	☐		If "No", added orange tag?
☑	☐		Received pre-preserved VOC soils?

☐ MeOH ☐ Na_2SO_4

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☑ EnCores / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged Containers
☐ Yellow/White-tagged 1L Ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

Notes

☐ Trip blank received ☐ Trip blank not listed on COC
☐ No COC received, Proj. Chemist reviewed (init./date) ____
☐ No analysis requested, Proj. Chemist completed (init./date) ____

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
8 13 09 0910	8-13-09 1010	(Yes) / No

TriMatrix Laboratories, Inc.

SAMPLE PRESERVATION VERIFICATION FORM

page ___ of ___

Client	URS · Richmond	Project-Submittal No.	0908228
Receipt Log No.	253	Completed By (initials/date)	WC 8.13.09
		Project Chemist	

COC ID No.	127583	Adjusted by:_____ Date:_____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5	4	13	3	6	15	
Tag Color	Lt. Blue	Blue	Brown	Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4	None	HNO_3	HNO_3	
Expected pH	>12	<2	<2	~7	<2	<2	
COC Line No. 1	✓				✓		
COC Line No. 2							
COC Line No. 3							
COC Line No. 4							
COC Line No. 5							
COC Line No. 6							
COC Line No. 7							
COC Line No. 8							
COC Line No. 9							
COC Line No. 10							

Comments

COC ID No.		Adjusted by:_____ Date:_____		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
Container Type	5	4	13	3	6	15	
Tag Color	Lt. Blue	Blue	Brown	Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4	None	HNO_3	HNO_3	
Expected pH	>12	<2	<2	~7	<2	<2	
COC Line No. 1							
COC Line No. 2							
COC Line No. 3							
COC Line No. 4							
COC Line No. 5							
COC Line No. 6							
COC Line No. 7							
COC Line No. 8							
COC Line No. 9							
COC Line No. 10							

Comments

pH strip lot No.

☑ HC821466

☐ _____

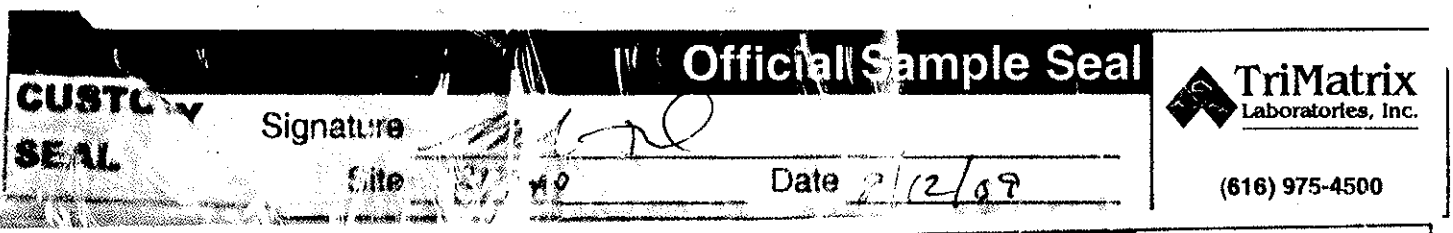
Aqueous Samples: For each sample and container type, check the box if pH is acceptable. **If pH is not acceptable for any sample container, record pH in box, and note on Sample Receiving Checklist and on Sample Receiving Non-Conformance Form.** If approved by Project Chemist, add acid or base to the sample to achieve the correct pH. Add up to, but do not exceed 2x the volume initially added at container prep (see table below for initial volumes used). **Add orange pH tag to sample container and record information requested. Record adjusted pH on this form. Do not adjust pH for container types 3, 6, and 15.**

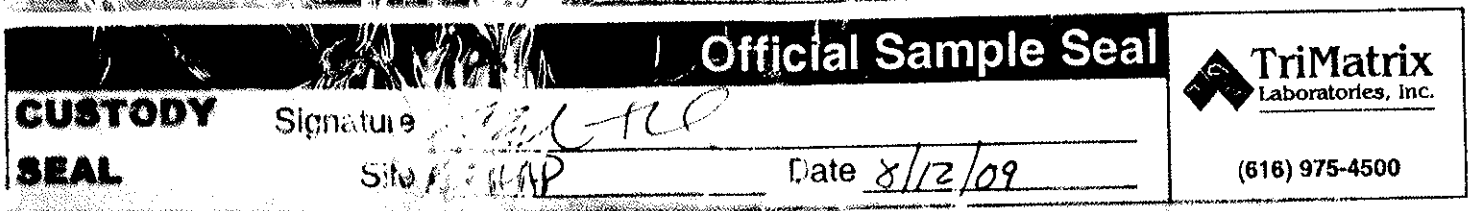
Container Size (mL)	Original Vol. of Preservative (mL)
Container Type 5:	NaOH
500	2.5
1000	5.0
Container Type 4:	H_2SO_4
125	0.5
250	1.0
500	2.0
1000	4.0
Container Type 13	H_2SO_4
500	2.5

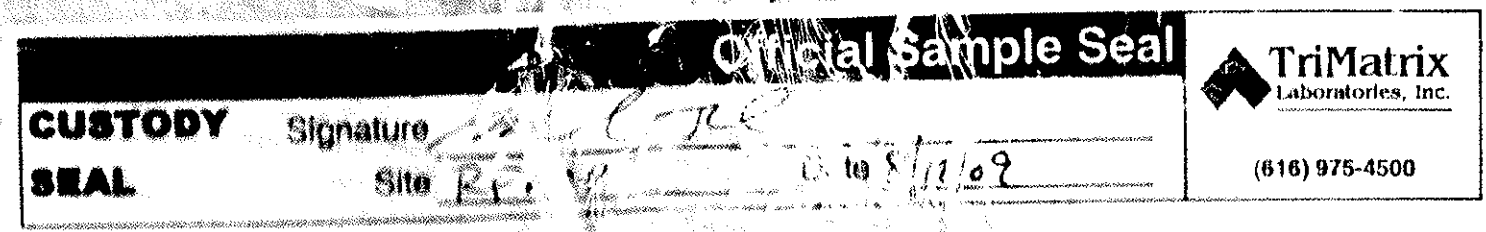

FedEx PRIORITY OVERNIGHT
Emp# 43031 23:50 12AUG09
TRK# 8617 5417 6802 FORM 0200
GRR
THU
Deliver By:
13AUG09
49512 -MI-US
XX GRRA


FedEx PRIORITY OVERNIGHT
Emp# 43031 23:39 12AUG09
TRK# 7955 2979 0146 FORM 0681
GRR
THU
Deliver By:
13AUG09
49512 -MI-US
XX GRRA


FedEx PRIORITY OVERNIGHT
Emp# 43031 23:54 12AUG09
TRK# 7955 2979 0135 FORM 0681
GRR
THU
Deliver By:
13AUG09
49512 -MI-US
XX GRRA


Official Sample Seal
CUSTODY SEAL
Signature
Site
Date 8/12/09
TriMatrix Laboratories, Inc.
(616) 975-4500


Official Sample Seal
CUSTODY SEAL
Signature
Site
Date 8/12/09
TriMatrix Laboratories, Inc.
(616) 975-4500


Official Sample Seal
CUSTODY SEAL
Signature
Site
Date 8/12/09
TriMatrix Laboratories, Inc.
(616) 975-4500

TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 129209

JSP0807B

Page 1 of 2

For Lab Use Only

Cart: 1
VOA Rack/Tray:
Receipt Log No.: 25.3
Project Chemist: GDH
Laboratory Project No.: 0908228

Client Name: UES Corporation
Address: 5910 Folkmont St. Suite 2A
Richmond, VA. 23230
Phone (804) 965-9000
Fax (804) 965-9764

Project Name: Refinery Soil & Solids
Client Project No./P.O. No.: 116574.50
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina Devine

Analyses Requested

A	A	A	A	A	A	A
VOCs SW8260B	SVOCs SW8270C	PCBs/8082	Explosives SW8330	TAL Total Metals SW6010B/7471A (Hg)	TOC SW9060	pH SW9045C

Container Type (corresponds to Container Packing List)

PRESERVATIVES
A NONE pH<6
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc NaOH pH>9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted							Total	Sample Comments
J	SO	01	1 72SB1A		8/12/09	0855		X	S				1			1	2	
A		02	2 72SB1B		8/12/09	0910		X	S	3	1	→				1	5	
A		03	3 DUP-2		8/12/09	—		X	S	3	1	→				1	5	
G	SC	04	4 18SB2A		8/12/09	1000		X	S	3	1	→		1		1	6	
B	SO	05	5 18SB2B MS/MSD		8/12/09	1010		X	S	8	3	→				1	12	
A		06	6 18SB4A		8/12/09	1100		X	S	3	1	→				1	5	
A		07	7 18SB4B		8/12/09	1115		X	S	3	1	→				1	5	
A		08	8 18SB3A		8/12/09	1135		X	S	3	1	→				1	5	
A		09	9 18SB3B		8/12/09	1140		X	S	3	1	→				1	5	
A		10	10 18SB1A		8/12/09	1155		X	S	3	1	→				1	5	

Sampled By (print): Angie Fisher
Sampler's Signature:
Company: UES Corp.

How Shipped? Hand Carrier: Fed Ex
Tracking No.:

Comments: SVOCs, PCBs/8082, Explosives and TAL Metals all contained in 1-250ml glass jar.

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
	8/12/09	1700						
1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
							8.13.09	0910

TriMatrixCOC -- COC WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

TriMatrix Laboratories, Inc.

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Phone (616) 975-4500 Fax (616) 942-7463
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Chain of Custody Record

COC No. 127584

Page 2 of 2

For Lab Use Only

Cart: 1

VOA Rack/Tray:

Receipt Log No.: 25.3

Project Chemist: LMH

Laboratory Project No.: 09098228

SS 0802 B

Client Name: URS Corporation	Project Name: 2FAAP SSP 6 S.t.s
Address: 5540 Falmouth St. Suite 201	Client Project No./P.O. No.: 11657490
Richmond, VA. 23230	Invoice No. ☐ Client ☐ Other (comments)
Phone (804) 965-9000	Contact/Report To: Tina Devine
Fax (804) 965-9764	

Analyses Requested

Container Type (corresponds to Container Packing List)

PRESERVATIVES
A NONE pH>7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH >9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted	Total	Sample Comments
G	SO	11	1 18.5B1B		8/12/09	1200		X	S	3 1 → 1 1	6	
			2 ~~18.5B6A~~ MF									
			3 ~~18.5B5B~~ MF									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

Analyses Requested: A A A A A A A

VOCs SW8260B; SVOCs 8270C; PCB/Pest 8082; Exp/Inorganics 6010B/7000 series; TAL Inorganics 6010B, 7470A/7471A; TOC; %Solids

Sampled By (print): Mark Fisher

Sampler's Signature:

Company: URS Corp

How Shipped? Hand Carrier Fed Ex

Tracking No.:

Comments:

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
	8/12/09	1700						

1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
						Wm Cole	8-13-09	0910

TriMatrix Laboratories, Inc.

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Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 128110

SSD8028

For Lab Use Only

Cart: 1
VOA Rack/Tray:
Receipt Log No.: 25.3
Project Chemist: CMH
Laboratory Project No.: 0908228

Client Name: URS Corporation
Address: 5540 Falmouth St. Suite 201
Richmond, VA 23230
Phone (804) 965-9000
Fax (804) 965-9764

Project Name: RFHAP SSP 6 Sites
Client Project No./P.O. No.: 11657490
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina Devine

Page 1 of 1

Analyses Requested

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted	Total
A	SO	12	1	185B5A		8/12/09	1305		X	S	5
A		13	2	185B5B		8/12/09	1320		X	S	5
A	FD SO	14	3	DUP-3		8/12/09	—		X	S	5
A	SO	15	4	185B6A		8/12/09	1340		X	S	5
A		16	5	185B6B		8/12/09	1355		X	S	5
			6								
			7								
			8								
			9								
			10								

Container Type (corresponds to Container Packing List): A A A A A A A

Analyses: VOC's 8260B; SVOC's 8270C; PCB/Pest 608/8081A; Expl/NG/PETN 8330m, 8332; TAL inorganics 6010, 6020, 7471A, 9056; % Solids; TOC's

PRESERVATIVES
A NONE pH<2
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

Sample Comments:

Sampled By (print): Mark Fisher
Sampler's Signature:
Company: URS Corp

How Shipped? Hand Carrier: Fed Ex
Tracking No.:

Comments: SVOC's, PCB/pest, Expl/NG/PETN, and TAL inorganics all in 250 ml SI. jar.

1. Relinquished By	Date	Time
	8/12/09	1700

2. Relinquished By	Date	Time

3. Relinquished By	Date	Time

1. Received By	Date	Time

2. Received By	Date	Time

3. Received For Lab By	Date	Time
	8-13-09	0910

TriMatrixCOC -- COC WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 127583

SSDS

For Lab Use Only

Cart: 1
VOA Rack/Tray: 6366
Receipt Log No.: 253
Project Chemist: NH
Laboratory Project No.: 0908228

Client Name: URS Corporation
Address: 5540 Falmouth St Suite 201
Richmond, VA 23230
Phone (804) 967-9000
Fax (804) 965-9764

Project Name: Refine SSP 6 sites
Client Project No./P.O. No.: 11657490
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina Devine

Page 1 of 1

Analyses Requested

D	A	A	A	B	E
VOC's 8260B	SVOC's 8270C	Cr+1/Ni/Mn/Cu 6020/7196A/7199	PCB's 8082	SO4/Cl 9056	Total Metals 6020	Cyanide

Container Type (corresponds to Container Packing List)

⇦ PRESERVATIVES
A NONE pH<5
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH >9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number		Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted						Total	Sample Comments
C	SO WQ	17	1	EQBK-Z		8/12/09	1030		X	W	3	2	4	2	1	1	13	
T	DW WQ	18	2	Trip Blank		8/12/09	1030		X	W	1						1	
			3															
			4															
			5															
			6															
			7															
			8															
			9															
			10															

Sampled By (print): Mark Fisher
Sampler's Signature:
Company: URS Corp.

How Shipped? Hand Carrier: Fed Ex
Tracking No.

Comments

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
	8/12/09	1700						
1. Received By	**Date**	**Time**	**2. Received By**	**Date**	**Time**	**3. Received For Lab By**	**Date**	**Time**
							8-13-09	0910

TriMatrixCOC -- COC WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Region III Modifications to the National Functional Guidelines for Data Review (September 1994).

Data Validation Flags

Flag	Interpretation
R	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
U	Not detected. The associated number indicates the approximate sample concentration is necessary to be detected.
B	Not detected substantially above the level reported in laboratory or field blanks.
N	Tentative Identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.
J	Analyte present. Reported value may not be accurate or precise.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	Not detected, quantitation limit may be inaccurate or imprecise.
UL	Not detected, quantitation limit is probably higher.
NT	Not tested, no analytical result provided.

The other type of code used by URS is a “Reason Code”. The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	j	Vial Headspace
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits
l	LCS recovery failure	l	LCS recovery failure	l	LCS recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	m	MS/MSD recovery failure
p	Poor chromatography	p	Poor chromatography	n	ICS failure
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	o	Calibration blank contamination
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	p	Preparation blank contamination
s	Surrogate failure	s	Surrogate failure	q	Concentration exceeded the linear range
t	TIC	u	No confirmation column	r	Linearity failure in calibration or MSA
w	Identification criteria failure	w	Retention time failure	s	Serial dilution failure
x	Field blank contamination	x	Field blank contamination	u	BOD minimum depletion did not exceed 2mg/L
y	Trip blank contamination	z	Method blank contamination	v	Post-digestion spike failure
z	Method blank contamination			w	CRDL Standard Failure
				x	Field blank contamination

DATA VALIDATION REPORT - Level III Review

SDG No.:	**SS0809C**	**Fraction:**	**VOC, SVOC, Pesticides, PCB, Explosives, TAL Inorganics, & TOC**
Laboratory:	**TriMatrix**	**Project:**	**Radford SSP**
Reviewer:	**Andrea Sansom**	**Date:**	**November 17, 2009**

This report presents the findings of a review of the referenced data. The report consists of this summary, copies of data reports with data qualifying flags applied (as required), the completed data validation checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the USEPA Region III Modifications to the National Functional Guidelines for Organic and Inorganic Data Review as pertains to the specifics of the analytical methods employed and provisions of the approved project-specific QAPP.

Major Anomalies: For the semi-volatile organic compound analyses (SVOC), the laboratory control spikes displayed the following anomalies:

Batch	Analyte	Laboratory Control Spike (%)	Control Limits (%)
0909777	Benzaldehyde	**2**	50-150
	Carbazole	**132**	45-115
	Di-n-butylphthalate	**127**	55-110
	4-Methylphenol	**109**	40-105
0909841	Benzaldehyde	**4**	50-150

The associated field sample results were non-detect for benzaldehyde and were flagged R,l. The positive associated field sample result for 4-methylphenol was flagged J,l. The other associated field sample results were either non-detect while the laboratory control spikes displayed a positive bias or subsequently flagged for a method blank detection; therefore, no further data qualifying action was taken. The matrix spike pair performed on field sample 30SS3 displayed the following percent recovery anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits	Relative Percent Difference (%)	Control Limit
Atrazine	**59**	**62**	61-146	5	30
Benzaldehyde	**2**	**3**	50-150	21	
Caprolactam	62	**58**	62-112	6	
3,3'-Dichlorobenzidine	11	17	10-130	**43**	

The associated batch laboratory control spike displayed similar anomalies for benzaldehyde indicating the matrix was not the reason for poor accuracy. No further data qualifying action was taken based on the matrix spike anomalies for benzaldehyde. The parent sample results for atrazine and caprolactam were non-detect and were flagged UL,m. The parent sample result for 3,3'-dichlorobenzidine was non-detect; thus, no data qualifying action was taken based on the precision anomaly.

Minor Anomalies: For the volatile organic compound analyses (VOC) analyses, blanks displayed the following positive detections:

Type	Identification	Analyte	Result	Units
Batch Blank	0909747-BLK1	1,2,3-Trichlorobenzene	2.3	µg/kg
		Methylene Chloride	7.2	
	0909747-BLK2	1,2,3-Trichlorobenzene	2.1	
	0909853-BLK1	Methylene Chloride	24	
EQBK-3	0908257-15	Chloroform	2.6	µg/L
		Chloromethane	0.38	
Trip Blank	0908257-16	Acetone	5.2	

The associated field sample results were non-detect for 1,2,3-trichlorobenzene, chloroform, and chloromethane, thus, no data qualifying action was required. Positive associated field sample results were less than ten times the method blank detection for methylene chloride and were flagged B,z. Positive associated field sample results less than ten times the trip blank detection for acetone were flagged B,y. The initial calibration 9H12016 and 9H21016 displayed correlations less than the control limit of 0.995 for 1,2-dibromo-3-chloropropane at 0.994 and 1,2-dibromoethane at 0.993, respectively. The second source verification for initial calibration 9H21009 displayed a percent recovery greater than the upper control limit of 120% for isopropylbenzene at 123%. Since the associated field sample results were non-detect, no data qualifying action was taken. The continuing calibration analyzed on 8/20/09 at 1609 displayed percent differences greater than the control limit of 20% with a positive bias for isopropylbenzene at 22.7% and with a negative bias for trans-1,3-dichloropropene at 22.3%. Since the associated field sample results were non-detect for isopropylbenzene while the continuing calibration displayed a positive bias, no data qualifying action was taken. The associated field sample results were non-detect for trans-1,3-dichloropropene and were flagged UJ,c. The matrix spike pair performed on field sample 30SS3 displayed the following anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits
1,2-Dichlorobenzene	**72**	77	75-120
cis-1,3-Dichloropropene	**69**	**68**	70-125
trans-1,3-Dichloropropene	65	**64**	65-125
Methylcyclohexane	**62**	**63**	70-130
1,2,3-Trichlorobenzene	**53**	**53**	60-135
1,2,4-Trichlorobenzene	**50**	**50**	65-130
1,1,2-Trichloro-1,2,2-trifluoroethane	**77**	**79**	80-120

The associated parent sample results were non-detect and were flagged UL,m. Field samples 79SS2 and 60SS6 displayed internal standard area counts less than the lower control limit of 50% for 1,4-dichlorobenzene-d4 at 44%, and 47%, respectively. The associated field sample results were non-detect and were flagged UJ,i. These two samples were re-analyzed at a medium level dilution factor of approximately 50 although the samples were non-detect for the target analytes. The original neat analytical results were recommended for data use. Field sample 60SS6 displayed a surrogate percent recovery less than the lower control limit of 85% for 4-bromofluorobenzene at 79%. The associated field sample results were non-detect and were flagged UJ,s, unless previously

flagged for an internal standard anomaly. Field sample 30SS2 displayed a detection greater than the linear range for acetone. This result was flagged J,q. This sample was re-analyzed at a medium level dilution factor of approximately 50. The acetone result was diluted to below the level found in the trip blank. The original analytical result was recommended for data use.

For the SVOC analyses, blanks displayed the following positive detections:

Batch Identification	Identification	Analyte	Result	Units
0909484	0909484-BLK2	Butyl Benzyl Phthalate	0.070	µg/L
		Di-n-butyl Phthalate	0.34	
	EQBK-3	Butyl Benzyl Phthalate	0.40	
		Diethyl Phthalate	0.071	
		Di-n-butyl Phthalate	0.52	
0909777	0909777-BLK1	Bis(2-ethylhexyl) Phthalate	5.0	µg/kg
		Di-n-butyl Phthalate	110	
0909841	0909841-BLK1	Bis(2-ethylhexyl) Phthalate	4.7	

Positive associated field sample results less than ten times the method blank detections were flagged B,z. The equipment blank detections for butyl benzyl phthalate and di-n-butylphthalate were flagged B due to method blank detections and no further data qualifying action was taken. The associated positive field sample results less than ten times the equipment blank concentration for diethyl phthalate were flagged B,x. The laboratory control spike for batch 0909484 displayed 34 percent recoveries greater than the upper control limits. The associated positive equipment blank results were flagged J,l, unless previously flagged for a method blank detection.

For the pesticide analyses, the continuing calibrations displayed the following percent differences greater than the control limit of 15%:

Date	Time	Column	Analyte	Percent Difference	Bias
8/27/09	1915	1	Toxaphene	20.0	+
8/28/09	1012		Methoxychlor	16.1	-
	1050		Toxaphene	20.6	+
9/01/09	0502			15.9	-
		2		20.5	
	2154	1	beta-BHC	15.5	
			4,4'-DDD	19.3	
			4,4'-DDE	20.2	
			4,4'-DDT	15.2	
			Methoxychlor	15.2	

Field sample results were non-detect when both columns displayed a positive bias, thus, no data qualifying action was taken. No data qualifying action was required for non-detect results reported from the passing column when the second analytical column displayed an anomaly of either bias. The separate toxaphene continuing calibrations displayed surrogate percent difference anomalies. Since the surrogates displayed acceptable percent differences in the single peak pesticide continuing calibrations, no data qualifying action was deemed necessary.

For the PCB analyses, field sample 30SS3 displayed a relative percent difference greater than the control limit of 40% between the dual column concentrations for Aroclor 1260. This results was flagged J,g.

For the explosives analyses, the following continuing calibrations displayed percent differences greater than the control limit (i.e., 15%):

Date	Time	Analyte	%D	Bias
08/25/09	1017	4-Amino-2,6-dinitrotoluene	15.6	-
	1514	HMX	15.1	
08/26/09	1011	Tetryl	16.1	
		HMX	16.6	
	1719	Tetryl	16.2	
	2341	4-Amino-2,6-dinitrotoluene	15.2	
		Tetryl	16.4	
08/27/09	1439		16.1	
	1729		16.3	
08/28/09	0113		17.4	

Since the associated field sample results were non-detect while the continuing calibrations displayed a negative bias, the associated field sample results were flagged UJ,c. Several continuing calibrations also displayed percent differences greater than the control limit of 15% with a negative bias for the surrogate 4-nitroaniline. Since all the field samples and batch quality control samples displayed acceptable surrogate percent recoveries, no data qualifying action was taken.

For the inorganic analyses, the method blanks displayed the following detections:

Date	Time	Identification	Analyte	Result	Units
08/19/09	0909	9H19009-CCB1	Antimony	0.15	µg/L
			Arsenic	0.13	
	0932	9H19009-CCB2	Antimony	0.10	
	0936	0909625-BLK1	Zinc	2.1	
	1006	EQBK-3	Barium	0.61	
			Chromium	0.91	
			Cobalt	0.037	
			Copper	0.42	
			Manganese	0.95	
			Zinc	16	
	1020	9H19009-CCB3	Antimony	0.086	
			Cobalt	-0.0081	
	1102	9H19032-CCB1	Selenium	-0.084	
	1148	9H19032-CCB3		-0.097	
	1251	9H19038-CCB2		-0.00019	mg/L
			Silver	0.000030	
	1326	9H19038-CCB3		0.000030	
	1358	9H19038-CCB4	Arsenic	0.000091	
			Silver	0.000028	

Date	Time	Identification	Analyte	Result	Units
08/20/09	0836	9H20016-CCB1	Aluminum	-26	µg/L
	0856	9H20016-CCB2		-24	
	0913	EQBK-3	Calcium	110	
			Iron	18	
			Sodium	260	
	0923	9H20016-CCB3	Aluminum	-31	
08/25/09	1103	9H25006-CCB1	Cadmium	-0.0028	mg/L
	1128	9H25006-CCB2		-0.0027	
	1132	0909583-BLK-1	Zinc	1.2	mg/kg
	1214	9H25006-CCB3	Cadmium	-0.0025	mg/L
			Magnesium	-0.051	
			Manganese	-0.0021	
	1255	9H25006-CCB4	Cadmium	-0.0028	
			Iron	0.0048	

The positive field sample results less than five times the positive instrument blank concentrations were flagged B,o. The non-detect field sample results associated with negative blank detections were flagged UL,o. The associated positive field sample results less then five times the absolute value of negative blank detections were flagged L,o. Positive associated field sample results less than five times the equipment blank detections were flagged B,p. Positive associated field sample results less than five times the equipment blank detections were flagged B,x. The matrix spike pair performed on field sample 30SS3 displayed the following anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits
Barium	**152**	**133**	80-120
Lead	**43**	**49**	
Vanadium	**79**	107	
Zinc	**126**	**126**	

The associated field sample results were positive. Lead and vanadium results were flagged L,m while barium and zinc results were flagged K,m. The field duplicate pair conducted on parent sample 30SB1B displayed a relative percent difference greater than the control limit of 35% for lead at 125%. The field duplicate pair conducted on parent sample 30SB3B displayed relative percent differences greater than the control limit of 35% for barium at 35.7% and manganese at 57.5%. The associated field duplicate sample results were positive and were flagged J,f, unless previously flagged for a matrix spike anomaly.

Correctable Anomalies: Due to laboratory capability limitations, the sample summary forms displayed an analytical date of 8/18/09 for EQBK-3 even though Aroclor 1262 and 1268 were manually noted as not being a match on raw data collected during the analysis conducted on 8/22/09.

Comments: The samples are dried prior to metals digestion; the results are not adjusted for percent solids. In addition, the preparation volumes do not adjust the MDL/MRL until a greater than 6% difference in the default amount and actual amount is

observed. Field sample 30SS2 was analyzed at dilution of two for vanadium due to the abundance of this target compound. Field sample 30SS3 was analyzed at dilution of 200 for aluminum and iron due to the abundance of these target compounds. Field sample 60SS6 was analyzed at dilution of 100 for calcium and magnesium due to the abundance of these target compounds. The reporting limits for these constituents were elevated appropriately. No anomalies were encountered if a given fraction was not mentioned. Except for data flagged "R", data are usable as qualified for their intended purpose based on the data reviewed.

Signed: Andrea Sansom

Andrea Sansom

Radford SSP
SS0809C

Field Sample Identification	Laboratory Sample Identification	Date Sampled	VOC	SVOC	Pesticides	PCB	Explosives, NG, PETN	TAL Inorganics	Asbestos	TOC
30SS1	0908257-01	8/13/2009	X	X	X	X	X	X	X	
30SB1B	0908257-02	8/13/2009	X	X	X	X	X	X	X	
DUP-4	0908257-03	8/13/2009	X	X	X	X	X	X	X	
30SS2	0908257-04	8/13/2009	X	X	X	X	X	X	X	
30SS3	0908257-05	8/13/2009	X	X	X	X	X	X	X	
30SB2B	0908257-06	8/13/2009	X	X	X	X	X	X	X	
79SS1	0908257-07	8/13/2009	X	X	X	X	X	X	X	
30SB3B	0908257-08	8/13/2009	X	X	X	X	X	X	X	
DUP-5	0908257-09	8/13/2009	X	X	X	X	X	X	X	
79SS2	0908257-10	8/13/2009	X	X	X	X	X	X	X	
79SB2A	0908257-11	8/13/2009								X
79SS3	0908257-12	8/13/2009	X	X	X	X	X	X	X	
79SB2B	0908257-13	8/13/2009	X	X	X	X	X	X	X	X
60SS6	0908257-14	8/13/2009	X	X	X	X	X	X		
EQBK-3	0908257-15	8/13/2009	X	X	X	X	X	X		
Trip Blank	0908257-16	8/13/2009	X							

Radford SSP
Duplicate Statistics

Client Sample ID:			**30SB1B**		**DUP-4**					
Lab Sample ID:			**0908257-02**		**0908257-03**					
Date Sampled:			**8/13/09**		**8/13/09**					
	Units	**RL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
Organics										
Bis(2-ethylhexyl) Phthalate	ug/kg	230	8.1	JB	8.0	JB	1.2%	**0.1**	460	Pass
TAL Inorganics										
Aluminum	mg/kg	10	14000		16000		**13.3%**	2000	20	Pass
Barium	mg/kg	1	39		41		**5.0%**	2	2	Pass
Beryllium	mg/kg	1	0.21	J	0.16	J	27.0%	**0.05**	2	Pass
Cadmium	mg/kg	2	1.1	J	1.2	J	8.7%	**0.1**	4	Pass
Calcium	mg/kg	50	13	J	17	J	26.7%	**4**	100	Pass
Chromium	mg/kg	5	11		12		**8.7%**	1	10	Pass
Cobalt	mg/kg	2	9.4		9.7		**3.1%**	0.3	4	Pass
Iron	mg/kg	10	21000		21000		**0.0%**	0	20	Pass
Magnesium	mg/kg	50	1000		1000		**0.0%**	0	100	Pass
Manganese	mg/kg	1	300		290		**3.4%**	10	2	Pass
Potassium	mg/kg	50	990		1000		**1.0%**	10	100	Pass
Sodium	mg/kg	100	6.4	J	7.6	J	17.1%	**1.2**	200	Pass
Zinc	mg/kg	5	28	B	30	B	**6.9%**	2	10	Pass
Antimony	mg/kg	0.2	0.05	J	0.056	J	11.3%	**0.006**	0.4	Pass
Arsenic	mg/kg	0.1	0.91		1		**9.4%**	0.09	0.2	Pass
Copper	mg/kg	0.2	5		6.4		**24.6%**	1.4	0.4	Pass
Lead	mg/kg	0.2	5.8		25		**124.7%**	19.2	0.4	**Fail**
Nickel	mg/kg	0.1	5.8		6.6		**12.9%**	0.8	0.2	Pass
Selenium	mg/kg	0.2	0.064	J	0.2	U	103.0%	**0.136**	0.4	Pass
Silver	mg/kg	0.1	0.028	J	0.031	J	10.2%	**0.003**	0.2	Pass
Thallium	mg/kg	0.1	0.083	J	0.12		36.5%	**0.037**	0.2	Pass
Vanadium	mg/kg	0.1	31		35		**12.1%**	4	0.2	Pass
Mercury	mg/kg	0.05	0.013	J	0.011	J	16.7%	**0.002**	0.1	Pass
Cyanide, Total	mg/kg	0.4	0.1	J	0.095	J	5.1%	**0.005**	0.8	Pass
Percent Solids	%	0.1	74		75		**1.3%**	1	0.2	Pass

Control limit

Organics: [sample]>RL use 60%; [sample]<RL use Δ<2*RL

Metals: [sample]>RL use 35%; [sample]<RL use Δ<2*RL

Radford SSP
Duplicate Statistics

Client Sample ID:			**30SB3B**		**DUP-5**					
Lab Sample ID:			**0908257-08**		**0908257-09**					
Date Sampled:			**8/13/09**		**8/13/09**					
	Units	**RL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
Organics										
Bis(2-ethylhexyl) Phthalate	ug/kg	240	12	JB	37.0	JB	102.0%	**25**	480	Pass
Butyl Benzyl Phthalate	ug/kg	200	200	U	21.0	J	162.0%	**179**	400	Pass
Di-n-butyl Phthalate	ug/kg	200	200	U	230.0		14.0%	**30**	400	Pass
TAL Inorganics										
Aluminum	mg/kg	10	19000		18000	D	**5.4%**	1000	20	Pass
Barium	mg/kg	1	76		53	D	**35.7%**	23	2	**Fail**
Beryllium	mg/kg	1	0.16	J	0.052	JD	101.9%	**0.108**	2	Pass
Cadmium	mg/kg	2	1.6	J	1.4	JD	13.3%	**0.2**	4	Pass
Calcium	mg/kg	50	120		35	JD	109.7%	**85**	100	Pass
Chromium	mg/kg	5	21		15	D	**33.3%**	6	10	Pass
Cobalt	mg/kg	2	11		8.3	D	**28.0%**	2.7	4	Pass
Iron	mg/kg	10	27000		24000	D	**11.8%**	3000	20	Pass
Magnesium	mg/kg	50	1300		1100	D	**16.7%**	200	100	Pass
Manganese	mg/kg	1	560		310	D	**57.5%**	250	2	**Fail**
Potassium	mg/kg	50	1100		990	D	**10.5%**	110	100	Pass
Sodium	mg/kg	100	11	J	7.5	JD	37.8%	**3.5**	200	Pass
Zinc	mg/kg	5	36	B	33	DB	**8.7%**	3	10	Pass
Antimony	mg/kg	0.2	0.14	J	0.074	J	61.7%	**0.066**	0.4	Pass
Arsenic	mg/kg	0.1	1.3		1.2		**8.0%**	0.1	0.2	Pass
Copper	mg/kg	0.2	7.9		6.5		**19.4%**	1.4	0.4	Pass
Lead	mg/kg	0.2	10		8.2		**19.8%**	1.8	0.4	Pass
Nickel	mg/kg	0.1	7.9		6.4		**21.0%**	1.5	0.2	Pass
Selenium	mg/kg	0.2	0.18	J	0.13	J	32.3%	**0.05**	0.4	Pass
Silver	mg/kg	0.1	0.037	J	0.029	J	24.2%	**0.008**	0.2	Pass
Thallium	mg/kg	0.1	0.15		0.12		**22.2%**	0.03	0.2	Pass
Vanadium	mg/kg	0.1	41		36		**13.0%**	5	0.2	Pass
Mercury	mg/kg	0.05	0.026	J	0.029	J	10.9%	**0.003**	0.1	Pass
Percent Solids	%	0.1	71		84		**16.8%**	13	0.2	Pass

Control limit Organics: [sample]>RL use 60%; [sample]<RL use Δ<2*RL
Metals: [sample]>RL use 35%; [sample]<RL use Δ<2*RL

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-01 File ID: 0908257-01.D

Sampled: 08/13/09 08:25 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 09:02

Solids: 86.69 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.2 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	27	27	4.3	U
71-43-2	Benzene	1	6.9	6.9	0.29	U
74-97-5	Bromochloromethane	1	27	27	0.61	U
75-27-4	Bromodichloromethane	1	6.9	6.9	1.2	U
75-25-2	Bromoform	1	6.9	6.9	0.63	U
74-83-9	Bromomethane	1	6.9	6.9	1.3	U
75-15-0	Carbon Disulfide	1	6.9	6.9	0.47	U
56-23-5	Carbon Tetrachloride	1	6.9	6.9	0.93	U
108-90-7	Chlorobenzene	1	6.9	6.9	1.1	U
75-00-3	Chloroethane	1	27	27	1.1	U
67-66-3	Chloroform	1	6.9	6.9	0.31	U
74-87-3	Chloromethane	1	6.9	6.9	0.57	U
110-82-7	Cyclohexane	1	14	14	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.8	U
124-48-1	Dibromochloromethane	1	6.9	6.9	0.64	U
106-93-4	1,2-Dibromoethane	1	6.9	6.9	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.9	6.9	0.36	U
541-73-1	1,3-Dichlorobenzene	1	6.9	6.9	0.53	U
106-46-7	1,4-Dichlorobenzene	1	6.9	6.9	0.65	U
75-71-8	Dichlorodifluoromethane	1	6.9	6.9	0.48	U
75-34-3	1,1-Dichloroethane	1	6.9	6.9	0.43	U
107-06-2	1,2-Dichloroethane	1	6.9	6.9	0.50	U
75-35-4	1,1-Dichloroethene	1	6.9	6.9	0.97	U
156-59-2	cis-1,2-Dichloroethene	1	6.9	6.9	0.39	U
156-60-5	trans-1,2-Dichloroethene	1	6.9	6.9	1.1	U
78-87-5	1,2-Dichloropropane	1	6.9	6.9	0.51	U
10061-01-5	cis-1,3-Dichloropropene	1	6.9	6.9	0.58	U
10061-02-6	trans-1,3-Dichloropropene	1	6.9	6.9	0.41	U
100-41-4	Ethylbenzene	1	6.9	6.9	0.21	U
591-78-6	2-Hexanone	1	14	14	1.4	U
98-82-8	Isopropylbenzene	1	6.9	6.9	0.27	U
79-20-9	Methyl Acetate	1	27	27	3.3	U
1634-04-4	Methyl tert-Butyl Ether	1	6.9	6.9	0.67	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	27	27	1.7	U
78-93-3	2-Butanone (MEK)	1	27	27	3.1	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	6.9	6.9	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.9	6.9	1.1	U
127-18-4	Tetrachloroethene	1	6.9	6.9	1.0	U
108-88-3	Toluene	1	6.9	6.9	0.82	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-01 File ID: 0908257-01.D

Sampled: 08/13/09 08:25 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 09:02

Solids: 86.69 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.2 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	27	27	0.54	U
120-82-1	1,2,4-Trichlorobenzene	1	6.9	6.9	0.98	U
71-55-6	1,1,1-Trichloroethane	1	6.9	6.9	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.9	6.9	1.3	U
79-01-6	Trichloroethene	1	6.9	6.9	0.60	U
75-69-4	Trichlorofluoromethane	1	6.9	6.9	0.43	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.9	6.9	0.72	U
75-01-4	Vinyl Chloride	1	6.9	6.9	0.35	U
1330-20-7	Xylene (Total)	1	6.9	6.9	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.4	99	78 - 121	
1,2-Dichloroethane-d4	40.0	38.5	96	66 - 124	
Toluene-d8	40.0	38.4	96	85 - 115	
4-Bromofluorobenzene	40.0	36.6	92	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	863177	4.28	947725	4.28	
Chlorobenzene-d5	560614	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	243368	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: 0908257-02.D

Sampled: 08/13/09 08:40 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 09:35

Solids: 74.39 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	29	29	4.6	U
71-43-2	Benzene	1	7.3	7.3	0.31	U
74-97-5	Bromochloromethane	1	29	29	0.65	U
75-27-4	Bromodichloromethane	1	7.3	7.3	1.3	U
75-25-2	Bromoform	1	7.3	7.3	0.68	U
74-83-9	Bromomethane	1	7.3	7.3	1.4	U
75-15-0	Carbon Disulfide	1	7.3	7.3	0.50	U
56-23-5	Carbon Tetrachloride	1	7.3	7.3	0.99	U
108-90-7	Chlorobenzene	1	7.3	7.3	1.2	U
75-00-3	Chloroethane	1	29	29	1.1	U
67-66-3	Chloroform	1	7.3	7.3	0.33	U
74-87-3	Chloromethane	1	7.3	7.3	0.61	U
110-82-7	Cyclohexane	1	15	15	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	15	15	3.0	U
124-48-1	Dibromochloromethane	1	7.3	7.3	0.68	U
106-93-4	1,2-Dibromoethane	1	7.3	7.3	1.2	U
95-50-1	1,2-Dichlorobenzene	1	7.3	7.3	0.38	U
541-73-1	1,3-Dichlorobenzene	1	7.3	7.3	0.56	U
106-46-7	1,4-Dichlorobenzene	1	7.3	7.3	0.69	U
75-71-8	Dichlorodifluoromethane	1	7.3	7.3	0.51	U
75-34-3	1,1-Dichloroethane	1	7.3	7.3	0.46	U
107-06-2	1,2-Dichloroethane	1	7.3	7.3	0.53	U
75-35-4	1,1-Dichloroethene	1	7.3	7.3	1.0	U
156-59-2	cis-1,2-Dichloroethene	1	7.3	7.3	0.41	U
156-60-5	trans-1,2-Dichloroethene	1	7.3	7.3	1.2	U
78-87-5	1,2-Dichloropropane	1	7.3	7.3	0.54	U
10061-01-5	cis-1,3-Dichloropropene	1	7.3	7.3	0.62	U
10061-02-6	trans-1,3-Dichloropropene	1	7.3	7.3	0.44	U
100-41-4	Ethylbenzene	1	7.3	7.3	0.22	U
591-78-6	2-Hexanone	1	15	15	1.5	U
98-82-8	Isopropylbenzene	1	7.3	7.3	0.28	U
79-20-9	Methyl Acetate	1	29	29	3.5	U
1634-04-4	Methyl tert-Butyl Ether	1	7.3	7.3	0.71	U
108-87-2	Methylcyclohexane	1	15	15	1.3	U
75-09-2	Methylene Chloride	1	29	29	1.8	U
78-93-3	2-Butanone (MEK)	1	29	29	3.3	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	15	15	0.26	U
100-42-5	Styrene	1	7.3	7.3	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.3	7.3	1.1	U
127-18-4	Tetrachloroethene	1	7.3	7.3	1.1	U
108-88-3	Toluene	1	7.3	7.3	0.88	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: 0908257-02.D

Sampled: 08/13/09 08:40 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 09:35

Solids: 74.39 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	29	29	0.57	U
120-82-1	1,2,4-Trichlorobenzene	1	7.3	7.3	1.0	U
71-55-6	1,1,1-Trichloroethane	1	7.3	7.3	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.3	7.3	1.3	U
79-01-6	Trichloroethene	1	7.3	7.3	0.63	U
75-69-4	Trichlorofluoromethane	1	7.3	7.3	0.46	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.3	7.3	0.77	U
75-01-4	Vinyl Chloride	1	7.3	7.3	0.38	U
1330-20-7	Xylene (Total)	1	7.3	7.3	1.5	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	36.5	91	78 - 121	
1,2-Dichloroethane-d4	40.0	37.0	93	66 - 124	
Toluene-d8	40.0	38.6	96	85 - 115	
4-Bromofluorobenzene	40.0	38.2	96	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	861661	4.28	947725	4.28	
Chlorobenzene-d5	570134	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	280995	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: 0908257-03.D

Sampled: 08/13/09 00:00 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 10:07

Solids: 74.78 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	27	27	4.2	U
71-43-2	Benzene	1	6.7	6.7	0.28	U
74-97-5	Bromochloromethane	1	27	27	0.59	U
75-27-4	Bromodichloromethane	1	6.7	6.7	1.2	U
75-25-2	Bromoform	1	6.7	6.7	0.62	U
74-83-9	Bromomethane	1	6.7	6.7	1.3	U
75-15-0	Carbon Disulfide	1	6.7	6.7	0.45	U
56-23-5	Carbon Tetrachloride	1	6.7	6.7	0.90	U
108-90-7	Chlorobenzene	1	6.7	6.7	1.1	U
75-00-3	Chloroethane	1	27	27	1.1	U
67-66-3	Chloroform	1	6.7	6.7	0.31	U
74-87-3	Chloromethane	1	6.7	6.7	0.56	U
110-82-7	Cyclohexane	1	13	13	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.8	U
124-48-1	Dibromochloromethane	1	6.7	6.7	0.62	U
106-93-4	1,2-Dibromoethane	1	6.7	6.7	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.7	6.7	0.35	U
541-73-1	1,3-Dichlorobenzene	1	6.7	6.7	0.51	U
106-46-7	1,4-Dichlorobenzene	1	6.7	6.7	0.63	U
75-71-8	Dichlorodifluoromethane	1	6.7	6.7	0.47	U
75-34-3	1,1-Dichloroethane	1	6.7	6.7	0.42	U
107-06-2	1,2-Dichloroethane	1	6.7	6.7	0.49	U
75-35-4	1,1-Dichloroethene	1	6.7	6.7	0.95	U
156-59-2	cis-1,2-Dichloroethene	1	6.7	6.7	0.38	U
156-60-5	trans-1,2-Dichloroethene	1	6.7	6.7	1.1	U
78-87-5	1,2-Dichloropropane	1	6.7	6.7	0.49	U
10061-01-5	cis-1,3-Dichloropropene	1	6.7	6.7	0.56	U
10061-02-6	trans-1,3-Dichloropropene	1	6.7	6.7	0.40	U
100-41-4	Ethylbenzene	1	6.7	6.7	0.20	U
591-78-6	2-Hexanone	1	13	13	1.4	U
98-82-8	Isopropylbenzene	1	6.7	6.7	0.26	U
79-20-9	Methyl Acetate	1	27	27	3.2	U
1634-04-4	Methyl tert-Butyl Ether	1	6.7	6.7	0.65	U
108-87-2	Methylcyclohexane	1	13	13	1.2	U
75-09-2	Methylene Chloride	1	27	27	1.7	U
78-93-3	2-Butanone (MEK)	1	27	27	3.1	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.24	U
100-42-5	Styrene	1	6.7	6.7	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.7	6.7	1.0	U
127-18-4	Tetrachloroethene	1	6.7	6.7	1.0	U
108-88-3	Toluene	1	6.7	6.7	0.80	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: 0908257-03.D

Sampled: 08/13/09 00:00 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 10:07

Solids: 74.78 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	27	27	0.52	U
120-82-1	1,2,4-Trichlorobenzene	1	6.7	6.7	0.95	U
71-55-6	1,1,1-Trichloroethane	1	6.7	6.7	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.7	6.7	1.2	U
79-01-6	Trichloroethene	1	6.7	6.7	0.58	U
75-69-4	Trichlorofluoromethane	1	6.7	6.7	0.42	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.7	6.7	0.70	U
75-01-4	Vinyl Chloride	1	6.7	6.7	0.34	U
1330-20-7	Xylene (Total)	1	6.7	6.7	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.0	98	78 - 121	
1,2-Dichloroethane-d4	40.0	36.4	91	66 - 124	
Toluene-d8	40.0	37.9	95	85 - 115	
4-Bromofluorobenzene	40.0	36.6	91	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	795976	4.28	947725	4.28	
Chlorobenzene-d5	515099	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	241295	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: 0908257-04.D

Sampled: 08/13/09 09:00 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 10:52

Solids: 81.62 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.8 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	430	32	5.0	E
71-43-2	Benzene	1	8.1	8.1	0.34	U
74-97-5	Bromochloromethane	1	32	32	0.71	U
75-27-4	Bromodichloromethane	1	8.1	8.1	1.4	U
75-25-2	Bromoform	1	8.1	8.1	0.74	U
74-83-9	Bromomethane	1	8.1	8.1	1.6	U
75-15-0	Carbon Disulfide	1	2.9	8.1	0.55	J
56-23-5	Carbon Tetrachloride	1	8.1	8.1	1.1	U
108-90-7	Chlorobenzene	1	8.1	8.1	1.3	U
75-00-3	Chloroethane	1	32	32	1.3	U
67-66-3	Chloroform	1	8.1	8.1	0.37	U
74-87-3	Chloromethane	1	8.1	8.1	0.67	U
110-82-7	Cyclohexane	1	16	16	1.3	U
96-12-8	1,2-Dibromo-3-chloropropane	1	16	16	3.3	U
124-48-1	Dibromochloromethane	1	8.1	8.1	0.75	U
106-93-4	1,2-Dibromoethane	1	8.1	8.1	1.3	U
95-50-1	1,2-Dichlorobenzene	1	8.1	8.1	0.42	U
541-73-1	1,3-Dichlorobenzene	1	8.1	8.1	0.62	U
106-46-7	1,4-Dichlorobenzene	1	8.1	8.1	0.76	U
75-71-8	Dichlorodifluoromethane	1	8.1	8.1	0.57	U
75-34-3	1,1-Dichloroethane	1	8.1	8.1	0.50	U
107-06-2	1,2-Dichloroethane	1	8.1	8.1	0.59	U
75-35-4	1,1-Dichloroethene	1	8.1	8.1	1.1	U
156-59-2	cis-1,2-Dichloroethene	1	8.1	8.1	0.46	U
156-60-5	trans-1,2-Dichloroethene	1	8.1	8.1	1.3	U
78-87-5	1,2-Dichloropropane	1	8.1	8.1	0.59	U
10061-01-5	cis-1,3-Dichloropropene	1	8.1	8.1	0.68	U
10061-02-6	trans-1,3-Dichloropropene	1	8.1	8.1	0.49	U
100-41-4	Ethylbenzene	1	8.1	8.1	0.25	U
591-78-6	2-Hexanone	1	16	16	1.7	U
98-82-8	Isopropylbenzene	1	8.1	8.1	0.31	U
79-20-9	Methyl Acetate	1	32	32	3.9	U
1634-04-4	Methyl tert-Butyl Ether	1	8.1	8.1	0.79	U
108-87-2	Methylcyclohexane	1	16	16	1.4	U
75-09-2	Methylene Chloride	1	32	32	2.0	U
78-93-3	2-Butanone (MEK)	1	130	32	3.7	
108-10-1	4-Methyl-2-pentanone (MIBK)	1	16	16	0.29	U
100-42-5	Styrene	1	8.1	8.1	1.3	U
79-34-5	1,1,2,2-Tetrachloroethane	1	8.1	8.1	1.3	U
127-18-4	Tetrachloroethene	1	8.1	8.1	1.2	U
108-88-3	Toluene	1	8.1	8.1	0.97	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: 0908257-04.D

Sampled: 08/13/09 09:00 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 10:52

Solids: 81.62 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.8 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	32	32	0.63	U
120-82-1	1,2,4-Trichlorobenzene	1	8.1	8.1	1.1	U
71-55-6	1,1,1-Trichloroethane	1	8.1	8.1	1.3	U
79-00-5	1,1,2-Trichloroethane	1	8.1	8.1	1.5	U
79-01-6	Trichloroethene	1	8.1	8.1	0.70	U
75-69-4	Trichlorofluoromethane	1	8.1	8.1	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	8.1	8.1	0.84	U
75-01-4	Vinyl Chloride	1	8.1	8.1	0.41	U
1330-20-7	Xylene (Total)	1	8.1	8.1	1.7	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	40.4	101	78 - 121	
1,2-Dichloroethane-d4	40.0	39.8	99	66 - 124	
Toluene-d8	40.0	37.7	94	85 - 115	
4-Bromofluorobenzene	40.0	34.5	86	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	813993	4.27	947725	4.28	
Chlorobenzene-d5	502342	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	188038	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: 0908257-04.D

Sampled: 08/13/09 09:00 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 18:30

Solids: 81.62 Preparation: 5030B Aqueous Purge & Initial/Final: 3.2 g / 160 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	330	920	99	J B,Y
71-43-2	Benzene	1	61	61	18	U
74-97-5	Bromochloromethane	1	61	61	13	U
75-27-4	Bromodichloromethane	1	61	61	10	U
75-25-2	Bromoform	1	61	61	31	U
74-83-9	Bromomethane	1	61	61	38	U
75-15-0	Carbon Disulfide	1	310	310	17	U
56-23-5	Carbon Tetrachloride	1	61	61	13	U
108-90-7	Chlorobenzene	1	61	61	14	U
75-00-3	Chloroethane	1	81	81	28	U
67-66-3	Chloroform	1	61	61	14	U
74-87-3	Chloromethane	1	61	61	18	U
110-82-7	Cyclohexane	1	310	310	14	U
96-12-8	1,2-Dibromo-3-chloropropane	1	310	310	21	U
124-48-1	Dibromochloromethane	1	92	92	31	U
106-93-4	1,2-Dibromoethane	1	61	61	11	U
95-50-1	1,2-Dichlorobenzene	1	61	61	14	U
541-73-1	1,3-Dichlorobenzene	1	61	61	17	U
106-46-7	1,4-Dichlorobenzene	1	61	61	17	U
75-71-8	Dichlorodifluoromethane	1	61	61	12	U
75-34-3	1,1-Dichloroethane	1	61	61	15	U
107-06-2	1,2-Dichloroethane	1	61	61	11	U
75-35-4	1,1-Dichloroethene	1	61	61	18	U
156-59-2	cis-1,2-Dichloroethene	1	61	61	13	U
156-60-5	trans-1,2-Dichloroethene	1	62	62	20	U
78-87-5	1,2-Dichloropropane	1	61	61	13	U
10061-01-5	cis-1,3-Dichloropropene	1	61	61	11	U
10061-02-6	trans-1,3-Dichloropropene	1	61	61	8.6	U U,C
100-41-4	Ethylbenzene	1	61	61	18	U
591-78-6	2-Hexanone	1	3100	3100	32	U
98-82-8	Isopropylbenzene	1	61	61	17	U
79-20-9	Methyl Acetate	1	110	310	18	J
1634-04-4	Methyl tert-Butyl Ether	1	61	61	8.5	U
108-87-2	Methylcyclohexane	1	310	310	11	U
75-09-2	Methylene Chloride	1	87	310	12	J B,Z
78-93-3	2-Butanone (MEK)	1	3100	3100	31	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	3100	3100	29	U
100-42-5	Styrene	1	61	61	12	U
79-34-5	1,1,2,2-Tetrachloroethane	1	61	61	17	U
127-18-4	Tetrachloroethene	1	70	70	24	U
108-88-3	Toluene	1	61	61	18	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: 0908257-04.D

Sampled: 08/13/09 09:00 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 18:30

Solids: 81.62 Preparation: 5030B Aqueous Purge & Initial/Final: 3.2 g / 160 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	120	120	13	U
120-82-1	1,2,4-Trichlorobenzene	1	120	120	22	U
71-55-6	1,1,1-Trichloroethane	1	61	61	19	U
79-00-5	1,1,2-Trichloroethane	1	92	92	31	U
79-01-6	Trichloroethene	1	66	66	21	U
75-69-4	Trichlorofluoromethane	1	61	61	19	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	310	310	10	U
75-01-4	Vinyl Chloride	1	61	61	15	U
1330-20-7	Xylene (Total)	1	180	180	52	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	36.5	91	78 - 121	
1,2-Dichloroethane-d4	40.0	39.2	98	66 - 124	
Toluene-d8	40.0	39.4	99	85 - 115	
4-Bromofluorobenzene	40.0	38.6	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	678210	4.28	740105	4.28	
Chlorobenzene-d5	523127	7.27	539083	7.27	
1,4-Dichlorobenzene-d4	261256	9.55	287402	9.55	

* Values outside of QC limits

11/17/09

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-05 File ID: 0908257-05.D

Sampled: 08/13/09 09:30 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 11:24

Solids: 91.11 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.6 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	13	30	4.8	J B,V
71-43-2	Benzene	1	7.6	7.6	0.32	U
74-97-5	Bromochloromethane	1	30	30	0.67	U
75-27-4	Bromodichloromethane	1	7.6	7.6	1.3	U
75-25-2	Bromoform	1	7.6	7.6	0.70	U
74-83-9	Bromomethane	1	7.6	7.6	1.5	U
75-15-0	Carbon Disulfide	1	7.6	7.6	0.52	U
56-23-5	Carbon Tetrachloride	1	7.6	7.6	1.0	U
108-90-7	Chlorobenzene	1	7.6	7.6	1.2	U
75-00-3	Chloroethane	1	30	30	1.2	U
67-66-3	Chloroform	1	7.6	7.6	0.35	U
74-87-3	Chloromethane	1	7.6	7.6	0.64	U
110-82-7	Cyclohexane	1	15	15	1.3	U
96-12-8	1,2-Dibromo-3-chloropropane	1	15	15	3.1	U
124-48-1	Dibromochloromethane	1	7.6	7.6	0.71	U
106-93-4	1,2-Dibromoethane	1	7.6	7.6	1.3	U
95-50-1	1,2-Dichlorobenzene	1	7.6	7.6	0.39	U VL,m
541-73-1	1,3-Dichlorobenzene	1	7.6	7.6	0.59	U
106-46-7	1,4-Dichlorobenzene	1	7.6	7.6	0.72	U
75-71-8	Dichlorodifluoromethane	1	7.6	7.6	0.54	U
75-34-3	1,1-Dichloroethane	1	7.6	7.6	0.48	U
107-06-2	1,2-Dichloroethane	1	7.6	7.6	0.55	U
75-35-4	1,1-Dichloroethene	1	7.6	7.6	1.1	U
156-59-2	cis-1,2-Dichloroethene	1	7.6	7.6	0.43	U
156-60-5	trans-1,2-Dichloroethene	1	7.6	7.6	1.2	U
78-87-5	1,2-Dichloropropane	1	7.6	7.6	0.56	U
10061-01-5	cis-1,3-Dichloropropene	1	7.6	7.6	0.64	U VL,m
10061-02-6	trans-1,3-Dichloropropene	1	7.6	7.6	0.46	U VL,m
100-41-4	Ethylbenzene	1	7.6	7.6	0.23	U
591-78-6	2-Hexanone	1	15	15	1.6	U
98-82-8	Isopropylbenzene	1	7.6	7.6	0.30	U
79-20-9	Methyl Acetate	1	30	30	3.7	U
1634-04-4	Methyl tert-Butyl Ether	1	7.6	7.6	0.74	U
108-87-2	Methylcyclohexane	1	15	15	1.3	U VL,m
75-09-2	Methylene Chloride	1	30	30	1.9	U
78-93-3	2-Butanone (MEK)	1	30	30	3.5	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	15	15	0.27	U
100-42-5	Styrene	1	7.6	7.6	1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.6	7.6	1.2	U
127-18-4	Tetrachloroethene	1	7.6	7.6	1.1	U
108-88-3	Toluene	1	7.6	7.6	0.91	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-05 File ID: 0908257-05.D

Sampled: 08/13/09 09:30 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 11:24

Solids: 91.11 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.6 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	30	30	0.60	U VL,M
120-82-1	1,2,4-Trichlorobenzene	1	7.6	7.6	1.1	U VL,M
71-55-6	1,1,1-Trichloroethane	1	7.6	7.6	1.3	U
79-00-5	1,1,2-Trichloroethane	1	7.6	7.6	1.4	U
79-01-6	Trichloroethene	1	7.6	7.6	0.66	U
75-69-4	Trichlorofluoromethane	1	7.6	7.6	0.48	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.6	7.6	0.80	U VL,M
75-01-4	Vinyl Chloride	1	7.6	7.6	0.39	U
1330-20-7	Xylene (Total)	1	7.6	7.6	1.6	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	40.2	100	78 - 121	
1,2-Dichloroethane-d4	40.0	41.3	103	66 - 124	
Toluene-d8	40.0	38.0	95	85 - 115	
4-Bromofluorobenzene	40.0	35.4	89	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	825390	4.27	947725	4.28	
Chlorobenzene-d5	536329	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	229730	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-06 File ID: 0908257-06.D

Sampled: 08/13/09 09:35 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 11:57

Solids: 85.63 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.3 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	27	27	4.2	U
71-43-2	Benzene	1	6.8	6.8	0.28	U
74-97-5	Bromochloromethane	1	27	27	0.60	U
75-27-4	Bromodichloromethane	1	6.8	6.8	1.2	U
75-25-2	Bromoform	1	6.8	6.8	0.63	U
74-83-9	Bromomethane	1	6.8	6.8	1.3	U
75-15-0	Carbon Disulfide	1	6.8	6.8	0.46	U
56-23-5	Carbon Tetrachloride	1	6.8	6.8	0.92	U
108-90-7	Chlorobenzene	1	6.8	6.8	1.1	U
75-00-3	Chloroethane	1	27	27	1.1	U
67-66-3	Chloroform	1	6.8	6.8	0.31	U
74-87-3	Chloromethane	1	6.8	6.8	0.57	U
110-82-7	Cyclohexane	1	14	14	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.8	U
124-48-1	Dibromochloromethane	1	6.8	6.8	0.63	U
106-93-4	1,2-Dibromoethane	1	6.8	6.8	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.8	6.8	0.35	U
541-73-1	1,3-Dichlorobenzene	1	6.8	6.8	0.52	U
106-46-7	1,4-Dichlorobenzene	1	6.8	6.8	0.64	U
75-71-8	Dichlorodifluoromethane	1	6.8	6.8	0.48	U
75-34-3	1,1-Dichloroethane	1	6.8	6.8	0.42	U
107-06-2	1,2-Dichloroethane	1	6.8	6.8	0.49	U
75-35-4	1,1-Dichloroethene	1	6.8	6.8	0.96	U
156-59-2	cis-1,2-Dichloroethene	1	6.8	6.8	0.39	U
156-60-5	trans-1,2-Dichloroethene	1	6.8	6.8	1.1	U
78-87-5	1,2-Dichloropropane	1	6.8	6.8	0.50	U
10061-01-5	cis-1,3-Dichloropropene	1	6.8	6.8	0.57	U
10061-02-6	trans-1,3-Dichloropropene	1	6.8	6.8	0.41	U
100-41-4	Ethylbenzene	1	6.8	6.8	0.21	U
591-78-6	2-Hexanone	1	14	14	1.4	U
98-82-8	Isopropylbenzene	1	6.8	6.8	0.26	U
79-20-9	Methyl Acetate	1	27	27	3.3	U
1634-04-4	Methyl tert-Butyl Ether	1	6.8	6.8	0.66	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	27	27	1.7	U
78-93-3	2-Butanone (MEK)	1	27	27	3.1	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.24	U
100-42-5	Styrene	1	6.8	6.8	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.8	6.8	1.1	U
127-18-4	Tetrachloroethene	1	6.8	6.8	1.0	U
108-88-3	Toluene	1	6.8	6.8	0.81	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-06 File ID: 0908257-06.D

Sampled: 08/13/09 09:35 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 11:57

Solids: 85.63 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.3 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	27	27	0.53	U
120-82-1	1,2,4-Trichlorobenzene	1	6.8	6.8	0.97	U
71-55-6	1,1,1-Trichloroethane	1	6.8	6.8	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.8	6.8	1.2	U
79-01-6	Trichloroethene	1	6.8	6.8	0.59	U
75-69-4	Trichlorofluoromethane	1	6.8	6.8	0.42	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.8	6.8	0.71	U
75-01-4	Vinyl Chloride	1	6.8	6.8	0.35	U
1330-20-7	Xylene (Total)	1	6.8	6.8	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	40.9	102	78 - 121	
1,2-Dichloroethane-d4	40.0	42.5	106	66 - 124	
Toluene-d8	40.0	38.7	97	85 - 115	
4-Bromofluorobenzene	40.0	38.0	95	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	874685	4.28	947725	4.28	
Chlorobenzene-d5	606930	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	273452	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: 0908257-07A.D

Sampled: 08/13/09 10:15 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 16:17

Solids: 86.27 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.5 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	8.6	33	5.2	J B,V
71-43-2	Benzene	1	8.3	8.3	0.35	U
74-97-5	Bromochloromethane	1	33	33	0.73	U
75-27-4	Bromodichloromethane	1	8.3	8.3	1.4	U
75-25-2	Bromoform	1	8.3	8.3	0.76	U
74-83-9	Bromomethane	1	8.3	8.3	1.6	U
75-15-0	Carbon Disulfide	1	8.3	8.3	0.56	U
56-23-5	Carbon Tetrachloride	1	8.3	8.3	1.1	U
108-90-7	Chlorobenzene	1	8.3	8.3	1.3	U
75-00-3	Chloroethane	1	33	33	1.3	U
67-66-3	Chloroform	1	8.3	8.3	0.38	U
74-87-3	Chloromethane	1	8.3	8.3	0.69	U
110-82-7	Cyclohexane	1	17	17	1.4	U
96-12-8	1,2-Dibromo-3-chloropropane	1	17	17	3.4	U
124-48-1	Dibromochloromethane	1	8.3	8.3	0.77	U
106-93-4	1,2-Dibromoethane	1	8.3	8.3	1.4	U
95-50-1	1,2-Dichlorobenzene	1	8.3	8.3	0.43	U
541-73-1	1,3-Dichlorobenzene	1	8.3	8.3	0.64	U
106-46-7	1,4-Dichlorobenzene	1	8.3	8.3	0.78	U
75-71-8	Dichlorodifluoromethane	1	8.3	8.3	0.58	U
75-34-3	1,1-Dichloroethane	1	8.3	8.3	0.52	U
107-06-2	1,2-Dichloroethane	1	8.3	8.3	0.60	U
75-35-4	1,1-Dichloroethene	1	8.3	8.3	1.2	U
156-59-2	cis-1,2-Dichloroethene	1	8.3	8.3	0.47	U
156-60-5	trans-1,2-Dichloroethene	1	8.3	8.3	1.3	U
78-87-5	1,2-Dichloropropane	1	8.3	8.3	0.61	U
10061-01-5	cis-1,3-Dichloropropene	1	8.3	8.3	0.70	U
10061-02-6	trans-1,3-Dichloropropene	1	8.3	8.3	0.50	U
100-41-4	Ethylbenzene	1	8.3	8.3	0.25	U
591-78-6	2-Hexanone	1	17	17	1.7	U
98-82-8	Isopropylbenzene	1	8.3	8.3	0.32	U
79-20-9	Methyl Acetate	1	33	33	4.0	U
1634-04-4	Methyl tert-Butyl Ether	1	8.3	8.3	0.81	U
108-87-2	Methylcyclohexane	1	17	17	1.4	U
75-09-2	Methylene Chloride	1	33	33	2.1	U
78-93-3	2-Butanone (MEK)	1	33	33	3.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	17	17	0.30	U
100-42-5	Styrene	1	8.3	8.3	1.3	U
79-34-5	1,1,2,2-Tetrachloroethane	1	8.3	8.3	1.3	U
127-18-4	Tetrachloroethene	1	8.3	8.3	1.2	U
108-88-3	Toluene	1	8.3	8.3	0.99	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: 0908257-07A.D

Sampled: 08/13/09 10:15 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 16:17

Solids: 86.27 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.5 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	33	33	0.65	U
120-82-1	1,2,4-Trichlorobenzene	1	8.3	8.3	1.2	U
71-55-6	1,1,1-Trichloroethane	1	8.3	8.3	1.4	U
79-00-5	1,1,2-Trichloroethane	1	8.3	8.3	1.5	U
79-01-6	Trichloroethene	1	8.3	8.3	0.72	U
75-69-4	Trichlorofluoromethane	1	8.3	8.3	0.52	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	8.3	8.3	0.87	U
75-01-4	Vinyl Chloride	1	8.3	8.3	0.43	U
1330-20-7	Xylene (Total)	1	8.3	8.3	1.7	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	38.6	97	78 - 121	
1,2-Dichloroethane-d4	40.0	42.0	105	66 - 124	
Toluene-d8	40.0	38.7	97	85 - 115	
4-Bromofluorobenzene	40.0	36.6	92	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	854720	4.28	947725	4.28	
Chlorobenzene-d5	592182	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	244942	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: 0908257-08.D

Sampled: 08/13/09 10:25 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 13:02

Solids: 71.27 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	28	28	4.4	U
71-43-2	Benzene	1	7.0	7.0	0.29	U
74-97-5	Bromochloromethane	1	28	28	0.62	U
75-27-4	Bromodichloromethane	1	7.0	7.0	1.2	U
75-25-2	Bromoform	1	7.0	7.0	0.65	U
74-83-9	Bromomethane	1	7.0	7.0	1.4	U
75-15-0	Carbon Disulfide	1	7.0	7.0	0.48	U
56-23-5	Carbon Tetrachloride	1	7.0	7.0	0.95	U
108-90-7	Chlorobenzene	1	7.0	7.0	1.1	U
75-00-3	Chloroethane	1	28	28	1.1	U
67-66-3	Chloroform	1	7.0	7.0	0.32	U
74-87-3	Chloromethane	1	7.0	7.0	0.59	U
110-82-7	Cyclohexane	1	14	14	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.9	U
124-48-1	Dibromochloromethane	1	7.0	7.0	0.65	U
106-93-4	1,2-Dibromoethane	1	7.0	7.0	1.2	U
95-50-1	1,2-Dichlorobenzene	1	7.0	7.0	0.36	U
541-73-1	1,3-Dichlorobenzene	1	7.0	7.0	0.54	U
106-46-7	1,4-Dichlorobenzene	1	7.0	7.0	0.66	U
75-71-8	Dichlorodifluoromethane	1	7.0	7.0	0.49	U
75-34-3	1,1-Dichloroethane	1	7.0	7.0	0.44	U
107-06-2	1,2-Dichloroethane	1	7.0	7.0	0.51	U
75-35-4	1,1-Dichloroethene	1	7.0	7.0	0.99	U
156-59-2	cis-1,2-Dichloroethene	1	7.0	7.0	0.40	U
156-60-5	trans-1,2-Dichloroethene	1	7.0	7.0	1.1	U
78-87-5	1,2-Dichloropropane	1	7.0	7.0	0.52	U
10061-01-5	cis-1,3-Dichloropropene	1	7.0	7.0	0.59	U
10061-02-6	trans-1,3-Dichloropropene	1	7.0	7.0	0.42	U
100-41-4	Ethylbenzene	1	7.0	7.0	0.21	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	7.0	7.0	0.27	U
79-20-9	Methyl Acetate	1	28	28	3.4	U
1634-04-4	Methyl tert-Butyl Ether	1	7.0	7.0	0.68	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	28	28	1.8	U
78-93-3	2-Butanone (MEK)	1	28	28	3.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	7.0	7.0	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.0	7.0	1.1	U
127-18-4	Tetrachloroethene	1	7.0	7.0	1.0	U
108-88-3	Toluene	1	7.0	7.0	0.84	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: 0908257-08.D

Sampled: 08/13/09 10:25 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 13:02

Solids: 71.27 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	28	28	0.55	U
120-82-1	1,2,4-Trichlorobenzene	1	7.0	7.0	1.0	U
71-55-6	1,1,1-Trichloroethane	1	7.0	7.0	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.0	7.0	1.3	U
79-01-6	Trichloroethene	1	7.0	7.0	0.61	U
75-69-4	Trichlorofluoromethane	1	7.0	7.0	0.44	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.0	7.0	0.74	U
75-01-4	Vinyl Chloride	1	7.0	7.0	0.36	U
1330-20-7	Xylene (Total)	1	7.0	7.0	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.2	98	78 - 121	
1,2-Dichloroethane-d4	40.0	38.4	96	66 - 124	
Toluene-d8	40.0	38.5	96	85 - 115	
4-Bromofluorobenzene	40.0	34.0	85	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	805259	4.27	947725	4.28	
Chlorobenzene-d5	542531	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	200336	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: 0908257-09.D

Sampled: 08/13/09 00:00 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 13:35

Solids: 84.14 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.7	U
71-43-2	Benzene	1	5.9	5.9	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.53	U
75-27-4	Bromodichloromethane	1	5.9	5.9	1.0	U
75-25-2	Bromoform	1	5.9	5.9	0.55	U
74-83-9	Bromomethane	1	5.9	5.9	1.1	U
75-15-0	Carbon Disulfide	1	5.9	5.9	0.40	U
56-23-5	Carbon Tetrachloride	1	5.9	5.9	0.80	U
108-90-7	Chlorobenzene	1	5.9	5.9	0.94	U
75-00-3	Chloroethane	1	24	24	0.94	U
67-66-3	Chloroform	1	5.9	5.9	0.27	U
74-87-3	Chloromethane	1	5.9	5.9	0.50	U
110-82-7	Cyclohexane	1	12	12	0.98	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.4	U
124-48-1	Dibromochloromethane	1	5.9	5.9	0.55	U
106-93-4	1,2-Dibromoethane	1	5.9	5.9	0.98	U
95-50-1	1,2-Dichlorobenzene	1	5.9	5.9	0.31	U
541-73-1	1,3-Dichlorobenzene	1	5.9	5.9	0.46	U
106-46-7	1,4-Dichlorobenzene	1	5.9	5.9	0.56	U
75-71-8	Dichlorodifluoromethane	1	5.9	5.9	0.42	U
75-34-3	1,1-Dichloroethane	1	5.9	5.9	0.37	U
107-06-2	1,2-Dichloroethane	1	5.9	5.9	0.43	U
75-35-4	1,1-Dichloroethene	1	5.9	5.9	0.84	U
156-59-2	cis-1,2-Dichloroethene	1	5.9	5.9	0.34	U
156-60-5	trans-1,2-Dichloroethene	1	5.9	5.9	0.97	U
78-87-5	1,2-Dichloropropane	1	5.9	5.9	0.44	U
10061-01-5	cis-1,3-Dichloropropene	1	5.9	5.9	0.50	U
10061-02-6	trans-1,3-Dichloropropene	1	5.9	5.9	0.36	U
100-41-4	Ethylbenzene	1	5.9	5.9	0.18	U
591-78-6	2-Hexanone	1	12	12	1.2	U
98-82-8	Isopropylbenzene	1	5.9	5.9	0.23	U
79-20-9	Methyl Acetate	1	24	24	2.9	U
1634-04-4	Methyl tert-Butyl Ether	1	5.9	5.9	0.58	U
108-87-2	Methylcyclohexane	1	12	12	1.0	U
75-09-2	Methylene Chloride	1	24	24	1.5	U
78-93-3	2-Butanone (MEK)	1	24	24	2.7	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.21	U
100-42-5	Styrene	1	5.9	5.9	0.92	U
79-34-5	1,1,2,2-Tetrachloroethane	1	5.9	5.9	0.93	U
127-18-4	Tetrachloroethene	1	5.9	5.9	0.89	U
108-88-3	Toluene	1	5.9	5.9	0.71	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: 0908257-09.D

Sampled: 08/13/09 00:00 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 13:35

Solids: 84.14 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.46	U
120-82-1	1,2,4-Trichlorobenzene	1	5.9	5.9	0.85	U
71-55-6	1,1,1-Trichloroethane	1	5.9	5.9	0.99	U
79-00-5	1,1,2-Trichloroethane	1	5.9	5.9	1.1	U
79-01-6	Trichloroethene	1	5.9	5.9	0.52	U
75-69-4	Trichlorofluoromethane	1	5.9	5.9	0.37	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	5.9	5.9	0.62	U
75-01-4	Vinyl Chloride	1	5.9	5.9	0.31	U
1330-20-7	Xylene (Total)	1	5.9	5.9	1.2	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	37.9	95	78 - 121	
1,2-Dichloroethane-d4	40.0	37.8	95	66 - 124	
Toluene-d8	40.0	37.1	93	85 - 115	
4-Bromofluorobenzene	40.0	34.7	87	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	817367	4.28	947725	4.28	
Chlorobenzene-d5	535960	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	194915	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: 0908257-10.D

Sampled: 08/13/09 10:55 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 14:07

Solids: 87.13 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.7 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	31	31	4.8	U
71-43-2	Benzene	1	7.8	7.8	0.32	U
74-97-5	Bromochloromethane	1	31	31	0.69	U
75-27-4	Bromodichloromethane	1	7.8	7.8	1.4	U
75-25-2	Bromoform	1	7.8	7.8	0.72	U
74-83-9	Bromomethane	1	7.8	7.8	1.5	U
75-15-0	Carbon Disulfide	1	7.8	7.8	0.53	U
56-23-5	Carbon Tetrachloride	1	7.8	7.8	1.0	U
108-90-7	Chlorobenzene	1	7.8	7.8	1.2	U
75-00-3	Chloroethane	1	31	31	1.2	U
67-66-3	Chloroform	1	7.8	7.8	0.36	U
74-87-3	Chloromethane	1	7.8	7.8	0.65	U
110-82-7	Cyclohexane	1	16	16	1.3	U
96-12-8	1,2-Dibromo-3-chloropropane	1	16	16	3.2	U
124-48-1	Dibromochloromethane	1	7.8	7.8	0.72	U
106-93-4	1,2-Dibromoethane	1	7.8	7.8	1.3	U
95-50-1	1,2-Dichlorobenzene	1	7.8	7.8	0.40	U
541-73-1	1,3-Dichlorobenzene	1	7.8	7.8	0.60	U
106-46-7	1,4-Dichlorobenzene	1	7.8	7.8	0.73	U
75-71-8	Dichlorodifluoromethane	1	7.8	7.8	0.55	U
75-34-3	1,1-Dichloroethane	1	7.8	7.8	0.48	U
107-06-2	1,2-Dichloroethane	1	7.8	7.8	0.56	U
75-35-4	1,1-Dichloroethene	1	7.8	7.8	1.1	U
156-59-2	cis-1,2-Dichloroethene	1	7.8	7.8	0.44	U
156-60-5	trans-1,2-Dichloroethene	1	7.8	7.8	1.3	U
78-87-5	1,2-Dichloropropane	1	7.8	7.8	0.57	U
10061-01-5	cis-1,3-Dichloropropene	1	7.8	7.8	0.65	U
10061-02-6	trans-1,3-Dichloropropene	1	7.8	7.8	0.47	U
100-41-4	Ethylbenzene	1	7.8	7.8	0.24	U
591-78-6	2-Hexanone	1	16	16	1.6	U
98-82-8	Isopropylbenzene	1	7.8	7.8	0.30	U
79-20-9	Methyl Acetate	1	31	31	3.7	U
1634-04-4	Methyl tert-Butyl Ether	1	7.8	7.8	0.76	U
108-87-2	Methylcyclohexane	1	16	16	1.4	U
75-09-2	Methylene Chloride	1	31	31	1.9	U
78-93-3	2-Butanone (MEK)	1	31	31	3.6	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	16	16	0.28	U
100-42-5	Styrene	1	7.8	7.8	1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.8	7.8	1.2	U
127-18-4	Tetrachloroethene	1	7.8	7.8	1.2	U
108-88-3	Toluene	1	7.8	7.8	0.93	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: 0908257-10.D

Sampled: 08/13/09 10:55 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 14:07

Solids: 87.13 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.7 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	31	31	0.61	U
120-82-1	1,2,4-Trichlorobenzene	1	7.8	7.8	1.1	U
71-55-6	1,1,1-Trichloroethane	1	7.8	7.8	1.3	U
79-00-5	1,1,2-Trichloroethane	1	7.8	7.8	1.4	U
79-01-6	Trichloroethene	1	7.8	7.8	0.67	U
75-69-4	Trichlorofluoromethane	1	7.8	7.8	0.48	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.8	7.8	0.81	U
75-01-4	Vinyl Chloride	1	7.8	7.8	0.40	U
1330-20-7	Xylene (Total)	1	7.8	7.8	1.6	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.9	100	78 - 121	
1,2-Dichloroethane-d4	40.0	39.9	100	66 - 124	
Toluene-d8	40.0	38.0	95	85 - 115	
4-Bromofluorobenzene	40.0	35.0	88	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	770815	4.27	947725	4.28	
Chlorobenzene-d5	492935	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	153498	9.55	350029	9.55	*

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: 0908257-10.D

Sampled: 08/13/09 10:55 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 18:58

Solids: 87.13 Preparation: 5030B Aqueous Purge & Initial/Final: 4.5 g / 225 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	860	860	93	U
71-43-2	Benzene	1	57	57	16	U
74-97-5	Bromochloromethane	1	57	57	13	U
75-27-4	Bromodichloromethane	1	57	57	9.7	U
75-25-2	Bromoform	1	57	57	29	U
74-83-9	Bromomethane	1	57	57	35	U
75-15-0	Carbon Disulfide	1	290	290	16	U
56-23-5	Carbon Tetrachloride	1	57	57	13	U
108-90-7	Chlorobenzene	1	57	57	13	U
75-00-3	Chloroethane	1	76	76	26	U
67-66-3	Chloroform	1	57	57	13	U
74-87-3	Chloromethane	1	57	57	17	U
110-82-7	Cyclohexane	1	290	290	13	U
96-12-8	1,2-Dibromo-3-chloropropane	1	290	290	20	U
124-48-1	Dibromochloromethane	1	86	86	29	U
106-93-4	1,2-Dibromoethane	1	57	57	11	U
95-50-1	1,2-Dichlorobenzene	1	57	57	13	U
541-73-1	1,3-Dichlorobenzene	1	57	57	16	U
106-46-7	1,4-Dichlorobenzene	1	57	57	15	U
75-71-8	Dichlorodifluoromethane	1	57	57	11	U
75-34-3	1,1-Dichloroethane	1	57	57	14	U
107-06-2	1,2-Dichloroethane	1	57	57	9.9	U
75-35-4	1,1-Dichloroethene	1	57	57	17	U
156-59-2	cis-1,2-Dichloroethene	1	57	57	12	U
156-60-5	trans-1,2-Dichloroethene	1	59	59	19	U
78-87-5	1,2-Dichloropropane	1	57	57	12	U
10061-01-5	cis-1,3-Dichloropropene	1	57	57	10	U
10061-02-6	trans-1,3-Dichloropropene	1	57	57	8.0	U UJC
100-41-4	Ethylbenzene	1	57	57	17	U
591-78-6	2-Hexanone	1	2900	2900	30	U
98-82-8	Isopropylbenzene	1	57	57	16	U
79-20-9	Methyl Acetate	1	71	290	17	J
1634-04-4	Methyl tert-Butyl Ether	1	57	57	8.0	U
108-87-2	Methylcyclohexane	1	290	290	10	U
75-09-2	Methylene Chloride	1	80	290	12	J B,Z
78-93-3	2-Butanone (MEK)	1	2900	2900	29	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	2900	2900	27	U
100-42-5	Styrene	1	57	57	11	U
79-34-5	1,1,2,2-Tetrachloroethane	1	57	57	16	U
127-18-4	Tetrachloroethene	1	65	65	22	U
108-88-3	Toluene	1	57	57	17	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: 0908257-10.D

Sampled: 08/13/09 10:55 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 18:58

Solids: 87.13 Preparation: 5030B Aqueous Purge & Initial/Final: 4.5 g / 225 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	110	110	12	U
120-82-1	1,2,4-Trichlorobenzene	1	110	110	20	U
71-55-6	1,1,1-Trichloroethane	1	57	57	18	U
79-00-5	1,1,2-Trichloroethane	1	86	86	29	U
79-01-6	Trichloroethene	1	62	62	20	U
75-69-4	Trichlorofluoromethane	1	57	57	18	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	290	290	9.5	U
75-01-4	Vinyl Chloride	1	57	57	14	U
1330-20-7	Xylene (Total)	1	170	170	49	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	36.2	90	78 - 121	
1,2-Dichloroethane-d4	40.0	38.5	96	66 - 124	
Toluene-d8	40.0	39.6	99	85 - 115	
4-Bromofluorobenzene	40.0	38.5	96	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	675553	4.28	740105	4.28	
Chlorobenzene-d5	523791	7.27	539083	7.27	
1,4-Dichlorobenzene-d4	260351	9.55	287402	9.55	

* Values outside of QC limits

11/17/09

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-12 File ID: 0908257-12A.D

Sampled: 08/13/09 11:10 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 17:22

Solids: 87.50 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.1 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	28	28	4.3	U
71-43-2	Benzene	1	7.0	7.0	0.29	U
74-97-5	Bromochloromethane	1	28	28	0.62	U
75-27-4	Bromodichloromethane	1	7.0	7.0	1.2	U
75-25-2	Bromoform	1	7.0	7.0	0.64	U
74-83-9	Bromomethane	1	7.0	7.0	1.3	U
75-15-0	Carbon Disulfide	1	7.0	7.0	0.47	U
56-23-5	Carbon Tetrachloride	1	7.0	7.0	0.94	U
108-90-7	Chlorobenzene	1	7.0	7.0	1.1	U
75-00-3	Chloroethane	1	28	28	1.1	U
67-66-3	Chloroform	1	7.0	7.0	0.32	U
74-87-3	Chloromethane	1	7.0	7.0	0.58	U
110-82-7	Cyclohexane	1	14	14	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.9	U
124-48-1	Dibromochloromethane	1	7.0	7.0	0.65	U
106-93-4	1,2-Dibromoethane	1	7.0	7.0	1.1	U
95-50-1	1,2-Dichlorobenzene	1	7.0	7.0	0.36	U
541-73-1	1,3-Dichlorobenzene	1	7.0	7.0	0.54	U
106-46-7	1,4-Dichlorobenzene	1	7.0	7.0	0.66	U
75-71-8	Dichlorodifluoromethane	1	7.0	7.0	0.49	U
75-34-3	1,1-Dichloroethane	1	7.0	7.0	0.43	U
107-06-2	1,2-Dichloroethane	1	7.0	7.0	0.51	U
75-35-4	1,1-Dichloroethene	1	7.0	7.0	0.99	U
156-59-2	cis-1,2-Dichloroethene	1	7.0	7.0	0.40	U
156-60-5	trans-1,2-Dichloroethene	1	7.0	7.0	1.1	U
78-87-5	1,2-Dichloropropane	1	7.0	7.0	0.51	U
10061-01-5	cis-1,3-Dichloropropene	1	7.0	7.0	0.59	U
10061-02-6	trans-1,3-Dichloropropene	1	7.0	7.0	0.42	U
100-41-4	Ethylbenzene	1	7.0	7.0	0.21	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	7.0	7.0	0.27	U
79-20-9	Methyl Acetate	1	28	28	3.3	U
1634-04-4	Methyl tert-Butyl Ether	1	7.0	7.0	0.68	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	28	28	1.7	U
78-93-3	2-Butanone (MEK)	1	28	28	3.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	7.0	7.0	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.0	7.0	1.1	U
127-18-4	Tetrachloroethene	1	7.0	7.0	1.0	U
108-88-3	Toluene	1	7.0	7.0	0.84	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-12 File ID: 0908257-12A.D

Sampled: 08/13/09 11:10 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 17:22

Solids: 87.50 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.1 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	28	28	0.54	U
120-82-1	1,2,4-Trichlorobenzene	1	7.0	7.0	0.99	U
71-55-6	1,1,1-Trichloroethane	1	7.0	7.0	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.0	7.0	1.3	U
79-01-6	Trichloroethene	1	7.0	7.0	0.60	U
75-69-4	Trichlorofluoromethane	1	7.0	7.0	0.43	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.0	7.0	0.73	U
75-01-4	Vinyl Chloride	1	7.0	7.0	0.36	U
1330-20-7	Xylene (Total)	1	7.0	7.0	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	35.2	88	78 - 121	
1,2-Dichloroethane-d4	40.0	38.0	95	66 - 124	
Toluene-d8	40.0	37.8	94	85 - 115	
4-Bromofluorobenzene	40.0	34.6	87	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	870635	4.28	947725	4.28	
Chlorobenzene-d5	528914	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	223877	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-13 File ID: 0908257-13.D

Sampled: 08/13/09 11:25 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 15:11

Solids: 87.76 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.2 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	27	27	4.2	U
71-43-2	Benzene	1	6.8	6.8	0.28	U
74-97-5	Bromochloromethane	1	27	27	0.60	U
75-27-4	Bromodichloromethane	1	6.8	6.8	1.2	U
75-25-2	Bromoform	1	6.8	6.8	0.63	U
74-83-9	Bromomethane	1	6.8	6.8	1.3	U
75-15-0	Carbon Disulfide	1	6.8	6.8	0.46	U
56-23-5	Carbon Tetrachloride	1	6.8	6.8	0.92	U
108-90-7	Chlorobenzene	1	6.8	6.8	1.1	U
75-00-3	Chloroethane	1	27	27	1.1	U
67-66-3	Chloroform	1	6.8	6.8	0.31	U
74-87-3	Chloromethane	1	6.8	6.8	0.57	U
110-82-7	Cyclohexane	1	14	14	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.8	U
124-48-1	Dibromochloromethane	1	6.8	6.8	0.63	U
106-93-4	1,2-Dibromoethane	1	6.8	6.8	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.8	6.8	0.35	U
541-73-1	1,3-Dichlorobenzene	1	6.8	6.8	0.52	U
106-46-7	1,4-Dichlorobenzene	1	6.8	6.8	0.64	U
75-71-8	Dichlorodifluoromethane	1	6.8	6.8	0.48	U
75-34-3	1,1-Dichloroethane	1	6.8	6.8	0.42	U
107-06-2	1,2-Dichloroethane	1	6.8	6.8	0.49	U
75-35-4	1,1-Dichloroethene	1	6.8	6.8	0.96	U
156-59-2	cis-1,2-Dichloroethene	1	6.8	6.8	0.39	U
156-60-5	trans-1,2-Dichloroethene	1	6.8	6.8	1.1	U
78-87-5	1,2-Dichloropropane	1	6.8	6.8	0.50	U
10061-01-5	cis-1,3-Dichloropropene	1	6.8	6.8	0.57	U
10061-02-6	trans-1,3-Dichloropropene	1	6.8	6.8	0.41	U
100-41-4	Ethylbenzene	1	6.8	6.8	0.21	U
591-78-6	2-Hexanone	1	14	14	1.4	U
98-82-8	Isopropylbenzene	1	6.8	6.8	0.26	U
79-20-9	Methyl Acetate	1	27	27	3.3	U
1634-04-4	Methyl tert-Butyl Ether	1	6.8	6.8	0.66	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	27	27	1.7	U
78-93-3	2-Butanone (MEK)	1	27	27	3.1	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.24	U
100-42-5	Styrene	1	6.8	6.8	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.8	6.8	1.1	U
127-18-4	Tetrachloroethene	1	6.8	6.8	1.0	U
108-88-3	Toluene	1	6.8	6.8	0.81	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-13 File ID: 0908257-13.D

Sampled: 08/13/09 11:25 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 15:11

Solids: 87.76 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.2 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	27	27	0.53	U
120-82-1	1,2,4-Trichlorobenzene	1	6.8	6.8	0.96	U
71-55-6	1,1,1-Trichloroethane	1	6.8	6.8	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.8	6.8	1.2	U
79-01-6	Trichloroethene	1	6.8	6.8	0.59	U
75-69-4	Trichlorofluoromethane	1	6.8	6.8	0.42	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.8	6.8	0.71	U
75-01-4	Vinyl Chloride	1	6.8	6.8	0.35	U
1330-20-7	Xylene (Total)	1	6.8	6.8	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	37.9	95	78 - 121	
1,2-Dichloroethane-d4	40.0	40.0	100	66 - 124	
Toluene-d8	40.0	37.9	95	85 - 115	
4-Bromofluorobenzene	40.0	37.6	94	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	823948	4.28	947725	4.28	
Chlorobenzene-d5	569740	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	251065	9.55	350029	9.55	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: 0908257-14.D

Sampled: 08/13/09 13:20 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 15:45

Solids: 76.09 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.4 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	24	24	3.8	UJ,5 U
71-43-2	Benzene	1	6.1	6.1	0.25	U
74-97-5	Bromochloromethane	1	24	24	0.54	U
75-27-4	Bromodichloromethane	1	6.1	6.1	1.1	U
75-25-2	Bromoform	1	6.1	6.1	0.56	U
74-83-9	Bromomethane	1	6.1	6.1	1.2	U
75-15-0	Carbon Disulfide	1	6.1	6.1	0.41	U
56-23-5	Carbon Tetrachloride	1	6.1	6.1	0.82	U
108-90-7	Chlorobenzene	1	6.1	6.1	0.96	U
75-00-3	Chloroethane	1	24	24	0.96	U
67-66-3	Chloroform	1	6.1	6.1	0.28	U
74-87-3	Chloromethane	1	6.1	6.1	0.51	U
110-82-7	Cyclohexane	1	12	12	1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	1	12	12	2.5	U UJ,5
124-48-1	Dibromochloromethane	1	6.1	6.1	0.57	UJ,5 U
106-93-4	1,2-Dibromoethane	1	6.1	6.1	1.0	U
95-50-1	1,2-Dichlorobenzene	1	6.1	6.1	0.32	U UJ,5
541-73-1	1,3-Dichlorobenzene	1	6.1	6.1	0.47	U UJ,5
106-46-7	1,4-Dichlorobenzene	1	6.1	6.1	0.57	U UJ,5
75-71-8	Dichlorodifluoromethane	1	6.1	6.1	0.43	UJ,5 U
75-34-3	1,1-Dichloroethane	1	6.1	6.1	0.38	U
107-06-2	1,2-Dichloroethane	1	6.1	6.1	0.44	U
75-35-4	1,1-Dichloroethene	1	6.1	6.1	0.86	U
156-59-2	cis-1,2-Dichloroethene	1	6.1	6.1	0.35	U
156-60-5	trans-1,2-Dichloroethene	1	6.1	6.1	0.99	U
78-87-5	1,2-Dichloropropane	1	6.1	6.1	0.45	U
10061-01-5	cis-1,3-Dichloropropene	1	6.1	6.1	0.51	U
10061-02-6	trans-1,3-Dichloropropene	1	6.1	6.1	0.37	U
100-41-4	Ethylbenzene	1	6.1	6.1	0.19	U
591-78-6	2-Hexanone	1	12	12	1.3	U
98-82-8	Isopropylbenzene	1	6.1	6.1	0.24	U UJ,5
79-20-9	Methyl Acetate	1	24	24	2.9	UJ,5 U
1634-04-4	Methyl tert-Butyl Ether	1	6.1	6.1	0.59	U
108-87-2	Methylcyclohexane	1	12	12	1.1	U
75-09-2	Methylene Chloride	1	24	24	1.5	U
78-93-3	2-Butanone (MEK)	1	24	24	2.8	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	12	12	0.22	U
100-42-5	Styrene	1	6.1	6.1	0.95	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.1	6.1	0.95	U UJ,5
127-18-4	Tetrachloroethene	1	6.1	6.1	0.91	UJ,5 U
108-88-3	Toluene	1	6.1	6.1	0.73	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: 0908257-14.D

Sampled: 08/13/09 13:20 Prepared: 08/18/09 06:00 Analyzed: 08/18/09 15:45

Solids: 76.09 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.4 g / 5 mL

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	24	24	0.48	U UJ
120-82-1	1,2,4-Trichlorobenzene	1	6.1	6.1	0.87	U UJ
71-55-6	1,1,1-Trichloroethane	1	6.1	6.1	1.0	UJ U
79-00-5	1,1,2-Trichloroethane	1	6.1	6.1	1.1	U
79-01-6	Trichloroethene	1	6.1	6.1	0.53	U
75-69-4	Trichlorofluoromethane	1	6.1	6.1	0.38	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.1	6.1	0.64	U
75-01-4	Vinyl Chloride	1	6.1	6.1	0.31	U
1330-20-7	Xylene (Total)	1	6.1	6.1	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	39.0	98	78 - 121	
1,2-Dichloroethane-d4	40.0	40.1	100	66 - 124	
Toluene-d8	40.0	37.2	93	85 - 115	
4-Bromofluorobenzene	40.0	31.7	79	85 - 120	*

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	837134	4.28	947725	4.28	
Chlorobenzene-d5	535093	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	165615	9.55	350029	9.55	*

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: 0908257-14.D

Sampled: 08/13/09 13:20 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 19:26

Solids: 76.09 Preparation: 5030B Aqueous Purge & Initial/Final: 5.5 g / 275 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	990	990	110	U
71-43-2	Benzene	1	66	66	19	U
74-97-5	Bromochloromethane	1	66	66	14	U
75-27-4	Bromodichloromethane	1	66	66	11	U
75-25-2	Bromoform	1	66	66	33	U
74-83-9	Bromomethane	1	66	66	40	U
75-15-0	Carbon Disulfide	1	330	330	19	U
56-23-5	Carbon Tetrachloride	1	66	66	14	U
108-90-7	Chlorobenzene	1	66	66	15	U
75-00-3	Chloroethane	1	87	87	30	U
67-66-3	Chloroform	1	66	66	15	U
74-87-3	Chloromethane	1	66	66	20	U
110-82-7	Cyclohexane	1	330	330	15	U
96-12-8	1,2-Dibromo-3-chloropropane	1	330	330	23	U
124-48-1	Dibromochloromethane	1	99	99	33	U
106-93-4	1,2-Dibromoethane	1	66	66	12	U
95-50-1	1,2-Dichlorobenzene	1	66	66	15	U
541-73-1	1,3-Dichlorobenzene	1	66	66	18	U
106-46-7	1,4-Dichlorobenzene	1	66	66	18	U
75-71-8	Dichlorodifluoromethane	1	66	66	12	U
75-34-3	1,1-Dichloroethane	1	66	66	16	U
107-06-2	1,2-Dichloroethane	1	66	66	11	U
75-35-4	1,1-Dichloroethene	1	66	66	19	U
156-59-2	cis-1,2-Dichloroethene	1	66	66	14	U
156-60-5	trans-1,2-Dichloroethene	1	67	67	22	U
78-87-5	1,2-Dichloropropane	1	66	66	14	U
10061-01-5	cis-1,3-Dichloropropene	1	66	66	12	U
10061-02-6	trans-1,3-Dichloropropene	1	66	66	9.2	U V1,C
100-41-4	Ethylbenzene	1	66	66	20	U
591-78-6	2-Hexanone	1	3300	3300	34	U
98-82-8	Isopropylbenzene	1	66	66	18	U
79-20-9	Methyl Acetate	1	60	330	19	J
1634-04-4	Methyl tert-Butyl Ether	1	66	66	9.1	U
108-87-2	Methylcyclohexane	1	330	330	12	U
75-09-2	Methylene Chloride	1	85	330	13	J B2
78-93-3	2-Butanone (MEK)	1	3300	3300	33	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	3300	3300	31	U
100-42-5	Styrene	1	66	66	12	U
79-34-5	1,1,2,2-Tetrachloroethane	1	66	66	18	U
127-18-4	Tetrachloroethene	1	75	75	25	U
108-88-3	Toluene	1	66	66	19	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: 0908257-14.D

Sampled: 08/13/09 13:20 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 19:26

Solids: 76.09 Preparation: 5030B Aqueous Purge & Initial/Final: 5.5 g / 275 mL

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009 Instrument: 323

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	130	130	14	U
120-82-1	1,2,4-Trichlorobenzene	1	130	130	23	U
71-55-6	1,1,1-Trichloroethane	1	66	66	21	U
79-00-5	1,1,2-Trichloroethane	1	99	99	33	U
79-01-6	Trichloroethene	1	71	71	23	U
75-69-4	Trichlorofluoromethane	1	66	66	20	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	330	330	11	U
75-01-4	Vinyl Chloride	1	66	66	16	U
1330-20-7	Xylene (Total)	1	200	200	56	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	36.0	90	78 - 121	
1,2-Dichloroethane-d4	40.0	39.2	98	66 - 124	
Toluene-d8	40.0	40.1	100	85 - 115	
4-Bromofluorobenzene	40.0	38.9	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	676007	4.28	740105	4.28	
Chlorobenzene-d5	517799	7.27	539083	7.27	
1,4-Dichlorobenzene-d4	261259	9.55	287402	9.55	

* Values outside of QC limits

11/17/09

023174

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: 25715.D

Sampled: 08/13/09 12:00 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 14:36

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
67-64-1	Acetone	1	20	20	2.5	U
71-43-2	Benzene	1	1.0	1.0	0.088	U
74-97-5	Bromochloromethane	1	1.0	1.0	0.17	U
75-27-4	Bromodichloromethane	1	1.0	1.0	0.12	U
75-25-2	Bromoform	1	2.0	2.0	0.47	U
74-83-9	Bromomethane	1	1.0	1.0	0.15	U
75-15-0	Carbon Disulfide	1	5.0	5.0	0.20	U
56-23-5	Carbon Tetrachloride	1	1.0	1.0	0.16	U
108-90-7	Chlorobenzene	1	1.0	1.0	0.11	U
75-00-3	Chloroethane	1	1.0	1.0	0.13	U
67-66-3	Chloroform	1	2.6	1.0	0.074	
74-87-3	Chloromethane	1	0.38	1.0	0.12	J
110-82-7	Cyclohexane	1	5.0	5.0	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	1	5.0	5.0	0.29	U
124-48-1	Dibromochloromethane	1	1.0	1.0	0.15	U
106-93-4	1,2-Dibromoethane	1	1.0	1.0	0.16	U
95-50-1	1,2-Dichlorobenzene	1	1.0	1.0	0.11	U
541-73-1	1,3-Dichlorobenzene	1	1.0	1.0	0.090	U
106-46-7	1,4-Dichlorobenzene	1	1.0	1.0	0.13	U
75-71-8	Dichlorodifluoromethane	1	1.0	1.0	0.13	U
75-34-3	1,1-Dichloroethane	1	1.0	1.0	0.092	U
107-06-2	1,2-Dichloroethane	1	1.0	1.0	0.096	U
75-35-4	1,1-Dichloroethene	1	1.0	1.0	0.17	U
156-59-2	cis-1,2-Dichloroethene	1	1.0	1.0	0.074	U
156-60-5	trans-1,2-Dichloroethene	1	1.0	1.0	0.086	U
78-87-5	1,2-Dichloropropane	1	1.0	1.0	0.16	U
10061-01-5	cis-1,3-Dichloropropene	1	1.0	1.0	0.076	U
10061-02-6	trans-1,3-Dichloropropene	1	1.0	1.0	0.078	U
100-41-4	Ethylbenzene	1	1.0	1.0	0.10	U
591-78-6	2-Hexanone	1	10	10	0.50	U
98-82-8	Isopropylbenzene	1	1.0	1.0	0.076	U
79-20-9	Methyl Acetate	1	5.0	5.0	0.17	U
1634-04-4	Methyl tert-Butyl Ether	1	1.0	1.0	0.11	U
108-87-2	Methylcyclohexane	1	5.0	5.0	0.081	U
75-09-2	Methylene Chloride	1	5.0	5.0	0.18	U
78-93-3	2-Butanone (MEK)	1	10	10	0.27	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	10	10	0.36	U
100-42-5	Styrene	1	1.0	1.0	0.036	U
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	1.0	0.12	U
127-18-4	Tetrachloroethene	1	1.0	1.0	0.10	U
108-88-3	Toluene	1	1.0	1.0	0.22	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: 25715.D

Sampled: 08/13/09 12:00 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 14:36

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	2.0	2.0	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	2.0	2.0	0.13	U
71-55-6	1,1,1-Trichloroethane	1	1.0	1.0	0.12	U
79-00-5	1,1,2-Trichloroethane	1	1.0	1.0	0.16	U
79-01-6	Trichloroethene	1	1.0	1.0	0.13	U
75-69-4	Trichlorofluoromethane	1	1.0	1.0	0.11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	1.0	1.0	0.12	U
75-01-4	Vinyl Chloride	1	1.0	1.0	0.062	U
1330-20-7	Xylene (Total)	1	3.0	3.0	0.20	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	42.0	105	85 - 115	
1,2-Dichloroethane-d4	40.0	44.4	111	70 - 120	
Toluene-d8	40.0	41.2	103	85 - 120	
4-Bromofluorobenzene	40.0	37.5	94	75 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	711107	5.14	951014	5.14	
Chlorobenzene-d5	592611	8.08	748999	8.08	
1,4-Dichlorobenzene-d4	317354	10.38	460871	10.38	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

Trip Blank

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-16 File ID: 25716.D

Sampled: 08/13/09 12:00 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 15:04

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
67-64-1	Acetone	1	5.2	20	2.5	J
71-43-2	Benzene	1	1.0	1.0	0.088	U
74-97-5	Bromochloromethane	1	1.0	1.0	0.17	U
75-27-4	Bromodichloromethane	1	1.0	1.0	0.12	U
75-25-2	Bromoform	1	2.0	2.0	0.47	U
74-83-9	Bromomethane	1	1.0	1.0	0.15	U
75-15-0	Carbon Disulfide	1	5.0	5.0	0.20	U
56-23-5	Carbon Tetrachloride	1	1.0	1.0	0.16	U
108-90-7	Chlorobenzene	1	1.0	1.0	0.11	U
75-00-3	Chloroethane	1	1.0	1.0	0.13	U
67-66-3	Chloroform	1	1.0	1.0	0.074	U
74-87-3	Chloromethane	1	1.0	1.0	0.12	U
110-82-7	Cyclohexane	1	5.0	5.0	0.11	U
96-12-8	1,2-Dibromo-3-chloropropane	1	5.0	5.0	0.29	U
124-48-1	Dibromochloromethane	1	1.0	1.0	0.15	U
106-93-4	1,2-Dibromoethane	1	1.0	1.0	0.16	U
95-50-1	1,2-Dichlorobenzene	1	1.0	1.0	0.11	U
541-73-1	1,3-Dichlorobenzene	1	1.0	1.0	0.090	U
106-46-7	1,4-Dichlorobenzene	1	1.0	1.0	0.13	U
75-71-8	Dichlorodifluoromethane	1	1.0	1.0	0.13	U
75-34-3	1,1-Dichloroethane	1	1.0	1.0	0.092	U
107-06-2	1,2-Dichloroethane	1	1.0	1.0	0.096	U
75-35-4	1,1-Dichloroethene	1	1.0	1.0	0.17	U
156-59-2	cis-1,2-Dichloroethene	1	1.0	1.0	0.074	U
156-60-5	trans-1,2-Dichloroethene	1	1.0	1.0	0.086	U
78-87-5	1,2-Dichloropropane	1	1.0	1.0	0.16	U
10061-01-5	cis-1,3-Dichloropropene	1	1.0	1.0	0.076	U
10061-02-6	trans-1,3-Dichloropropene	1	1.0	1.0	0.078	U
100-41-4	Ethylbenzene	1	1.0	1.0	0.10	U
591-78-6	2-Hexanone	1	10	10	0.50	U
98-82-8	Isopropylbenzene	1	1.0	1.0	0.076	U
79-20-9	Methyl Acetate	1	5.0	5.0	0.17	U
1634-04-4	Methyl tert-Butyl Ether	1	1.0	1.0	0.11	U
108-87-2	Methylcyclohexane	1	5.0	5.0	0.081	U
75-09-2	Methylene Chloride	1	5.0	5.0	0.18	U
78-93-3	2-Butanone (MEK)	1	10	10	0.27	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	10	10	0.36	U
100-42-5	Styrene	1	1.0	1.0	0.036	U
79-34-5	1,1,2,2-Tetrachloroethane	1	1.0	1.0	0.12	U
127-18-4	Tetrachloroethene	1	1.0	1.0	0.10	U
108-88-3	Toluene	1	1.0	1.0	0.22	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

Trip Blank

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-16 File ID: 25716.D

Sampled: 08/13/09 12:00 Prepared: 08/20/09 08:00 Analyzed: 08/20/09 15:04

Solids: Preparation: 5030B Aqueous Purge & Initial/Final: 5 mL / 5 mL

QC Batch: 0909811 Sequence: 9H20066 Calibration: 9H20010 Instrument: 224

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	2.0	2.0	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	2.0	2.0	0.13	U
71-55-6	1,1,1-Trichloroethane	1	1.0	1.0	0.12	U
79-00-5	1,1,2-Trichloroethane	1	1.0	1.0	0.16	U
79-01-6	Trichloroethene	1	1.0	1.0	0.13	U
75-69-4	Trichlorofluoromethane	1	1.0	1.0	0.11	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	1.0	1.0	0.12	U
75-01-4	Vinyl Chloride	1	1.0	1.0	0.062	U
1330-20-7	Xylene (Total)	1	3.0	3.0	0.20	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	40.7	102	85 - 115	
1,2-Dichloroethane-d4	40.0	42.7	107	70 - 120	
Toluene-d8	40.0	40.3	101	85 - 120	
4-Bromofluorobenzene	40.0	37.8	95	75 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	737910	5.14	951014	5.14	
Chlorobenzene-d5	595458	8.08	748999	8.08	
1,4-Dichlorobenzene-d4	322045	10.38	460871	10.38	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-01 File ID: 0908257-01.D

Sampled: 08/13/09 08:25 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 16:20

Solids: 86.69 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.90	U
208-96-8	Acenaphthylene	1	20	20	1.9	U
98-86-2	Acetophenone	1	200	200	4.3	U
120-12-7	Anthracene	1	20	20	2.9	U
1912-24-9	Atrazine	1	200	200	5.1	U
100-52-7	Benzaldehyde	1	200	200	7.1	U R,1
56-55-3	Benzo(a)anthracene	1	5.8	20	1.3	J
50-32-8	Benzo(a)pyrene	1	4.2	20	1.6	J
205-99-2	Benzo(b)fluoranthene	1	5.8	20	3.4	J
207-08-9	Benzo(k)fluoranthene	1	3.8	20	1.5	J
191-24-2	Benzo(g,h,i)perylene	1	3.5	77	1.1	J
92-52-4	1,1'-Biphenyl	1	200	200	0.95	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	200	200	5.7	U
105-60-2	Caprolactam	1	380	380	15	U
86-74-8	Carbazole	1	380	380	96	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.8	U
106-47-8	4-Chloroaniline	1	200	200	8.2	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.7	U
91-58-7	2-Chloronaphthalene	1	200	200	2.5	U
95-57-8	2-Chlorophenol	1	200	200	4.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	3.9	U
218-01-9	Chrysene	1	5.8	20	4.0	J
53-70-3	Dibenz(a,h)anthracene	1	77	77	8.9	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	31	200	29	JB B,2
91-94-1	3,3'-Dichlorobenzidine	1	280	280	32	U
120-83-2	2,4-Dichlorophenol	1	200	200	3.9	U
84-66-2	Diethyl Phthalate	1	200	200	4.0	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.7	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	23	U
51-28-5	2,4-Dinitrophenol	1	380	380	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.6	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.1	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	10	200	5.4	J B,2
206-44-0	Fluoranthene	1	8.1	20	0.88	J
86-73-7	Fluorene	1	38	38	7.9	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-01 File ID: 0908257-01.D

Sampled: 08/13/09 08:25 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 16:20

Solids: 86.69 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	4.9	U
87-68-3	Hexachlorobutadiene	1	200	200	4.0	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.3	U
67-72-1	Hexachloroethane	1	200	200	2.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	77	77	4.2	U
78-59-1	Isophorone	1	200	200	7.2	U
91-57-6	2-Methylnaphthalene	1	5.0	200	0.52	J
95-48-7	2-Methylphenol	1	200	200	5.5	U
106-44-5	4-Methylphenol	1	200	200	5.1	U
91-20-3	Naphthalene	1	2.7	20	2.4	J
88-74-4	2-Nitroaniline	1	200	200	8.2	U
99-09-2	3-Nitroaniline	1	200	200	8.2	U
100-01-6	4-Nitroaniline	1	200	200	1.8	U
98-95-3	Nitrobenzene	1	200	200	5.9	U
100-02-7	4-Nitrophenol	1	770	770	150	U
88-75-5	2-Nitrophenol	1	200	200	7.6	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.5	U
87-86-5	Pentachlorophenol	1	380	380	51	U
85-01-8	Phenanthrene	1	6.2	20	1.2	J
108-95-2	Phenol	1	200	200	52	U
129-00-0	Pyrene	1	10	20	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	769	608	79	35 - 105	
Phenol-d6	773	595	77	40 - 100	
Nitrobenzene-d5	383	292	76	35 - 100	
2-Fluorobiphenyl	388	245	63	45 - 105	
2,4,6-Tribromophenol	769	402	52	35 - 125	
o-Terphenyl	385	236	62	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	275675	7.83	162142	8.052	
Naphthalene-d8	1120132	10.552	631706	10.803	
Acenaphthene-d10	595475	14.667	345886	14.941	
Phenanthrene-d10	810354	18.066	512675	18.281	
Chrysene-d12	810899	21.638	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: 0908257-02.D

Sampled: 08/13/09 08:40 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 16:54

Solids: 74.39 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	23	23	1.0	U
208-96-8	Acenaphthylene	1	23	23	2.2	U
98-86-2	Acetophenone	1	230	230	5.0	U
120-12-7	Anthracene	1	23	23	3.4	U
1912-24-9	Atrazine	1	230	230	6.0	U
100-52-7	Benzaldehyde	1	230	230	8.3	U R,1
56-55-3	Benzo(a)anthracene	1	23	23	1.5	U
50-32-8	Benzo(a)pyrene	1	23	23	1.9	U
205-99-2	Benzo(b)fluoranthene	1	23	23	3.9	U
207-08-9	Benzo(k)fluoranthene	1	23	23	1.7	U
191-24-2	Benzo(g,h,i)perylene	1	90	90	1.3	U
92-52-4	1,1'-Biphenyl	1	230	230	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	230	230	2.0	U
85-68-7	Butyl Benzyl Phthalate	1	230	230	6.6	U
105-60-2	Caprolactam	1	440	440	17	U
86-74-8	Carbazole	1	440	440	110	U
59-50-7	4-Chloro-3-methylphenol	1	230	230	4.4	U
106-47-8	4-Chloroaniline	1	230	230	9.5	U
111-91-1	Bis(2-chloroethoxy)methane	1	230	230	1.7	U
111-44-4	Bis(2-chloroethyl) Ether	1	230	230	2.5	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	230	230	8.9	U
91-58-7	2-Chloronaphthalene	1	230	230	2.9	U
95-57-8	2-Chlorophenol	1	230	230	5.1	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	230	230	4.5	U
218-01-9	Chrysene	1	23	23	4.7	U
53-70-3	Dibenz(a,h)anthracene	1	90	90	10	U
132-64-9	Dibenzofuran	1	230	230	12	U
84-74-2	Di-n-butyl Phthalate	1	230	230	33	U
91-94-1	3,3´-Dichlorobenzidine	1	320	320	37	U
120-83-2	2,4-Dichlorophenol	1	230	230	4.5	U
84-66-2	Diethyl Phthalate	1	230	230	4.7	U
105-67-9	2,4-Dimethylphenol	1	230	230	2.0	U
131-11-3	Dimethyl Phthalate	1	230	230	1.2	U
534-52-1	4,6-Dinitro-2-methylphenol	1	230	230	27	U
51-28-5	2,4-Dinitrophenol	1	440	440	140	U
121-14-2	2,4-Dinitrotoluene	1	230	230	25	U
606-20-2	2,6-Dinitrotoluene	1	230	230	3.1	U
117-84-0	Di-n-octyl Phthalate	1	230	230	7.2	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	8.1	230	6.3	J B,Z
206-44-0	Fluoranthene	1	23	23	1.0	U
86-73-7	Fluorene	1	44	44	9.2	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: 0908257-02.D

Sampled: 08/13/09 08:40 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 16:54

Solids: 74.39 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	230	230	5.7	U
87-68-3	Hexachlorobutadiene	1	230	230	4.6	U
77-47-4	Hexachlorocyclopentadiene	1	230	230	2.7	U
67-72-1	Hexachloroethane	1	230	230	3.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	90	90	4.9	U
78-59-1	Isophorone	1	230	230	8.3	U
91-57-6	2-Methylnaphthalene	1	230	230	0.61	U
95-48-7	2-Methylphenol	1	230	230	6.4	U
106-44-5	4-Methylphenol	1	230	230	6.0	U
91-20-3	Naphthalene	1	23	23	2.8	U
88-74-4	2-Nitroaniline	1	230	230	9.5	U
99-09-2	3-Nitroaniline	1	230	230	9.5	U
100-01-6	4-Nitroaniline	1	230	230	2.2	U
98-95-3	Nitrobenzene	1	230	230	6.9	U
100-02-7	4-Nitrophenol	1	900	900	180	U
88-75-5	2-Nitrophenol	1	230	230	8.9	U
86-30-6	N-Nitroso-diphenylamine	1	230	230	13	U
621-64-7	N-Nitroso-di-n-propylamine	1	230	230	7.5	U
87-86-5	Pentachlorophenol	1	440	440	59	U
85-01-8	Phenanthrene	1	23	23	1.4	U
108-95-2	Phenol	1	230	230	60	U
129-00-0	Pyrene	1	23	23	1.6	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	230	230	2.8	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	230	230	13	U
88-06-2	2,4,6-Trichlorophenol	1	230	230	2.7	U
95-95-4	2,4,5-Trichlorophenol	1	230	230	3.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	896	707	79	35 - 105	
Phenol-d6	901	681	76	40 - 100	
Nitrobenzene-d5	446	332	75	35 - 100	
2-Fluorobiphenyl	453	269	60	45 - 105	
2,4,6-Tribromophenol	896	493	55	35 - 125	
o-Terphenyl	448	280	62	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	262372	7.83	162142	8.052	
Naphthalene-d8	1072545	10.552	631706	10.803	
Acenaphthene-d10	574115	14.667	345886	14.941	
Phenanthrene-d10	773320	18.065	512675	18.281	
Chrysene-d12	904271	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: 0908257-03.D

Sampled: 08/13/09 00:00 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 17:29

Solids: 74.78 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	23	23	1.0	U
208-96-8	Acenaphthylene	1	23	23	2.2	U
98-86-2	Acetophenone	1	230	230	4.9	U
120-12-7	Anthracene	1	23	23	3.4	U
1912-24-9	Atrazine	1	230	230	6.0	U
100-52-7	Benzaldehyde	1	230	230	8.3	U R,1
56-55-3	Benzo(a)anthracene	1	23	23	1.5	U
50-32-8	Benzo(a)pyrene	1	23	23	1.9	U
205-99-2	Benzo(b)fluoranthene	1	23	23	3.9	U
207-08-9	Benzo(k)fluoranthene	1	23	23	1.7	U
191-24-2	Benzo(g,h,i)perylene	1	90	90	1.3	U
92-52-4	1,1'-Biphenyl	1	230	230	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	230	230	2.0	U
85-68-7	Butyl Benzyl Phthalate	1	230	230	6.6	U
105-60-2	Caprolactam	1	440	440	17	U
86-74-8	Carbazole	1	440	440	110	U
59-50-7	4-Chloro-3-methylphenol	1	230	230	4.4	U
106-47-8	4-Chloroaniline	1	230	230	9.5	U
111-91-1	Bis(2-chloroethoxy)methane	1	230	230	1.7	U
111-44-4	Bis(2-chloroethyl) Ether	1	230	230	2.5	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	230	230	8.9	U
91-58-7	2-Chloronaphthalene	1	230	230	2.9	U
95-57-8	2-Chlorophenol	1	230	230	5.0	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	230	230	4.5	U
218-01-9	Chrysene	1	23	23	4.7	U
53-70-3	Dibenz(a,h)anthracene	1	90	90	10	U
132-64-9	Dibenzofuran	1	230	230	12	U
84-74-2	Di-n-butyl Phthalate	1	230	230	33	U
91-94-1	3,3'-Dichlorobenzidine	1	320	320	37	U
120-83-2	2,4-Dichlorophenol	1	230	230	4.5	U
84-66-2	Diethyl Phthalate	1	230	230	4.6	U
105-67-9	2,4-Dimethylphenol	1	230	230	2.0	U
131-11-3	Dimethyl Phthalate	1	230	230	1.2	U
534-52-1	4,6-Dinitro-2-methylphenol	1	230	230	27	U
51-28-5	2,4-Dinitrophenol	1	440	440	140	U
121-14-2	2,4-Dinitrotoluene	1	230	230	25	U
606-20-2	2,6-Dinitrotoluene	1	230	230	3.0	U
117-84-0	Di-n-octyl Phthalate	1	230	230	7.1	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	8.0	230	6.2	J B,Z
206-44-0	Fluoranthene	1	23	23	1.0	U
86-73-7	Fluorene	1	44	44	9.2	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: 0908257-03.D

Sampled: 08/13/09 00:00 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 17:29

Solids: 74.78 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	230	230	5.7	U
87-68-3	Hexachlorobutadiene	1	230	230	4.6	U
77-47-4	Hexachlorocyclopentadiene	1	230	230	2.7	U
67-72-1	Hexachloroethane	1	230	230	3.3	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	90	90	4.9	U
78-59-1	Isophorone	1	230	230	8.3	U
91-57-6	2-Methylnaphthalene	1	230	230	0.61	U
95-48-7	2-Methylphenol	1	230	230	6.4	U
106-44-5	4-Methylphenol	1	230	230	5.9	U
91-20-3	Naphthalene	1	23	23	2.8	U
88-74-4	2-Nitroaniline	1	230	230	9.5	U
99-09-2	3-Nitroaniline	1	230	230	9.5	U
100-01-6	4-Nitroaniline	1	230	230	2.1	U
98-95-3	Nitrobenzene	1	230	230	6.9	U
100-02-7	4-Nitrophenol	1	900	900	180	U
88-75-5	2-Nitrophenol	1	230	230	8.8	U
86-30-6	N-Nitroso-diphenylamine	1	230	230	13	U
621-64-7	N-Nitroso-di-n-propylamine	1	230	230	7.5	U
87-86-5	Pentachlorophenol	1	440	440	59	U
85-01-8	Phenanthrene	1	23	23	1.4	U
108-95-2	Phenol	1	230	230	60	U
129-00-0	Pyrene	1	23	23	1.6	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	230	230	2.8	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	230	230	13	U
88-06-2	2,4,6-Trichlorophenol	1	230	230	2.7	U
95-95-4	2,4,5-Trichlorophenol	1	230	230	3.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	891	692	78	35 - 105	
Phenol-d6	896	678	76	40 - 100	
Nitrobenzene-d5	444	327	74	35 - 100	
2-Fluorobiphenyl	450	273	61	45 - 105	
2,4,6-Tribromophenol	891	496	56	35 - 125	
o-Terphenyl	446	278	62	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	274582	7.83	162142	8.052	
Naphthalene-d8	1119690	10.552	631706	10.803	
Acenaphthene-d10	594605	14.667	345886	14.941	
Phenanthrene-d10	815126	18.065	512675	18.281	
Chrysene-d12	980328	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: 0908257-04.D

Sampled: 08/13/09 09:00 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 18:04

Solids: 81.62 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.0	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U R,1
56-55-3	Benzo(a)anthracene	1	21	21	1.4	U
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.1	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	210	210	6.0	U
105-60-2	Caprolactam	1	400	400	15	U
86-74-8	Carbazole	1	400	400	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.0	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.1	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.3	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.4	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	31	210	30	JB B,Z
91-94-1	3,3'-Dichlorobenzidine	1	290	290	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.1	U
84-66-2	Diethyl Phthalate	1	21	210	4.3	J B,X
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	400	400	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	53	210	5.7	J B,Z
206-44-0	Fluoranthene	1	1.2	21	0.93	J
86-73-7	Fluorene	1	40	40	8.4	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: 0908257-04.D

Sampled: 08/13/09 09:00 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 18:04

Solids: 81.62 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.2	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.8	U
106-44-5	4-Methylphenol	1	8.2	210	5.4	J J,I
91-20-3	Naphthalene	1	21	21	2.5	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	400	400	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	21	21	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	11	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	817	618	76	35 - 105	
Phenol-d6	821	609	74	40 - 100	
Nitrobenzene-d5	406	293	72	35 - 100	
2-Fluorobiphenyl	413	247	60	45 - 105	
2,4,6-Tribromophenol	817	468	57	35 - 125	
o-Terphenyl	408	236	58	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	257187	7.83	162142	8.052	
Naphthalene-d8	1030959	10.552	631706	10.803	
Acenaphthene-d10	541603	14.667	345886	14.941	
Phenanthrene-d10	726536	18.071	512675	18.281	
Chrysene-d12	635685	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-05 File ID: 0908257-05.D

Sampled: 08/13/09 09:30 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 18:39

Solids: 91.11 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	19	19	0.86	U
208-96-8	Acenaphthylene	1	19	19	1.8	U
98-86-2	Acetophenone	1	190	190	4.0	U
120-12-7	Anthracene	1	19	19	2.8	U
1912-24-9	Atrazine	1	190	190	4.9	U VL,M
100-52-7	Benzaldehyde	1	190	190	6.8	U R,1
56-55-3	Benzo(a)anthracene	1	2.6	19	1.2	J
50-32-8	Benzo(a)pyrene	1	2.2	19	1.5	J
205-99-2	Benzo(b)fluoranthene	1	3.3	19	3.2	J
207-08-9	Benzo(k)fluoranthene	1	1.8	19	1.4	J
191-24-2	Benzo(g,h,i)perylene	1	1.5	74	1.0	J
92-52-4	1,1'-Biphenyl	1	190	190	0.91	U
101-55-3	4-Bromophenyl Phenyl Ether	1	190	190	1.6	U
85-68-7	Butyl Benzyl Phthalate	1	190	190	5.4	U
105-60-2	Caprolactam	1	360	360	14	U VL,M
86-74-8	Carbazole	1	360	360	92	U
59-50-7	4-Chloro-3-methylphenol	1	190	190	3.6	U
106-47-8	4-Chloroaniline	1	190	190	7.8	U
111-91-1	Bis(2-chloroethoxy)methane	1	190	190	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	190	190	2.1	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	190	190	7.3	U
91-58-7	2-Chloronaphthalene	1	190	190	2.4	U
95-57-8	2-Chlorophenol	1	190	190	4.1	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	190	190	3.7	U
218-01-9	Chrysene	1	19	19	3.8	U
53-70-3	Dibenz(a,h)anthracene	1	74	74	8.5	U
132-64-9	Dibenzofuran	1	190	190	9.6	U
84-74-2	Di-n-butyl Phthalate	1	190	190	27	U
91-94-1	3,3'-Dichlorobenzidine	1	260	260	31	U
120-83-2	2,4-Dichlorophenol	1	190	190	3.7	U
84-66-2	Diethyl Phthalate	1	190	190	3.8	U
105-67-9	2,4-Dimethylphenol	1	190	190	1.6	U
131-11-3	Dimethyl Phthalate	1	190	190	0.95	U
534-52-1	4,6-Dinitro-2-methylphenol	1	190	190	22	U
51-28-5	2,4-Dinitrophenol	1	360	360	120	U
121-14-2	2,4-Dinitrotoluene	1	190	190	21	U
606-20-2	2,6-Dinitrotoluene	1	190	190	2.5	U
117-84-0	Di-n-octyl Phthalate	1	190	190	5.8	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	16	190	5.1	J B,Z
206-44-0	Fluoranthene	1	2.6	19	0.84	J
86-73-7	Fluorene	1	36	36	7.5	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-05 File ID: 0908257-05.D

Sampled: 08/13/09 09:30 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 18:39

Solids: 91.11 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	190	190	4.7	U
87-68-3	Hexachlorobutadiene	1	190	190	3.8	U
77-47-4	Hexachlorocyclopentadiene	1	190	190	2.2	U
67-72-1	Hexachloroethane	1	190	190	2.7	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	74	74	4.0	U
78-59-1	Isophorone	1	190	190	6.8	U
91-57-6	2-Methylnaphthalene	1	2.9	190	0.50	J
95-48-7	2-Methylphenol	1	190	190	5.2	U
106-44-5	4-Methylphenol	1	190	190	4.9	U
91-20-3	Naphthalene	1	19	19	2.3	U
88-74-4	2-Nitroaniline	1	190	190	7.8	U
99-09-2	3-Nitroaniline	1	190	190	7.8	U
100-01-6	4-Nitroaniline	1	190	190	1.8	U
98-95-3	Nitrobenzene	1	190	190	5.7	U
100-02-7	4-Nitrophenol	1	740	740	150	U
88-75-5	2-Nitrophenol	1	190	190	7.3	U
86-30-6	N-Nitroso-diphenylamine	1	190	190	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	190	190	6.2	U
87-86-5	Pentachlorophenol	1	360	360	48	U
85-01-8	Phenanthrene	1	2.9	19	1.2	J
108-95-2	Phenol	1	190	190	49	U
129-00-0	Pyrene	1	3.3	19	1.3	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	190	190	2.3	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	190	190	10	U
88-06-2	2,4,6-Trichlorophenol	1	190	190	2.2	U
95-95-4	2,4,5-Trichlorophenol	1	190	190	2.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	732	533	73	35 - 105	
Phenol-d6	735	534	73	40 - 100	
Nitrobenzene-d5	364	259	71	35 - 100	
2-Fluorobiphenyl	370	220	59	45 - 105	
2,4,6-Tribromophenol	732	380	52	35 - 125	
o-Terphenyl	366	212	58	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	276221	7.83	162142	8.052	
Naphthalene-d8	1122579	10.552	631706	10.803	
Acenaphthene-d10	584630	14.667	345886	14.941	
Phenanthrene-d10	762585	18.065	512675	18.281	
Chrysene-d12	677302	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-06 File ID: 0908257-06.D

Sampled: 08/13/09 09:35 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 19:13

Solids: 85.63 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.91	U
208-96-8	Acenaphthylene	1	20	20	2.0	U
98-86-2	Acetophenone	1	200	200	4.3	U
120-12-7	Anthracene	1	20	20	3.0	U
1912-24-9	Atrazine	1	200	200	5.2	U
100-52-7	Benzaldehyde	1	200	200	7.2	U R,1
56-55-3	Benzo(a)anthracene	1	20	20	1.3	U
50-32-8	Benzo(a)pyrene	1	20	20	1.6	U
205-99-2	Benzo(b)fluoranthene	1	20	20	3.4	U
207-08-9	Benzo(k)fluoranthene	1	20	20	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	78	78	1.1	U
92-52-4	1,1'-Biphenyl	1	200	200	0.97	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	5.8	200	5.7	J
105-60-2	Caprolactam	1	390	390	15	U
86-74-8	Carbazole	1	390	390	98	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.9	U
106-47-8	4-Chloroaniline	1	200	200	8.3	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.8	U
91-58-7	2-Chloronaphthalene	1	200	200	2.5	U
95-57-8	2-Chlorophenol	1	200	200	4.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	3.9	U
218-01-9	Chrysene	1	20	20	4.1	U
53-70-3	Dibenz(a,h)anthracene	1	78	78	9.0	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	200	200	29	U
91-94-1	3,3´-Dichlorobenzidine	1	280	280	32	U
120-83-2	2,4-Dichlorophenol	1	200	200	3.9	U
84-66-2	Diethyl Phthalate	1	5.5	200	4.1	J B,x
105-67-9	2,4-Dimethylphenol	1	200	200	1.7	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	390	390	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.7	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.2	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	12	200	5.4	J B,2
206-44-0	Fluoranthene	1	20	20	0.89	U
86-73-7	Fluorene	1	39	39	8.0	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-06 File ID: 0908257-06.D

Sampled: 08/13/09 09:35 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 19:13

Solids: 85.63 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	5.0	U
87-68-3	Hexachlorobutadiene	1	200	200	4.0	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.3	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	78	78	4.3	U
78-59-1	Isophorone	1	200	200	7.3	U
91-57-6	2-Methylnaphthalene	1	200	200	0.53	U
95-48-7	2-Methylphenol	1	200	200	5.6	U
106-44-5	4-Methylphenol	1	200	200	5.2	U
91-20-3	Naphthalene	1	20	20	2.4	U
88-74-4	2-Nitroaniline	1	200	200	8.3	U
99-09-2	3-Nitroaniline	1	200	200	8.3	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.0	U
100-02-7	4-Nitrophenol	1	780	780	160	U
88-75-5	2-Nitrophenol	1	200	200	7.7	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.6	U
87-86-5	Pentachlorophenol	1	390	390	52	U
85-01-8	Phenanthrene	1	20	20	1.2	U
108-95-2	Phenol	1	200	200	52	U
129-00-0	Pyrene	1	20	20	1.4	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	779	623	80	35 - 105	
Phenol-d6	782	611	78	40 - 100	
Nitrobenzene-d5	387	297	77	35 - 100	
2-Fluorobiphenyl	393	248	63	45 - 105	
2,4,6-Tribromophenol	779	433	56	35 - 125	
o-Terphenyl	389	246	63	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	285936	7.83	162142	8.052	
Naphthalene-d8	1170160	10.552	631706	10.803	
Acenaphthene-d10	624490	14.667	345886	14.941	
Phenanthrene-d10	852848	18.065	512675	18.281	
Chrysene-d12	1002723	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: 0908257-07.D

Sampled: 08/13/09 10:15 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 19:48

Solids: 86.27 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.90	U
208-96-8	Acenaphthylene	1	20	20	1.9	U
98-86-2	Acetophenone	1	200	200	4.3	U
120-12-7	Anthracene	1	20	20	3.0	U
1912-24-9	Atrazine	1	200	200	5.2	U
100-52-7	Benzaldehyde	1	200	200	7.2	U R,1
56-55-3	Benzo(a)anthracene	1	1.5	20	1.3	J
50-32-8	Benzo(a)pyrene	1	20	20	1.6	U
205-99-2	Benzo(b)fluoranthene	1	20	20	3.4	U
207-08-9	Benzo(k)fluoranthene	1	20	20	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	1.2	78	1.1	J
92-52-4	1,1'-Biphenyl	1	200	200	0.96	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	200	200	5.7	U
105-60-2	Caprolactam	1	380	380	15	U
86-74-8	Carbazole	1	380	380	97	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.8	U
106-47-8	4-Chloroaniline	1	200	200	8.2	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.7	U
91-58-7	2-Chloronaphthalene	1	200	200	2.5	U
95-57-8	2-Chlorophenol	1	200	200	4.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	3.9	U
218-01-9	Chrysene	1	20	20	4.0	U
53-70-3	Dibenz(a,h)anthracene	1	78	78	8.9	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	120	200	29	JB B,2
91-94-1	3,3'-Dichlorobenzidine	1	280	280	32	U
120-83-2	2,4-Dichlorophenol	1	200	200	3.9	U
84-66-2	Diethyl Phthalate	1	200	200	4.0	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.7	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	380	380	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.6	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.2	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	9.3	200	5.4	J B,2
206-44-0	Fluoranthene	1	1.9	20	0.88	J
86-73-7	Fluorene	1	38	38	8.0	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: 0908257-07.D

Sampled: 08/13/09 10:15 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 19:48

Solids: 86.27 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	4.9	U
87-68-3	Hexachlorobutadiene	1	200	200	4.0	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.3	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	78	78	4.3	U
78-59-1	Isophorone	1	200	200	7.2	U
91-57-6	2-Methylnaphthalene	1	3.1	200	0.53	J
95-48-7	2-Methylphenol	1	200	200	5.5	U
106-44-5	4-Methylphenol	1	200	200	5.1	U
91-20-3	Naphthalene	1	20	20	2.4	U
88-74-4	2-Nitroaniline	1	200	200	8.2	U
99-09-2	3-Nitroaniline	1	200	200	8.2	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.0	U
100-02-7	4-Nitrophenol	1	780	780	150	U
88-75-5	2-Nitrophenol	1	200	200	7.7	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.5	U
87-86-5	Pentachlorophenol	1	380	380	51	U
85-01-8	Phenanthrene	1	3.5	20	1.2	J
108-95-2	Phenol	1	200	200	52	U
129-00-0	Pyrene	1	2.3	20	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	773	573	74	35 - 105	
Phenol-d6	777	567	73	40 - 100	
Nitrobenzene-d5	384	277	72	35 - 100	
2-Fluorobiphenyl	390	232	59	45 - 105	
2,4,6-Tribromophenol	773	413	53	35 - 125	
o-Terphenyl	386	228	59	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	259239	7.83	162142	8.052	
Naphthalene-d8	1043837	10.552	631706	10.803	
Acenaphthene-d10	550410	14.667	345886	14.941	
Phenanthrene-d10	713812	18.071	512675	18.281	
Chrysene-d12	610778	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: 0908257-08.D

Sampled: 08/13/09 10:25 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 20:23

Solids: 71.27 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	24	24	1.1	U
208-96-8	Acenaphthylene	1	24	24	2.3	U
98-86-2	Acetophenone	1	240	240	5.2	U
120-12-7	Anthracene	1	24	24	3.6	U
1912-24-9	Atrazine	1	240	240	6.3	U
100-52-7	Benzaldehyde	1	240	240	8.7	U RJ
56-55-3	Benzo(a)anthracene	1	24	24	1.6	U
50-32-8	Benzo(a)pyrene	1	24	24	2.0	U
205-99-2	Benzo(b)fluoranthene	1	24	24	4.1	U
207-08-9	Benzo(k)fluoranthene	1	24	24	1.8	U
191-24-2	Benzo(g,h,i)perylene	1	94	94	1.3	U
92-52-4	1,1'-Biphenyl	1	240	240	1.2	U
101-55-3	4-Bromophenyl Phenyl Ether	1	240	240	2.1	U
85-68-7	Butyl Benzyl Phthalate	1	240	240	6.9	U
105-60-2	Caprolactam	1	460	460	18	U
86-74-8	Carbazole	1	460	460	120	U
59-50-7	4-Chloro-3-methylphenol	1	240	240	4.6	U
106-47-8	4-Chloroaniline	1	240	240	9.9	U
111-91-1	Bis(2-chloroethoxy)methane	1	240	240	1.8	U
111-44-4	Bis(2-chloroethyl) Ether	1	240	240	2.6	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	240	240	9.3	U
91-58-7	2-Chloronaphthalene	1	240	240	3.0	U
95-57-8	2-Chlorophenol	1	240	240	5.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	240	240	4.7	U
218-01-9	Chrysene	1	24	24	4.9	U
53-70-3	Dibenz(a,h)anthracene	1	94	94	11	U
132-64-9	Dibenzofuran	1	240	240	12	U
84-74-2	Di-n-butyl Phthalate	1	240	240	35	U
91-94-1	3,3'-Dichlorobenzidine	1	340	340	39	U
120-83-2	2,4-Dichlorophenol	1	240	240	4.7	U
84-66-2	Diethyl Phthalate	1	240	240	4.9	U
105-67-9	2,4-Dimethylphenol	1	240	240	2.1	U
131-11-3	Dimethyl Phthalate	1	240	240	1.2	U
534-52-1	4,6-Dinitro-2-methylphenol	1	240	240	28	U
51-28-5	2,4-Dinitrophenol	1	460	460	150	U
121-14-2	2,4-Dinitrotoluene	1	240	240	26	U
606-20-2	2,6-Dinitrotoluene	1	240	240	3.2	U
117-84-0	Di-n-octyl Phthalate	1	240	240	7.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	12	240	6.5	J BJ
206-44-0	Fluoranthene	1	24	24	1.1	U
86-73-7	Fluorene	1	46	46	9.6	U

01971

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: 0908257-08.D

Sampled: 08/13/09 10:25 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 20:23

Solids: 71.27 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	240	240	6.0	U
87-68-3	Hexachlorobutadiene	1	240	240	4.8	U
77-47-4	Hexachlorocyclopentadiene	1	240	240	2.8	U
67-72-1	Hexachloroethane	1	240	240	3.5	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	94	94	5.1	U
78-59-1	Isophorone	1	240	240	8.7	U
91-57-6	2-Methylnaphthalene	1	240	240	0.64	U
95-48-7	2-Methylphenol	1	240	240	6.7	U
106-44-5	4-Methylphenol	1	240	240	6.2	U
91-20-3	Naphthalene	1	24	24	2.9	U
88-74-4	2-Nitroaniline	1	240	240	9.9	U
99-09-2	3-Nitroaniline	1	240	240	9.9	U
100-01-6	4-Nitroaniline	1	240	240	2.2	U
98-95-3	Nitrobenzene	1	240	240	7.2	U
100-02-7	4-Nitrophenol	1	940	940	190	U
88-75-5	2-Nitrophenol	1	240	240	9.3	U
86-30-6	N-Nitroso-diphenylamine	1	240	240	14	U
621-64-7	N-Nitroso-di-n-propylamine	1	240	240	7.9	U
87-86-5	Pentachlorophenol	1	460	460	62	U
85-01-8	Phenanthrene	1	24	24	1.5	U
108-95-2	Phenol	1	240	240	63	U
129-00-0	Pyrene	1	24	24	1.7	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	240	240	2.9	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	240	240	13	U
88-06-2	2,4,6-Trichlorophenol	1	240	240	2.9	U
95-95-4	2,4,5-Trichlorophenol	1	240	240	3.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	935	733	78	35 - 105	
Phenol-d6	940	715	76	40 - 100	
Nitrobenzene-d5	465	348	75	35 - 100	
2-Fluorobiphenyl	472	285	60	45 - 105	
2,4,6-Tribromophenol	935	517	55	35 - 125	
o-Terphenyl	468	287	61	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	280934	7.83	162142	8.052	
Naphthalene-d8	1142681	10.552	631706	10.803	
Acenaphthene-d10	606009	14.673	345886	14.941	
Phenanthrene-d10	843260	18.071	512675	18.281	
Chrysene-d12	977700	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: 0908257-09.D

Sampled: 08/13/09 00:00 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 20:57

Solids: 84.14 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.93	U
208-96-8	Acenaphthylene	1	20	20	2.0	U
98-86-2	Acetophenone	1	200	200	4.4	U
120-12-7	Anthracene	1	20	20	3.0	U
1912-24-9	Atrazine	1	200	200	5.3	U
100-52-7	Benzaldehyde	1	200	200	7.3	U R1
56-55-3	Benzo(a)anthracene	1	20	20	1.3	U
50-32-8	Benzo(a)pyrene	1	20	20	1.7	U
205-99-2	Benzo(b)fluoranthene	1	20	20	3.5	U
207-08-9	Benzo(k)fluoranthene	1	20	20	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	80	80	1.1	U
92-52-4	1,1'-Biphenyl	1	200	200	0.98	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	21	200	5.8	J
105-60-2	Caprolactam	1	390	390	15	U
86-74-8	Carbazole	1	390	390	99	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.9	U
106-47-8	4-Chloroaniline	1	200	200	8.4	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.9	U
91-58-7	2-Chloronaphthalene	1	200	200	2.6	U
95-57-8	2-Chlorophenol	1	200	200	4.5	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	4.0	U
218-01-9	Chrysene	1	20	20	4.1	U
53-70-3	Dibenz(a,h)anthracene	1	80	80	9.2	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	230	200	29	B B,Z
91-94-1	3,3'-Dichlorobenzidine	1	290	290	33	U
120-83-2	2,4-Dichlorophenol	1	200	200	4.0	U
84-66-2	Diethyl Phthalate	1	200	200	4.1	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.8	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	390	390	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.7	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.3	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	37	200	5.5	J B,Z
206-44-0	Fluoranthene	1	20	20	0.91	U
86-73-7	Fluorene	1	39	39	8.2	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: 0908257-09.D

Sampled: 08/13/09 00:00 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 20:57

Solids: 84.14 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	5.1	U
87-68-3	Hexachlorobutadiene	1	200	200	4.1	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.4	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	80	80	4.4	U
78-59-1	Isophorone	1	200	200	7.4	U
91-57-6	2-Methylnaphthalene	1	200	200	0.54	U
95-48-7	2-Methylphenol	1	200	200	5.7	U
106-44-5	4-Methylphenol	1	200	200	5.3	U
91-20-3	Naphthalene	1	20	20	2.5	U
88-74-4	2-Nitroaniline	1	200	200	8.4	U
99-09-2	3-Nitroaniline	1	200	200	8.4	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.1	U
100-02-7	4-Nitrophenol	1	800	800	160	U
88-75-5	2-Nitrophenol	1	200	200	7.9	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.7	U
87-86-5	Pentachlorophenol	1	390	390	52	U
85-01-8	Phenanthrene	1	20	20	1.2	U
108-95-2	Phenol	1	200	200	53	U
129-00-0	Pyrene	1	20	20	1.4	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	792	596	75	35 - 105	
Phenol-d6	796	576	72	40 - 100	
Nitrobenzene-d5	394	282	71	35 - 100	
2-Fluorobiphenyl	400	237	59	45 - 105	
2,4,6-Tribromophenol	792	420	53	35 - 125	
o-Terphenyl	396	230	58	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	278506	7.836	162142	8.052	
Naphthalene-d8	1149556	10.558	631706	10.803	
Acenaphthene-d10	599283	14.673	345886	14.941	
Phenanthrene-d10	838304	18.071	512675	18.281	
Chrysene-d12	948414	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: 0908257-10.D

Sampled: 08/13/09 10:55 Prepared: 08/20/09 08:09 Analyzed: 08/28/09 21:32

Solids: 87.13 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909777 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.90	U
208-96-8	Acenaphthylene	1	20	20	1.9	U
98-86-2	Acetophenone	1	200	200	4.2	U
120-12-7	Anthracene	1	20	20	2.9	U
1912-24-9	Atrazine	1	200	200	5.1	U
100-52-7	Benzaldehyde	1	200	200	7.1	U B,1
56-55-3	Benzo(a)anthracene	1	1.5	20	1.3	J
50-32-8	Benzo(a)pyrene	1	20	20	1.6	U
205-99-2	Benzo(b)fluoranthene	1	20	20	3.4	U
207-08-9	Benzo(k)fluoranthene	1	20	20	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	77	77	1.1	U
92-52-4	1,1'-Biphenyl	1	1.1	200	0.95	J
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	11	200	5.6	J
105-60-2	Caprolactam	1	380	380	14	U
86-74-8	Carbazole	1	380	380	96	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.8	U
106-47-8	4-Chloroaniline	1	200	200	8.1	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.1	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.6	U
91-58-7	2-Chloronaphthalene	1	200	200	2.5	U
95-57-8	2-Chlorophenol	1	200	200	4.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	3.8	U
218-01-9	Chrysene	1	20	20	4.0	U
53-70-3	Dibenz(a,h)anthracene	1	77	77	8.8	U
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	200	200	28	B B,7
91-94-1	3,3´-Dichlorobenzidine	1	280	280	32	U
120-83-2	2,4-Dichlorophenol	1	200	200	3.9	U
84-66-2	Diethyl Phthalate	1	200	200	4.0	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.7	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	23	U
51-28-5	2,4-Dinitrophenol	1	380	380	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.6	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.1	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	9.2	200	5.3	J B,7
206-44-0	Fluoranthene	1	1.1	20	0.87	J
86-73-7	Fluorene	1	38	38	7.9	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS2

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908257-10
File ID: 0908257-10.D
Sampled: 08/13/09 10:55
Prepared: 08/20/09 08:09
Analyzed: 08/28/09 21:32
Solids: 87.13
Preparation: 3550B Sonication Extract
Initial/Final: 30 g / 1 mL
QC Batch: 0909777
Sequence: 9H28074
Calibration: 9H18007
Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	4.9	U
87-68-3	Hexachlorobutadiene	1	200	200	3.9	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.3	U
67-72-1	Hexachloroethane	1	200	200	2.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	77	77	4.2	U
78-59-1	Isophorone	1	200	200	7.1	U
91-57-6	2-Methylnaphthalene	1	4.6	200	0.52	J
95-48-7	2-Methylphenol	1	200	200	5.5	U
106-44-5	4-Methylphenol	1	200	200	5.1	U
91-20-3	Naphthalene	1	3.1	20	2.4	J
88-74-4	2-Nitroaniline	1	200	200	8.1	U
99-09-2	3-Nitroaniline	1	200	200	8.1	U
100-01-6	4-Nitroaniline	1	200	200	1.8	U
98-95-3	Nitrobenzene	1	200	200	5.9	U
100-02-7	4-Nitrophenol	1	770	770	150	U
88-75-5	2-Nitrophenol	1	200	200	7.6	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.4	U
87-86-5	Pentachlorophenol	1	380	380	51	U
85-01-8	Phenanthrene	1	4.2	20	1.2	J
108-95-2	Phenol	1	200	200	51	U
129-00-0	Pyrene	1	2.3	20	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.3	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	765	617	81	35 - 105	
Phenol-d6	769	602	78	40 - 100	
Nitrobenzene-d5	381	291	76	35 - 100	
2-Fluorobiphenyl	386	243	63	45 - 105	
2,4,6-Tribromophenol	765	410	54	35 - 125	
o-Terphenyl	383	236	62	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	272024	7.83	162142	8.052	
Naphthalene-d8	1130750	10.558	631706	10.803	
Acenaphthene-d10	604654	14.673	345886	14.941	
Phenanthrene-d10	819974	18.071	512675	18.281	
Chrysene-d12	783870	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-12 File ID: 0908257-12.D

Sampled: 08/13/09 11:10 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 22:07

Solids: 87.50 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	19	19	0.89	U
208-96-8	Acenaphthylene	1	19	19	1.9	U
98-86-2	Acetophenone	1	190	190	4.2	U
120-12-7	Anthracene	1	19	19	2.9	U
1912-24-9	Atrazine	1	190	190	5.1	U
100-52-7	Benzaldehyde	1	190	190	7.1	U R,1
56-55-3	Benzo(a)anthracene	1	6.9	19	1.3	J
50-32-8	Benzo(a)pyrene	1	7.2	19	1.6	J
205-99-2	Benzo(b)fluoranthene	1	8.4	19	3.3	J
207-08-9	Benzo(k)fluoranthene	1	5.3	19	1.5	J
191-24-2	Benzo(g,h,i)perylene	1	4.2	77	1.1	J
92-52-4	1,1'-Biphenyl	1	190	190	0.95	U
101-55-3	4-Bromophenyl Phenyl Ether	1	190	190	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	190	190	5.6	U
105-60-2	Caprolactam	1	380	380	14	U
86-74-8	Carbazole	1	380	380	96	U
59-50-7	4-Chloro-3-methylphenol	1	190	190	3.8	U
106-47-8	4-Chloroaniline	1	190	190	8.1	U
111-91-1	Bis(2-chloroethoxy)methane	1	190	190	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	190	190	2.1	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	190	190	7.6	U
91-58-7	2-Chloronaphthalene	1	190	190	2.5	U
95-57-8	2-Chlorophenol	1	190	190	4.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	190	190	3.8	U
218-01-9	Chrysene	1	7.2	19	4.0	J
53-70-3	Dibenz(a,h)anthracene	1	77	77	8.8	U
132-64-9	Dibenzofuran	1	190	190	10	U
84-74-2	Di-n-butyl Phthalate	1	190	190	28	U
91-94-1	3,3'-Dichlorobenzidine	1	270	270	32	U
120-83-2	2,4-Dichlorophenol	1	190	190	3.9	U
84-66-2	Diethyl Phthalate	1	190	190	4.0	U
105-67-9	2,4-Dimethylphenol	1	190	190	1.7	U
131-11-3	Dimethyl Phthalate	1	190	190	0.99	U
534-52-1	4,6-Dinitro-2-methylphenol	1	190	190	23	U
51-28-5	2,4-Dinitrophenol	1	380	380	120	U
121-14-2	2,4-Dinitrotoluene	1	190	190	21	U
606-20-2	2,6-Dinitrotoluene	1	190	190	2.6	U
117-84-0	Di-n-octyl Phthalate	1	190	190	6.1	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	9.1	190	5.3	J B,2
206-44-0	Fluoranthene	1	8.4	19	0.87	J
86-73-7	Fluorene	1	38	38	7.9	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-12 File ID: 0908257-12.D

Sampled: 08/13/09 11:10 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 22:07

Solids: 87.50 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	190	190	4.9	U
87-68-3	Hexachlorobutadiene	1	190	190	3.9	U
77-47-4	Hexachlorocyclopentadiene	1	190	190	2.3	U
67-72-1	Hexachloroethane	1	190	190	2.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	77	77	4.2	U
78-59-1	Isophorone	1	190	190	7.1	U
91-57-6	2-Methylnaphthalene	1	0.76	190	0.52	J
95-48-7	2-Methylphenol	1	190	190	5.4	U
106-44-5	4-Methylphenol	1	190	190	5.1	U
91-20-3	Naphthalene	1	19	19	2.4	U
88-74-4	2-Nitroaniline	1	190	190	8.1	U
99-09-2	3-Nitroaniline	1	190	190	8.1	U
100-01-6	4-Nitroaniline	1	190	190	1.8	U
98-95-3	Nitrobenzene	1	190	190	5.9	U
100-02-7	4-Nitrophenol	1	770	770	150	U
88-75-5	2-Nitrophenol	1	190	190	7.6	U
86-30-6	N-Nitroso-diphenylamine	1	190	190	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	190	190	6.4	U
87-86-5	Pentachlorophenol	1	380	380	50	U
85-01-8	Phenanthrene	1	4.6	19	1.2	J
108-95-2	Phenol	1	190	190	51	U
129-00-0	Pyrene	1	13	19	1.4	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	190	190	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	190	190	11	U
88-06-2	2,4,6-Trichlorophenol	1	190	190	2.3	U
95-95-4	2,4,5-Trichlorophenol	1	190	190	2.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	762	549	72	35 - 105	
Phenol-d6	766	540	71	40 - 100	
Nitrobenzene-d5	379	275	73	35 - 100	
2-Fluorobiphenyl	385	225	59	45 - 105	
2,4,6-Tribromophenol	762	414	54	35 - 125	
o-Terphenyl	381	221	58	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	274247	7.83	162142	8.052	
Naphthalene-d8	1096982	10.558	631706	10.803	
Acenaphthene-d10	578482	14.673	345886	14.941	
Phenanthrene-d10	704526	18.071	512675	18.281	
Chrysene-d12	537434	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-13 File ID: 0908257-13.D

Sampled: 08/13/09 11:25 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 22:41

Solids: 87.76 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	19	19	0.89	U
208-96-8	Acenaphthylene	1	19	19	1.9	U
98-86-2	Acetophenone	1	190	190	4.2	U
120-12-7	Anthracene	1	19	19	2.9	U
1912-24-9	Atrazine	1	190	190	5.1	U
100-52-7	Benzaldehyde	1	190	190	7.0	U R1
56-55-3	Benzo(a)anthracene	1	19	19	1.3	U
50-32-8	Benzo(a)pyrene	1	19	19	1.6	U
205-99-2	Benzo(b)fluoranthene	1	19	19	3.3	U
207-08-9	Benzo(k)fluoranthene	1	19	19	1.5	U
191-24-2	Benzo(g,h,i)perylene	1	76	76	1.1	U
92-52-4	1,1'-Biphenyl	1	190	190	0.94	U
101-55-3	4-Bromophenyl Phenyl Ether	1	190	190	1.7	U
85-68-7	Butyl Benzyl Phthalate	1	6.1	190	5.6	J
105-60-2	Caprolactam	1	380	380	14	U
86-74-8	Carbazole	1	380	380	95	U
59-50-7	4-Chloro-3-methylphenol	1	190	190	3.8	U
106-47-8	4-Chloroaniline	1	190	190	8.1	U
111-91-1	Bis(2-chloroethoxy)methane	1	190	190	1.4	U
111-44-4	Bis(2-chloroethyl) Ether	1	190	190	2.1	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	190	190	7.6	U
91-58-7	2-Chloronaphthalene	1	190	190	2.5	U
95-57-8	2-Chlorophenol	1	190	190	4.3	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	190	190	3.8	U
218-01-9	Chrysene	1	19	19	4.0	U
53-70-3	Dibenz(a,h)anthracene	1	76	76	8.8	U
132-64-9	Dibenzofuran	1	190	190	10	U
84-74-2	Di-n-butyl Phthalate	1	190	190	28	U
91-94-1	3,3´-Dichlorobenzidine	1	270	270	32	U
120-83-2	2,4-Dichlorophenol	1	190	190	3.9	U
84-66-2	Diethyl Phthalate	1	190	190	4.0	U
105-67-9	2,4-Dimethylphenol	1	190	190	1.7	U
131-11-3	Dimethyl Phthalate	1	190	190	0.99	U
534-52-1	4,6-Dinitro-2-methylphenol	1	190	190	23	U
51-28-5	2,4-Dinitrophenol	1	380	380	120	U
121-14-2	2,4-Dinitrotoluene	1	190	190	21	U
606-20-2	2,6-Dinitrotoluene	1	190	190	2.6	U
117-84-0	Di-n-octyl Phthalate	1	190	190	6.1	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	5.7	190	5.3	J B2
206-44-0	Fluoranthene	1	19	19	0.87	U
86-73-7	Fluorene	1	38	38	7.8	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-13 File ID: 0908257-13.D

Sampled: 08/13/09 11:25 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 22:41

Solids: 87.76 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	190	190	4.9	U
87-68-3	Hexachlorobutadiene	1	190	190	3.9	U
77-47-4	Hexachlorocyclopentadiene	1	190	190	2.3	U
67-72-1	Hexachloroethane	1	190	190	2.8	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	76	76	4.2	U
78-59-1	Isophorone	1	190	190	7.1	U
91-57-6	2-Methylnaphthalene	1	190	190	0.52	U
95-48-7	2-Methylphenol	1	190	190	5.4	U
106-44-5	4-Methylphenol	1	190	190	5.0	U
91-20-3	Naphthalene	1	19	19	2.4	U
88-74-4	2-Nitroaniline	1	190	190	8.1	U
99-09-2	3-Nitroaniline	1	190	190	8.1	U
100-01-6	4-Nitroaniline	1	190	190	1.8	U
98-95-3	Nitrobenzene	1	190	190	5.9	U
100-02-7	4-Nitrophenol	1	760	760	150	U
88-75-5	2-Nitrophenol	1	190	190	7.5	U
86-30-6	N-Nitroso-diphenylamine	1	190	190	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	190	190	6.4	U
87-86-5	Pentachlorophenol	1	380	380	50	U
85-01-8	Phenanthrene	1	19	19	1.2	U
108-95-2	Phenol	1	190	190	51	U
129-00-0	Pyrene	1	19	19	1.4	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	190	190	2.4	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	190	190	11	U
88-06-2	2,4,6-Trichlorophenol	1	190	190	2.3	U
95-95-4	2,4,5-Trichlorophenol	1	190	190	2.8	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	760	520	68	35 - 105	
Phenol-d6	763	510	67	40 - 100	
Nitrobenzene-d5	378	263	70	35 - 100	
2-Fluorobiphenyl	384	221	58	45 - 105	
2,4,6-Tribromophenol	760	377	50	35 - 125	
o-Terphenyl	380	222	58	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	286405	7.83	162142	8.052	
Naphthalene-d8	1143593	10.558	631706	10.803	
Acenaphthene-d10	610741	14.673	345886	14.941	
Phenanthrene-d10	822501	18.071	512675	18.281	
Chrysene-d12	979349	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: 0908257-14.D

Sampled: 08/13/09 13:20 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 23:16

Solids: 76.09 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	22	22	1.0	U
208-96-8	Acenaphthylene	1	22	22	2.2	U
98-86-2	Acetophenone	1	220	220	4.8	U
120-12-7	Anthracene	1	22	22	3.4	U
1912-24-9	Atrazine	1	220	220	5.9	U
100-52-7	Benzaldehyde	1	220	220	8.1	U R1
56-55-3	Benzo(a)anthracene	1	7.4	22	1.5	J
50-32-8	Benzo(a)pyrene	1	8.8	22	1.8	J
205-99-2	Benzo(b)fluoranthene	1	11	22	3.8	J
207-08-9	Benzo(k)fluoranthene	1	6.6	22	1.7	J
191-24-2	Benzo(g,h,i)perylene	1	7.0	88	1.2	J
92-52-4	1,1'-Biphenyl	1	220	220	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	2.0	U
85-68-7	Butyl Benzyl Phthalate	1	220	220	6.4	U
105-60-2	Caprolactam	1	430	430	17	U
86-74-8	Carbazole	1	430	430	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.3	U
106-47-8	4-Chloroaniline	1	220	220	9.3	U
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.5	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.7	U
91-58-7	2-Chloronaphthalene	1	220	220	2.9	U
95-57-8	2-Chlorophenol	1	220	220	4.9	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.4	U
218-01-9	Chrysene	1	7.4	22	4.6	J
53-70-3	Dibenz(a,h)anthracene	1	88	88	10	U
132-64-9	Dibenzofuran	1	220	220	12	U
84-74-2	Di-n-butyl Phthalate	1	220	220	33	U
91-94-1	3,3'-Dichlorobenzidine	1	320	320	37	U
120-83-2	2,4-Dichlorophenol	1	220	220	4.4	U
84-66-2	Diethyl Phthalate	1	220	220	4.6	U
105-67-9	2,4-Dimethylphenol	1	220	220	2.0	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	27	U
51-28-5	2,4-Dinitrophenol	1	430	430	140	U
121-14-2	2,4-Dinitrotoluene	1	220	220	25	U
606-20-2	2,6-Dinitrotoluene	1	220	220	3.0	U
117-84-0	Di-n-octyl Phthalate	1	220	220	7.0	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	100	220	6.1	J
206-44-0	Fluoranthene	1	8.8	22	1.0	J
86-73-7	Fluorene	1	43	43	9.0	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: 0908257-14.D

Sampled: 08/13/09 13:20 Prepared: 08/21/09 08:19 Analyzed: 08/28/09 23:16

Solids: 76.09 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0909841 Sequence: 9H28074 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.6	U
87-68-3	Hexachlorobutadiene	1	220	220	4.5	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.6	U
67-72-1	Hexachloroethane	1	220	220	3.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	5.7	88	4.8	J
78-59-1	Isophorone	1	220	220	8.2	U
91-57-6	2-Methylnaphthalene	1	0.88	220	0.60	J
95-48-7	2-Methylphenol	1	220	220	6.3	U
106-44-5	4-Methylphenol	1	220	220	5.8	U
91-20-3	Naphthalene	1	22	22	2.7	U
88-74-4	2-Nitroaniline	1	220	220	9.3	U
99-09-2	3-Nitroaniline	1	220	220	9.3	U
100-01-6	4-Nitroaniline	1	220	220	2.1	U
98-95-3	Nitrobenzene	1	220	220	6.8	U
100-02-7	4-Nitrophenol	1	880	880	170	U
88-75-5	2-Nitrophenol	1	220	220	8.7	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	13	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.4	U
87-86-5	Pentachlorophenol	1	430	430	58	U
85-01-8	Phenanthrene	1	3.9	22	1.4	J
108-95-2	Phenol	1	220	220	59	U
129-00-0	Pyrene	1	12	22	1.6	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.7	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.7	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.2	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	876	658	75	35 - 105	
Phenol-d6	880	638	72	40 - 100	
Nitrobenzene-d5	436	322	74	35 - 100	
2-Fluorobiphenyl	442	267	60	45 - 105	
2,4,6-Tribromophenol	876	462	53	35 - 125	
o-Terphenyl	438	261	60	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	267051	7.83	162142	8.052	
Naphthalene-d8	1087257	10.558	631706	10.803	
Acenaphthene-d10	568192	14.673	345886	14.941	
Phenanthrene-d10	720286	18.071	512675	18.281	
Chrysene-d12	598144	21.644	651471	21.79	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: 0908257-15.D

Sampled: 08/13/09 12:00 Prepared: 08/17/09 08:51 Analyzed: 08/18/09 06:28

Solids: Preparation: 3510C Liquid-Liquid Extı Initial/Final: 990 mL / 1 mL

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
83-32-9	Acenaphthene	1	0.50	0.50	0.030	U
208-96-8	Acenaphthylene	1	0.50	0.50	0.020	U
98-86-2	Acetophenone	1	5.0	5.0	0.068	U
120-12-7	Anthracene	1	0.50	0.50	0.036	U
1912-24-9	Atrazine	1	5.0	5.0	0.051	U
100-52-7	Benzaldehyde	1	5.0	5.0	0.22	U
56-55-3	Benzo(a)anthracene	1	0.50	0.50	0.022	U
50-32-8	Benzo(a)pyrene	1	0.50	0.50	0.042	U
205-99-2	Benzo(b)fluoranthene	1	0.50	0.50	0.11	U
207-08-9	Benzo(k)fluoranthene	1	0.50	0.50	0.12	U
191-24-2	Benzo(g,h,i)perylene	1	0.50	0.50	0.098	U
92-52-4	1,1'-Biphenyl	1	5.0	5.0	0.10	U
101-55-3	4-Bromophenyl Phenyl Ether	1	5.0	5.0	0.036	U
85-68-7	Butyl Benzyl Phthalate	1	0.40	5.0	0.058	J B,Z
105-60-2	Caprolactam	1	5.0	5.0	0.21	U
86-74-8	Carbazole	1	5.0	5.0	0.047	U
59-50-7	4-Chloro-3-methylphenol	1	5.0	5.0	0.031	U
106-47-8	4-Chloroaniline	1	5.0	5.0	0.15	U
111-91-1	Bis(2-chloroethoxy)methane	1	5.0	5.0	0.035	U
111-44-4	Bis(2-chloroethyl) Ether	1	5.0	5.0	0.035	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	5.0	5.0	0.059	U
91-58-7	2-Chloronaphthalene	1	5.0	5.0	0.029	U
95-57-8	2-Chlorophenol	1	5.0	5.0	0.080	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	5.0	5.0	0.031	U
218-01-9	Chrysene	1	0.50	0.50	0.036	U
53-70-3	Dibenz(a,h)anthracene	1	0.50	0.50	0.070	U
132-64-9	Dibenzofuran	1	5.0	5.0	0.039	U
84-74-2	Di-n-butyl Phthalate	1	0.52	5.0	0.27	J B,Z
91-94-1	3,3´-Dichlorobenzidine	1	5.0	5.0	0.64	U
120-83-2	2,4-Dichlorophenol	1	5.0	5.0	0.056	U
84-66-2	Diethyl Phthalate	1	0.071	5.0	0.043	J J,I
105-67-9	2,4-Dimethylphenol	1	5.0	5.0	0.24	U
131-11-3	Dimethyl Phthalate	1	5.0	5.0	0.045	U
534-52-1	4,6-Dinitro-2-methylphenol	1	5.0	5.0	0.17	U
51-28-5	2,4-Dinitrophenol	1	10	10	2.2	U
121-14-2	2,4-Dinitrotoluene	1	5.0	5.0	0.096	U
606-20-2	2,6-Dinitrotoluene	1	5.0	5.0	0.13	U
117-84-0	Di-n-octyl Phthalate	1	5.0	5.0	0.064	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	5.0	5.0	0.24	U
206-44-0	Fluoranthene	1	0.50	0.50	0.030	U
86-73-7	Fluorene	1	0.50	0.50	0.031	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: 0908257-15.D

Sampled: 08/13/09 12:00 Prepared: 08/17/09 08:51 Analyzed: 08/18/09 06:28

Solids: Preparation: 3510C Liquid-Liquid Ext Initial/Final: 990 mL / 1 mL

QC Batch: 0909484 Sequence: 9H18024 Calibration: 9H18007 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	5.0	5.0	0.062	U
87-68-3	Hexachlorobutadiene	1	5.0	5.0	0.057	U
77-47-4	Hexachlorocyclopentadiene	1	5.0	5.0	0.057	U
67-72-1	Hexachloroethane	1	5.0	5.0	0.035	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	0.50	0.50	0.038	U
78-59-1	Isophorone	1	5.0	5.0	0.056	U
91-57-6	2-Methylnaphthalene	1	5.0	5.0	0.024	U
95-48-7	2-Methylphenol	1	5.0	5.0	0.044	U
106-44-5	4-Methylphenol	1	5.0	5.0	0.18	U
91-20-3	Naphthalene	1	0.50	0.50	0.024	U
88-74-4	2-Nitroaniline	1	5.0	5.0	0.16	U
99-09-2	3-Nitroaniline	1	5.0	5.0	0.050	U
100-01-6	4-Nitroaniline	1	5.0	5.0	0.070	U
98-95-3	Nitrobenzene	1	5.0	5.0	0.076	U
100-02-7	4-Nitrophenol	1	5.0	5.0	0.19	U
88-75-5	2-Nitrophenol	1	5.0	5.0	0.071	U
86-30-6	N-Nitroso-diphenylamine	1	5.0	5.0	0.042	U
621-64-7	N-Nitroso-di-n-propylamine	1	5.0	5.0	0.044	U
87-86-5	Pentachlorophenol	1	5.0	5.0	0.11	U
85-01-8	Phenanthrene	1	0.50	0.50	0.031	U
108-95-2	Phenol	1	5.0	5.0	0.49	U
129-00-0	Pyrene	1	0.50	0.50	0.022	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	5.0	5.0	0.018	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	5.0	5.0	0.29	U
88-06-2	2,4,6-Trichlorophenol	1	5.0	5.0	0.059	U
95-95-4	2,4,5-Trichlorophenol	1	5.0	5.0	0.099	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
2-Fluorophenol	20.2	12.2	60	20 - 110	
Phenol-d6	20.3	8.23	41	10 - 115	
Nitrobenzene-d5	10.1	8.60	86	40 - 110	
2-Fluorobiphenyl	10.2	7.37	72	50 - 110	
2,4,6-Tribromophenol	20.2	17.4	86	40 - 125	
o-Terphenyl	10.1	8.80	87	50 - 135	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	137096	8.052	162142	8.052	
Naphthalene-d8	522719	10.797	631706	10.803	
Acenaphthene-d10	274206	14.93	345886	14.941	
Phenanthrene-d10	396516	18.275	512675	18.281	
Chrysene-d12	456372	21.784	651471	21.79	

ANALYSIS DATA SHEET

30SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-01 File ID: A85_388-0

Sampled: 08/13/09 08:25 Prepared: 08/24/09 08:07 Analyzed: 09/01/09 19:24

Solids: 86.69 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00025	U
319-85-7	beta-BHC	1	0.020	0.020	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00046	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00033	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00034	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00029	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00030	U
309-00-2	Aldrin	1	0.020	0.020	0.0014	U
60-57-1	Dieldrin	1	0.020	0.020	0.00029	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00029	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00031	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00038	U
72-20-8	Endrin	1	0.020	0.020	0.00032	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0010	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00042	U
76-44-8	Heptachlor	1	0.020	0.020	0.00050	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00024	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00042	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0033	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0385	0.0277	72	70 - 125	
Decachlorobiphenyl	0.0385	0.0305	79	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: A85_387-0

Sampled: 08/13/09 08:40 Prepared: 08/24/09 08:07 Analyzed: 09/01/09 18:46

Solids: 74.39 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.023	0.023	0.00030	U
319-85-7	beta-BHC	1	0.023	0.023	0.00038	U
58-89-9	gamma-BHC (Lindane)	1	0.023	0.023	0.00035	U
319-86-8	delta-BHC	1	0.023	0.023	0.00036	U
5103-71-9	alpha-Chlordane	1	0.023	0.023	0.00054	U
5103-74-2	gamma-Chlordane	1	0.023	0.023	0.00038	U
72-54-8	4,4'-DDD	1	0.023	0.023	0.00040	U
72-55-9	4,4'-DDE	1	0.023	0.023	0.00034	U
50-29-3	4,4'-DDT	1	0.023	0.023	0.00035	U
309-00-2	Aldrin	1	0.023	0.023	0.0017	U
60-57-1	Dieldrin	1	0.023	0.023	0.00034	U
959-98-8	Endosulfan I	1	0.023	0.023	0.00034	U
33213-65-9	Endosulfan II	1	0.023	0.023	0.00037	U
1031-07-8	Endosulfan Sulfate	1	0.023	0.023	0.00044	U
72-20-8	Endrin	1	0.023	0.023	0.00037	U
7421-93-4	Endrin Aldehyde	1	0.023	0.023	0.0012	U
53494-70-5	Endrin Ketone	1	0.023	0.023	0.00049	U
76-44-8	Heptachlor	1	0.023	0.023	0.00058	U
1024-57-3	Heptachlor Epoxide	1	0.023	0.023	0.00028	U
72-43-5	Methoxychlor	1	0.023	0.023	0.00049	U
8001-35-2	Toxaphene	1	0.23	0.23	0.0039	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0448	0.0336	75	70 - 125	
Decachlorobiphenyl	0.0448	0.0354	79	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: A85_386-0

Sampled: 08/13/09 00:00 Prepared: 08/24/09 08:07 Analyzed: 09/01/09 18:09

Solids: 74.78 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.023	0.023	0.00030	U
319-85-7	beta-BHC	1	0.023	0.023	0.00038	U
58-89-9	gamma-BHC (Lindane)	1	0.023	0.023	0.00034	U
319-86-8	delta-BHC	1	0.023	0.023	0.00035	U
5103-71-9	alpha-Chlordane	1	0.023	0.023	0.00053	U
5103-74-2	gamma-Chlordane	1	0.023	0.023	0.00038	U
72-54-8	4,4'-DDD	1	0.023	0.023	0.00040	U
72-55-9	4,4'-DDE	1	0.023	0.023	0.00033	U
50-29-3	4,4'-DDT	1	0.023	0.023	0.00035	U
309-00-2	Aldrin	1	0.023	0.023	0.0017	U
60-57-1	Dieldrin	1	0.023	0.023	0.00034	U
959-98-8	Endosulfan I	1	0.023	0.023	0.00034	U
33213-65-9	Endosulfan II	1	0.023	0.023	0.00037	U
1031-07-8	Endosulfan Sulfate	1	0.023	0.023	0.00044	U
72-20-8	Endrin	1	0.023	0.023	0.00037	U
7421-93-4	Endrin Aldehyde	1	0.023	0.023	0.0012	U
53494-70-5	Endrin Ketone	1	0.023	0.023	0.00048	U
76-44-8	Heptachlor	1	0.023	0.023	0.00058	U
1024-57-3	Heptachlor Epoxide	1	0.023	0.023	0.00028	U
72-43-5	Methoxychlor	1	0.023	0.023	0.00049	U
8001-35-2	Toxaphene	1	0.23	0.23	0.0039	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0446	0.0344	77	70 - 125	
Decachlorobiphenyl	0.0446	0.0384	86	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: A85_385-0

Sampled: 08/13/09 09:00 Prepared: 08/24/09 08:07 Analyzed: 09/01/09 17:31

Solids: 81.62 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00031	U
319-86-8	delta-BHC	1	0.021	0.021	0.00032	U
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00033	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0408	0.0305	75	70 - 125	
Decachlorobiphenyl	0.0408	0.0348	85	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-05 File ID: A85_384-0

Sampled: 08/13/09 09:30 Prepared: 08/24/09 08:07 Analyzed: 09/01/09 16:54

Solids: 91.11 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.019	0.019	0.00024	U
319-85-7	beta-BHC	1	0.019	0.019	0.00031	U
58-89-9	gamma-BHC (Lindane)	1	0.019	0.019	0.00028	U
319-86-8	delta-BHC	1	0.019	0.019	0.00029	U
5103-71-9	alpha-Chlordane	1	0.019	0.019	0.00044	U
5103-74-2	gamma-Chlordane	1	0.019	0.019	0.00031	U
72-54-8	4,4'-DDD	1	0.019	0.019	0.00033	U
72-55-9	4,4'-DDE	1	0.019	0.019	0.00027	U
50-29-3	4,4'-DDT	1	0.019	0.019	0.00028	U
309-00-2	Aldrin	1	0.019	0.019	0.0014	U
60-57-1	Dieldrin	1	0.019	0.019	0.00028	U
959-98-8	Endosulfan I	1	0.019	0.019	0.00028	U
33213-65-9	Endosulfan II	1	0.019	0.019	0.00030	U
1031-07-8	Endosulfan Sulfate	1	0.019	0.019	0.00036	U
72-20-8	Endrin	1	0.019	0.019	0.00030	U
7421-93-4	Endrin Aldehyde	1	0.019	0.019	0.00099	U
53494-70-5	Endrin Ketone	1	0.019	0.019	0.00040	U
76-44-8	Heptachlor	1	0.019	0.019	0.00048	U
1024-57-3	Heptachlor Epoxide	1	0.019	0.019	0.00023	U
72-43-5	Methoxychlor	1	0.019	0.019	0.00040	U
8001-35-2	Toxaphene	1	0.19	0.19	0.0032	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0366	0.0265	72	70 - 125	
Decachlorobiphenyl	0.0366	0.0284	77	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-06 File ID: A85_383-0

Sampled: 08/13/09 09:35 Prepared: 08/24/09 08:07 Analyzed: 09/01/09 15:44

Solids: 85.63 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00047	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00033	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00035	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00029	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00030	U
309-00-2	Aldrin	1	0.020	0.020	0.0015	U
60-57-1	Dieldrin	1	0.020	0.020	0.00029	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00039	U
72-20-8	Endrin	1	0.020	0.020	0.00032	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0011	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00042	U
76-44-8	Heptachlor	1	0.020	0.020	0.00051	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00043	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0389	0.0337	87	70 - 125	
Decachlorobiphenyl	0.0389	0.0325	83	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: A85_382-0

Sampled: 08/13/09 10:15 Prepared: 08/24/09 08:07 Analyzed: 09/01/09 15:06

Solids: 86.27 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02060 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00046	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00033	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00035	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00029	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00030	U
309-00-2	Aldrin	1	0.020	0.020	0.0014	U
60-57-1	Dieldrin	1	0.020	0.020	0.00029	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00038	U
72-20-8	Endrin	1	0.020	0.020	0.00032	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0010	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00042	U
76-44-8	Heptachlor	1	0.020	0.020	0.00050	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00042	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0386	0.0314	81	70 - 125	
Decachlorobiphenyl	0.0386	0.0345	89	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: A85_405-0

Sampled: 08/13/09 10:25 Prepared: 08/24/09 08:07 Analyzed: 09/02/09 06:01

Solids: 71.27 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02073 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.024	0.024	0.00031	U
319-85-7	beta-BHC	1	0.024	0.024	0.00040	U
58-89-9	gamma-BHC (Lindane)	1	0.024	0.024	0.00036	U
319-86-8	delta-BHC	1	0.024	0.024	0.00037	U
5103-71-9	alpha-Chlordane	1	0.024	0.024	0.00056	U
5103-74-2	gamma-Chlordane	1	0.024	0.024	0.00040	U
72-54-8	4,4'-DDD	1	0.024	0.024	0.00042	U
72-55-9	4,4'-DDE	1	0.024	0.024	0.00035	U
50-29-3	4,4'-DDT	1	0.024	0.024	0.00036	U
309-00-2	Aldrin	1	0.024	0.024	0.0018	U
60-57-1	Dieldrin	1	0.024	0.024	0.00035	U
959-98-8	Endosulfan I	1	0.024	0.024	0.00036	U
33213-65-9	Endosulfan II	1	0.024	0.024	0.00038	U
1031-07-8	Endosulfan Sulfate	1	0.024	0.024	0.00046	U
72-20-8	Endrin	1	0.024	0.024	0.00039	U
7421-93-4	Endrin Aldehyde	1	0.024	0.024	0.0013	U
53494-70-5	Endrin Ketone	1	0.024	0.024	0.00051	U
76-44-8	Heptachlor	1	0.024	0.024	0.00061	U
1024-57-3	Heptachlor Epoxide	1	0.024	0.024	0.00030	U
72-43-5	Methoxychlor	1	0.024	0.024	0.00051	U
8001-35-2	Toxaphene	1	0.24	0.24	0.0041	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0468	0.0356	76	70 - 125	
Decachlorobiphenyl	0.0468	0.0410	88	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: A85_404-0

Sampled: 08/13/09 00:00 Prepared: 08/24/09 08:07 Analyzed: 09/02/09 05:24

Solids: 84.14 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02073 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00034	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00031	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00047	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00034	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00035	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00030	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00031	U
309-00-2	Aldrin	1	0.020	0.020	0.0015	U
60-57-1	Dieldrin	1	0.020	0.020	0.00030	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00039	U
72-20-8	Endrin	1	0.020	0.020	0.00033	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0011	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00043	U
76-44-8	Heptachlor	1	0.020	0.020	0.00052	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00044	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0396	0.0311	78	70 - 125	
Decachlorobiphenyl	0.0396	0.0340	86	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: A85_403-0

Sampled: 08/13/09 10:55 Prepared: 08/24/09 08:07 Analyzed: 09/02/09 04:46

Solids: 87.13 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02073 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00025	U
319-85-7	beta-BHC	1	0.020	0.020	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00029	U
319-86-8	delta-BHC	1	0.020	0.020	0.00030	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00046	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00033	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00034	U
72-55-9	4,4'-DDE	1	0.020	0.020	0.00029	U
50-29-3	4,4'-DDT	1	0.020	0.020	0.00030	U
309-00-2	Aldrin	1	0.020	0.020	0.0014	U
60-57-1	Dieldrin	1	0.020	0.020	0.00029	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00029	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00031	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00038	U
72-20-8	Endrin	1	0.020	0.020	0.00032	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0010	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00041	U
76-44-8	Heptachlor	1	0.020	0.020	0.00050	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00024	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00042	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0033	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0383	0.0280	73	70 - 125	
Decachlorobiphenyl	0.0383	0.0307	80	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-12 File ID: A85_402-0

Sampled: 08/13/09 11:10 Prepared: 08/24/09 08:07 Analyzed: 09/02/09 04:09

Solids: 87.50 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02073 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.019	0.019	0.00025	U
319-85-7	beta-BHC	1	0.019	0.019	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.019	0.019	0.00029	U
319-86-8	delta-BHC	1	0.019	0.019	0.00030	U
5103-71-9	alpha-Chlordane	1	0.019	0.019	0.00046	U
5103-74-2	gamma-Chlordane	1	0.019	0.019	0.00032	U
72-54-8	4,4'-DDD	1	0.019	0.019	0.00034	U
72-55-9	4,4'-DDE	1	0.019	0.019	0.00029	U
50-29-3	4,4'-DDT	1	0.019	0.019	0.00030	U
309-00-2	Aldrin	1	0.019	0.019	0.0014	U
60-57-1	Dieldrin	1	0.019	0.019	0.00029	U
959-98-8	Endosulfan I	1	0.019	0.019	0.00029	U
33213-65-9	Endosulfan II	1	0.019	0.019	0.00031	U
1031-07-8	Endosulfan Sulfate	1	0.019	0.019	0.00038	U
72-20-8	Endrin	1	0.019	0.019	0.00031	U
7421-93-4	Endrin Aldehyde	1	0.019	0.019	0.0010	U
53494-70-5	Endrin Ketone	1	0.019	0.019	0.00041	U
76-44-8	Heptachlor	1	0.019	0.019	0.00050	U
1024-57-3	Heptachlor Epoxide	1	0.019	0.019	0.00024	U
72-43-5	Methoxychlor	1	0.019	0.019	0.00042	U
8001-35-2	Toxaphene	1	0.19	0.19	0.0033	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0381	0.0279	73	70 - 125	
Decachlorobiphenyl	0.0381	0.0315	83	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-13 File ID: A85_401-0

Sampled: 08/13/09 11:25 Prepared: 08/24/09 08:07 Analyzed: 09/02/09 03:31

Solids: 87.76 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02073 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.019	0.019	0.00025	U
319-85-7	beta-BHC	1	0.019	0.019	0.00033	U
58-89-9	gamma-BHC (Lindane)	1	0.019	0.019	0.00029	U
319-86-8	delta-BHC	1	0.019	0.019	0.00030	U
5103-71-9	alpha-Chlordane	1	0.019	0.019	0.00045	U
5103-74-2	gamma-Chlordane	1	0.019	0.019	0.00032	U
72-54-8	4,4'-DDD	1	0.019	0.019	0.00034	U
72-55-9	4,4'-DDE	1	0.019	0.019	0.00028	U
50-29-3	4,4'-DDT	1	0.019	0.019	0.00030	U
309-00-2	Aldrin	1	0.019	0.019	0.0014	U
60-57-1	Dieldrin	1	0.019	0.019	0.00029	U
959-98-8	Endosulfan I	1	0.019	0.019	0.00029	U
33213-65-9	Endosulfan II	1	0.019	0.019	0.00031	U
1031-07-8	Endosulfan Sulfate	1	0.019	0.019	0.00038	U
72-20-8	Endrin	1	0.019	0.019	0.00031	U
7421-93-4	Endrin Aldehyde	1	0.019	0.019	0.0010	U
53494-70-5	Endrin Ketone	1	0.019	0.019	0.00041	U
76-44-8	Heptachlor	1	0.019	0.019	0.00049	U
1024-57-3	Heptachlor Epoxide	1	0.019	0.019	0.00024	U
72-43-5	Methoxychlor	1	0.019	0.019	0.00042	U
8001-35-2	Toxaphene	1	0.19	0.19	0.0033	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0380	0.0273	72	70 - 125	
Decachlorobiphenyl	0.0380	0.0294	77	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: A85_400-0

Sampled: 08/13/09 13:20 Prepared: 08/24/09 08:07 Analyzed: 09/02/09 02:54

Solids: 76.09 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909903 Sequence: 9I02073 Calibration: 9I02023 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00029	U
319-85-7	beta-BHC	1	0.022	0.022	0.00038	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00034	U
319-86-8	delta-BHC	1	0.022	0.022	0.00035	U
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00052	U
5103-74-2	gamma-Chlordane	1	0.022	0.022	0.00037	U
72-54-8	4,4'-DDD	1	0.022	0.022	0.00039	U
72-55-9	4,4'-DDE	1	0.022	0.022	0.00033	U
50-29-3	4,4'-DDT	1	0.022	0.022	0.00034	U
309-00-2	Aldrin	1	0.022	0.022	0.0016	U
60-57-1	Dieldrin	1	0.022	0.022	0.00033	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00034	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00036	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00043	U
72-20-8	Endrin	1	0.022	0.022	0.00036	U
7421-93-4	Endrin Aldehyde	1	0.022	0.022	0.0012	U
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00047	U
76-44-8	Heptachlor	1	0.022	0.022	0.00057	U
1024-57-3	Heptachlor Epoxide	1	0.022	0.022	0.00028	U
72-43-5	Methoxychlor	1	0.022	0.022	0.00048	U
8001-35-2	Toxaphene	1	0.22	0.22	0.0038	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0438	0.0359	82	70 - 125	
Decachlorobiphenyl	0.0438	0.0408	93	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: A85_247-0

Sampled: 08/13/09 12:00 Prepared: 08/17/09 09:24 Analyzed: 08/28/09 07:05

Solids: Preparation: 3510C Liquid-Liquid Ext Initial/Final: 970 mL / 2 mL

QC Batch: 0909501 Sequence: 9I01016 Calibration: 9I08007 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.050	0.050	0.00063	U
319-85-7	beta-BHC	1	0.050	0.050	0.00052	U
58-89-9	gamma-BHC (Lindane)	1	0.050	0.050	0.00064	U
319-86-8	delta-BHC	1	0.10	0.10	0.0011	U
5103-71-9	alpha-Chlordane	1	0.050	0.050	0.00052	U
5103-74-2	gamma-Chlordane	1	0.050	0.050	0.00046	U
72-54-8	4,4'-DDD	1	0.10	0.10	0.00072	U
72-55-9	4,4'-DDE	1	0.10	0.10	0.00058	U
50-29-3	4,4'-DDT	1	0.10	0.10	0.00065	U
309-00-2	Aldrin	1	0.050	0.050	0.00080	U
60-57-1	Dieldrin	1	0.050	0.050	0.00048	U
959-98-8	Endosulfan I	1	0.10	0.10	0.00046	U
33213-65-9	Endosulfan II	1	0.10	0.10	0.00045	U
1031-07-8	Endosulfan Sulfate	1	0.10	0.10	0.00076	U
72-20-8	Endrin	1	0.10	0.10	0.0062	U
7421-93-4	Endrin Aldehyde	1	0.10	0.10	0.0039	U
53494-70-5	Endrin Ketone	1	0.050	0.050	0.00093	U
76-44-8	Heptachlor	1	0.050	0.050	0.00043	U
1024-57-3	Heptachlor Epoxide	1	0.050	0.050	0.00056	U
72-43-5	Methoxychlor	1	0.50	0.50	0.0014	U
8001-35-2	Toxaphene	1	5.0	5.0	0.0087	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.206	0.156	75	25 - 140	
Decachlorobiphenyl	0.206	0.187	91	30 - 135	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-01 File ID: A42_055-0

Sampled: 08/13/09 08:25 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 03:43

Solids: 86.69 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	38	38	4.8	U
11104-28-2	PCB-1221	1	38	38	9.0	U
11141-16-5	PCB-1232	1	38	38	5.2	U
53469-21-9	PCB-1242	1	77	77	5.3	U
12672-29-6	PCB-1248	1	38	38	7.5	U
11097-69-1	PCB-1254	1	38	38	6.8	U
11096-82-5	PCB-1260	1	77	77	5.8	U
37324-23-5	PCB-1262	1	38	38	6.0	U
11100-14-4	PCB-1268	1	38	38	7.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.5	37.2	97	60 - 125	
Tetrachloro-m-xylene	38.5	35.7	93	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: A42_054-0

Sampled: 08/13/09 08:40 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 03:19

Solids: 74.39 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	44	44	5.6	U
11104-28-2	PCB-1221	1	44	44	10	U
11141-16-5	PCB-1232	1	44	44	6.0	U
53469-21-9	PCB-1242	1	90	90	6.2	U
12672-29-6	PCB-1248	1	44	44	8.7	U
11097-69-1	PCB-1254	1	44	44	7.9	U
11096-82-5	PCB-1260	1	90	90	6.7	U
37324-23-5	PCB-1262	1	44	44	7.0	U
11100-14-4	PCB-1268	1	44	44	8.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	44.8	43.2	96	60 - 125	
Tetrachloro-m-xylene	44.8	41.4	92	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: A42_053-0

Sampled: 08/13/09 00:00 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 02:55

Solids: 74.78 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	44	44	5.6	U
11104-28-2	PCB-1221	1	44	44	10	U
11141-16-5	PCB-1232	1	44	44	6.0	U
53469-21-9	PCB-1242	1	90	90	6.2	U
12672-29-6	PCB-1248	1	44	44	8.7	U
11097-69-1	PCB-1254	1	44	44	7.9	U
11096-82-5	PCB-1260	1	90	90	6.7	U
37324-23-5	PCB-1262	1	44	44	7.0	U
11100-14-4	PCB-1268	1	44	44	8.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	44.6	41.2	92	60 - 125	
Tetrachloro-m-xylene	44.6	40.3	90	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: A42_052-0

Sampled: 08/13/09 09:00 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 02:30

Solids: 81.62 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	40	40	5.1	U
11104-28-2	PCB-1221	1	40	40	9.6	U
11141-16-5	PCB-1232	1	40	40	5.5	U
53469-21-9	PCB-1242	1	82	82	5.6	U
12672-29-6	PCB-1248	1	40	40	8.0	U
11097-69-1	PCB-1254	1	40	40	7.2	U
11096-82-5	PCB-1260	1	82	82	6.1	U
37324-23-5	PCB-1262	1	40	40	6.4	U
11100-14-4	PCB-1268	1	40	40	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	40.8	40.4	99	60 - 125	
Tetrachloro-m-xylene	40.8	40.8	100	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-05 File ID: A42_051-0

Sampled: 08/13/09 09:30 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 02:06

Solids: 91.11 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	36	36	4.6	U
11104-28-2	PCB-1221	1	36	36	8.6	U
11141-16-5	PCB-1232	1	36	36	4.9	U
53469-21-9	PCB-1242	1	74	74	5.0	U
12672-29-6	PCB-1248	1	36	36	7.1	U
11097-69-1	PCB-1254	1	14	36	6.5	J
11096-82-5	PCB-1260	1	13	74	5.5	J
37324-23-5	PCB-1262	1	36	36	5.7	U
11100-14-4	PCB-1268	1	36	36	7.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	36.6	34.6	95	60 - 125	
Tetrachloro-m-xylene	36.6	35.6	97	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-06 File ID: A42_050-0

Sampled: 08/13/09 09:35 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 01:42

Solids: 85.63 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	39	39	4.9	U
11104-28-2	PCB-1221	1	39	39	9.1	U
11141-16-5	PCB-1232	1	39	39	5.3	U
53469-21-9	PCB-1242	1	78	78	5.4	U
12672-29-6	PCB-1248	1	39	39	7.6	U
11097-69-1	PCB-1254	1	39	39	6.9	U
11096-82-5	PCB-1260	1	78	78	5.8	U
37324-23-5	PCB-1262	1	39	39	6.1	U
11100-14-4	PCB-1268	1	39	39	7.6	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.9	36.2	93	60 - 125	
Tetrachloro-m-xylene	38.9	36.6	94	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: A42_049-0

Sampled: 08/13/09 10:15 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 01:18

Solids: 86.27 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	38	38	4.9	U
11104-28-2	PCB-1221	1	38	38	9.0	U
11141-16-5	PCB-1232	1	38	38	5.2	U
53469-21-9	PCB-1242	1	78	78	5.3	U
12672-29-6	PCB-1248	1	38	38	7.5	U
11097-69-1	PCB-1254	1	38	38	6.8	U
11096-82-5	PCB-1260	1	78	78	5.8	U
37324-23-5	PCB-1262	1	38	38	6.0	U
11100-14-4	PCB-1268	1	38	38	7.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.6	37.5	97	60 - 125	
Tetrachloro-m-xylene	38.6	37.9	98	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: A42_048-0

Sampled: 08/13/09 10:25 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 00:53

Solids: 71.27 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	46	46	5.9	U
11104-28-2	PCB-1221	1	46	46	11	U
11141-16-5	PCB-1232	1	46	46	6.3	U
53469-21-9	PCB-1242	1	94	94	6.5	U
12672-29-6	PCB-1248	1	46	46	9.1	U
11097-69-1	PCB-1254	1	46	46	8.3	U
11096-82-5	PCB-1260	1	94	94	7.0	U
37324-23-5	PCB-1262	1	46	46	7.3	U
11100-14-4	PCB-1268	1	46	46	9.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	46.8	41.7	89	60 - 125	
Tetrachloro-m-xylene	46.8	43.7	93	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: A42_060-0

Sampled: 08/13/09 00:00 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 05:44

Solids: 84.14 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	39	39	5.0	U
11104-28-2	PCB-1221	1	39	39	9.3	U
11141-16-5	PCB-1232	1	39	39	5.3	U
53469-21-9	PCB-1242	1	80	80	5.5	U
12672-29-6	PCB-1248	1	39	39	7.7	U
11097-69-1	PCB-1254	1	39	39	7.0	U
11096-82-5	PCB-1260	1	80	80	5.9	U
37324-23-5	PCB-1262	1	39	39	6.2	U
11100-14-4	PCB-1268	1	39	39	7.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	39.6	38.8	98	60 - 125	
Tetrachloro-m-xylene	39.6	37.6	95	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: A42_061-0

Sampled: 08/13/09 10:55 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 06:09

Solids: 87.13 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	38	38	4.8	U
11104-28-2	PCB-1221	1	38	38	9.0	U
11141-16-5	PCB-1232	1	38	38	5.2	U
53469-21-9	PCB-1242	1	77	77	5.3	U
12672-29-6	PCB-1248	1	38	38	7.5	U
11097-69-1	PCB-1254	1	38	38	6.8	U
11096-82-5	PCB-1260	1	77	77	5.7	U
37324-23-5	PCB-1262	1	38	38	6.0	U
11100-14-4	PCB-1268	1	38	38	7.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.3	38.1	100	60 - 125	
Tetrachloro-m-xylene	38.3	35.3	92	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-12 File ID: A42_062-0

Sampled: 08/13/09 11:10 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 06:33

Solids: 87.50 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	38	38	4.8	U
11104-28-2	PCB-1221	1	38	38	8.9	U
11141-16-5	PCB-1232	1	38	38	5.1	U
53469-21-9	PCB-1242	1	77	77	5.3	U
12672-29-6	PCB-1248	1	38	38	7.4	U
11097-69-1	PCB-1254	1	38	38	6.7	U
11096-82-5	PCB-1260	1	77	77	5.7	U
37324-23-5	PCB-1262	1	38	38	5.9	U
11100-14-4	PCB-1268	1	38	38	7.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.1	39.1	103	60 - 125	
Tetrachloro-m-xylene	38.1	37.5	98	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-13 File ID: A42_063-0

Sampled: 08/13/09 11:25 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 06:57

Solids: 87.76 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	38	38	4.8	U
11104-28-2	PCB-1221	1	38	38	8.9	U
11141-16-5	PCB-1232	1	38	38	5.1	U
53469-21-9	PCB-1242	1	76	76	5.2	U
12672-29-6	PCB-1248	1	38	38	7.4	U
11097-69-1	PCB-1254	1	38	38	6.7	U
11096-82-5	PCB-1260	1	76	76	5.7	U
37324-23-5	PCB-1262	1	38	38	5.9	U
11100-14-4	PCB-1268	1	38	38	7.4	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	38.0	38.4	101	60 - 125	
Tetrachloro-m-xylene	38.0	36.5	96	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: A42_064-0

Sampled: 08/13/09 13:20 Prepared: 08/24/09 08:06 Analyzed: 08/26/09 07:21

Solids: 76.09 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0909902 Sequence: 9H27065 Calibration: 9H25001 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	43	43	5.5	U
11104-28-2	PCB-1221	1	43	43	10	U
11141-16-5	PCB-1232	1	43	43	5.9	U
53469-21-9	PCB-1242	1	88	88	6.0	U
12672-29-6	PCB-1248	1	43	43	8.5	U
11097-69-1	PCB-1254	1	43	43	7.8	U
11096-82-5	PCB-1260	1	88	88	6.6	U
37324-23-5	PCB-1262	1	43	43	6.8	U
11100-14-4	PCB-1268	1	43	43	8.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	43.8	43.7	100	60 - 125	
Tetrachloro-m-xylene	43.8	44.3	101	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: A41_162-0

Sampled: 08/13/09 12:00 Prepared: 08/17/09 08:19 Analyzed: 08/18/09 03:54

Solids: Preparation: 3510C Liquid-Liquid Ext Initial/Final: 970 mL / 2 mL

QC Batch: 0909445 Sequence: 9H18074 Calibration: 9I04021 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
12674-11-2	PCB-1016	1	0.20	0.20	0.025	U
11104-28-2	PCB-1221	1	0.20	0.20	0.029	U
11141-16-5	PCB-1232	1	0.20	0.20	0.032	U
53469-21-9	PCB-1242	1	0.20	0.20	0.040	U
12672-29-6	PCB-1248	1	0.20	0.20	0.030	U
11097-69-1	PCB-1254	1	0.20	0.20	0.033	U
11096-82-5	PCB-1260	1	0.20	0.20	0.026	U
37324-23-5	PCB-1262	1	0.20	0.20	0.033	U
11100-14-4	PCB-1268	1	0.20	0.20	0.026	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% Rec.	QC Limits	Q
Decachlorobiphenyl	0.206	0.193	94	40 - 135	
Tetrachloro-m-xylene	0.206	0.146	71	36 - 114	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

30SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-01 File ID: expa019-0

Sampled: 08/13/09 08:25 Prepared: 08/20/09 14:02 Analyzed: 08/26/09 22:57

Solids: 86.69 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U VJC
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJC
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.26	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: expa021-0

Sampled: 08/13/09 08:40 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 00:23

Solids: 74.39 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.39	95	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: expa022-0

Sampled: 08/13/09 00:00 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 01:05

Solids: 74.78 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.31	92	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: expa023-0

Sampled: 08/13/09 09:00 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 01:47

Solids: 81.62 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ/c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.26	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

30SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-05 File ID: expa005-0

Sampled: 08/13/09 09:30 Prepared: 08/20/09 08:11 Analyzed: 08/27/09 16:47

Solids: 91.11 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909778 Sequence: 9H28027 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.15	86	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

30SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-06 File ID: expa024-0

Sampled: 08/13/09 09:35 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 02:29

Solids: 85.63 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJC
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.32	93	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: expa025-0

Sampled: 08/13/09 10:15 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 03:11

Solids: 86.27 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJc
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.21	89	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: expa026-0

Sampled: 08/13/09 10:25 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 03:54

Solids: 71.27 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.28	91	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: expa027-0

Sampled: 08/13/09 00:00 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 04:36

Solids: 84.14 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJc
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.29	92	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-10 File ID: expa028-0

Sampled: 08/13/09 10:55 Prepared: 08/20/09 14:02 Analyzed: 08/27/09 05:18

Solids: 87.13 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909683 Sequence: 9H27001 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJ
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.17	87	57 - 139	

* Values outside of QC limits

82186

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SS3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-12 File ID: expa007-0

Sampled: 08/13/09 11:10 Prepared: 08/20/09 08:11 Analyzed: 08/27/09 18:11

Solids: 87.50 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909778 Sequence: 9H28027 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJC
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.26	90	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-13 File ID: expa008-0

Sampled: 08/13/09 11:25 Prepared: 08/20/09 08:11 Analyzed: 08/27/09 18:53

Solids: 87.76 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909778 Sequence: 9H28027 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,C
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.44	97	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: expa009-0

Sampled: 08/13/09 13:20 Prepared: 08/20/09 08:11 Analyzed: 08/27/09 19:35

Solids: 76.09 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909778 Sequence: 9H28027 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJC
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.31	92	57 - 139	

* Values outside of QC limits

02115

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: expa008-0

Sampled: 08/13/09 12:00 Prepared: 08/18/09 07:37 Analyzed: 08/25/09 14:32

Solids: Preparation: 8330 Extraction Initial/Final: 770 mL / 10 mL

QC Batch: 0909645 Sequence: 9H25052 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	5.0	5.0	0.086	U
99-65-0	1,3-Dinitrobenzene	1	5.0	5.0	0.080	U
118-96-7	2,4,6-Trinitrotoluene	1	5.0	5.0	0.082	U
121-14-2	2,4-Dinitrotoluene	1	5.0	5.0	0.12	U
606-20-2	2,6-Dinitrotoluene	1	5.0	5.0	0.29	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	5.0	5.0	0.22	U
88-72-2	2-Nitrotoluene	1	5.0	5.0	0.22	U
99-08-1	3-Nitrotoluene	1	5.0	5.0	0.28	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	5.0	5.0	0.31	U VJC
99-99-0	4-Nitrotoluene	1	5.0	5.0	0.38	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	5.0	5.0	0.16	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	5.0	5.0	0.084	U
98-95-3	Nitrobenzene	1	5.0	5.0	0.12	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	5.0	5.0	0.17	U VJC

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
4-Nitroaniline	3.25	2.42	75	29 - 138	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

30SS1

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908257-01
File ID: expa017-0
Sampled: 08/13/09 08:25
Prepared: 08/20/09 13:59
Analyzed: 08/25/09 20:15
Solids: 86.69
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909681
Sequence: 9H26052
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.34	94	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

30SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-02 File ID: expa018-0

Sampled: 08/13/09 08:40 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 20:29

Solids: 74.39 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.31	93	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

DUP-4

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-03 File ID: expa019-0

Sampled: 08/13/09 00:00 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 20:44

Solids: 74.78 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.34	94	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

30SS2

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-04 File ID: expa020-0

Sampled: 08/13/09 09:00 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 20:58

Solids: 81.62 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.39	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

30SS3

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908257-05
File ID: NGa005-0
Sampled: 08/13/09 09:30
Prepared: 08/21/09 08:11
Analyzed: 08/28/09 10:08
Solids: 91.11
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909779
Sequence: 9H28064
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.51	100	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

30SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908257-06
File ID: expa022-0
Sampled: 08/13/09 09:35
Prepared: 08/20/09 13:59
Analyzed: 08/25/09 21:26
Solids: 85.63
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909681
Sequence: 9H26052
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.40	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79SS1

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-07 File ID: expa023-0

Sampled: 08/13/09 10:15 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 21:41

Solids: 86.27 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.38	95	50 - 150	

* Values outside of QC limits

02823

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

30SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-08 File ID: expa024-0

Sampled: 08/13/09 10:25 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 21:55

Solids: 71.27 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.32	93	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

DUP-5

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-09 File ID: expa025-0

Sampled: 08/13/09 00:00 Prepared: 08/20/09 13:59 Analyzed: 08/25/09 22:09

Solids: 84.14 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909681 Sequence: 9H26052 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.39	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79SS2

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908257-10
File ID: expa026-0
Sampled: 08/13/09 10:55
Prepared: 08/20/09 13:59
Analyzed: 08/25/09 22:23
Solids: 87.13
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909681
Sequence: 9H26052
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.41	96	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79SS3

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908257-12
File ID: NGa006-0
Sampled: 08/13/09 11:10
Prepared: 08/21/09 08:11
Analyzed: 08/28/09 10:22
Solids: 87.50
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909779
Sequence: 9H28064
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.45	98	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0908257-13
File ID: NGa007-0
Sampled: 08/13/09 11:25
Prepared: 08/21/09 08:11
Analyzed: 08/28/09 10:36
Solids: 87.76
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0909779
Sequence: 9H28064
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.43	97	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

60SS6

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0908257-14 File ID: NGa008-0

Sampled: 08/13/09 13:20 Prepared: 08/21/09 08:11 Analyzed: 08/28/09 10:52

Solids: 76.09 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0909779 Sequence: 9H28064 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.38	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

EQBK-3

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Water Laboratory ID: 0908257-15 File ID: NGa008-0

Sampled: 08/13/09 12:00 Prepared: 08/18/09 07:36 Analyzed: 08/19/09 12:40

Solids: Preparation: 8330 Extraction Initial/Final: 770 mL / 10 mL

QC Batch: 0909644 Sequence: 9H25048 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (ug/L)	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.46	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.18	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
1-Nitronaphthalene	3.25	3.37	104	50 - 150	

* Values outside of QC limits

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:25
Solids: 86.69
Laboratory ID: 0908257-01

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5015 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	2.9	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:00
7440-50-8	Copper, Total B1X	7.2	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:00
7439-92-1	Lead, Total L1M	18	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:00
7440-02-0	Nickel, Total	7.8	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:00
7782-49-2	Selenium, Total L10	0.22	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:00
7440-22-4	Silver, Total	0.083	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:00
7440-28-0	Thallium, Total	0.19	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:00
7440-62-2	Vanadium, Total L1M	33	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:00

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:25
Solids: 86.69
Laboratory ID: 0908257-01

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5003 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.24	mg/kg dry wt.	1	0.20	0.037		08/18/09 16:57

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:40
Solids: 74.39
Laboratory ID: 0908257-02

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5151 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	0.91	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:03
7440-50-8	Copper, Total B,X	5.0	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:03
7439-92-1	Lead, Total L,M	5.8	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:03
7440-02-0	Nickel, Total	5.8	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:03
7782-49-2	Selenium, Total L,O	0.064	mg/kg dry wt.	1	0.20	0.049	J	08/19/09 13:03
7440-22-4	Silver, Total B,O	0.028	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:03
7440-28-0	Thallium, Total	0.083	mg/kg dry wt.	1	0.10	0.0061	J	08/19/09 13:03
7440-62-2	Vanadium, Total L,M	31	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:03

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:40
Solids: 74.39
Laboratory ID: 0908257-02

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5142 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.050	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 16:59

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 74.78
Laboratory ID: 0908257-03

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5026 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.0	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:06
7440-50-8	Copper, Total B,X	6.4	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:06
7439-92-1	Lead, Total L,M	25	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:06
7440-02-0	Nickel, Total	6.6	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:06
7782-49-2	Selenium, Total UL,O	0.20	mg/kg dry wt.	1	0.20	0.049	U	08/19/09 13:06
7440-22-4	Silver, Total B,O	0.031	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:06
7440-28-0	Thallium, Total	0.12	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:06
7440-62-2	Vanadium, Total L,M	35	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:06

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 74.78
Laboratory ID: 0908257-03

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5114 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.056	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 17:01

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:00
Solids: 81.62
Laboratory ID: 0908257-04

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5078 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	3.3	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:09
7440-50-8	Copper, Total B,x	10	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:09
7439-92-1	Lead, Total L,m	16	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:09
7440-02-0	Nickel, Total	8.9	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:09
7782-49-2	Selenium, Total L,o	0.44	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:09
7440-22-4	Silver, Total B,o	0.059	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:09
7440-28-0	Thallium, Total	0.23	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:09
7440-62-2	Vanadium, Total L,m	63	mg/kg dry wt.	2	0.20	0.065		08/19/09 14:01

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:00
Solids: 81.62
Laboratory ID: 0908257-04

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5105 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.26	mg/kg dry wt.	1	0.20	0.037		08/18/09 17:03

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:30
Solids: 91.11
Laboratory ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5014 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	3.1	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:12
7440-50-8	Copper, Total Bx	5.1	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:12
7439-92-1	Lead, Total L,m	24	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:12
7440-02-0	Nickel, Total	5.1	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:12
7782-49-2	Selenium, Total L,o	0.24	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:12
7440-22-4	Silver, Total B,o	0.042	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:12
7440-28-0	Thallium, Total	0.16	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:12
7440-62-2	Vanadium, Total L,m	28	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:12

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:30
Solids: 91.11
Laboratory ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5052 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.19	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 17:05

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:35
Solids: 85.63
Laboratory ID: 0908257-06

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.508 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.4	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:32
7440-50-8	Copper, Total B,x	6.8	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:32
7439-92-1	Lead, Total L,m	7.9	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:32
7440-02-0	Nickel, Total	6.9	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:32
7782-49-2	Selenium, Total	0.20	mg/kg dry wt.	1	0.20	0.049	U	08/19/09 13:32
7440-22-4	Silver, Total B,o	0.047	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:32
7440-28-0	Thallium, Total	0.11	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:32
7440-62-2	Vanadium, Total L,m	34	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:32

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:35
Solids: 85.63
Laboratory ID: 0908257-06

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5034 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.079	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 17:25

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:15
Solids: 86.27
Laboratory ID: 0908257-07

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5091 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	3.3	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:35
7440-50-8	Copper, Total B,X	6.3	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:35
7439-92-1	Lead, Total L,M	12	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:35
7440-02-0	Nickel, Total	5.5	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:35
7782-49-2	Selenium, Total	0.12	mg/kg dry wt.	1	0.20	0.049	J	08/19/09 13:35
7440-22-4	Silver, Total B,O	0.050	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:35
7440-28-0	Thallium, Total	0.16	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:35
7440-62-2	Vanadium, Total L,M	34	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:35

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:15
Solids: 86.27
Laboratory ID: 0908257-07

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5141 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.20	mg/kg dry wt.	1	0.20	0.037		08/18/09 17:27

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:25
Solids: 71.27
Laboratory ID: 0908257-08

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5084 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.3	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:38
7440-50-8	Copper, Total B,x	7.9	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:38
7439-92-1	Lead, Total L,m	10	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:38
7440-02-0	Nickel, Total	7.9	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:38
7782-49-2	Selenium, Total	0.18	mg/kg dry wt.	1	0.20	0.049	J	08/19/09 13:38
7440-22-4	Silver, Total B,c	0.037	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:38
7440-28-0	Thallium, Total	0.15	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:38
7440-62-2	Vanadium, Total L,m	41	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:38

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

30SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:25
Solids: 71.27
Laboratory ID: 0908257-08

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5055 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.14	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 17:29

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 84.14
Laboratory ID: 0908257-09

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5085 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.2	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:41
7440-50-8	Copper, Total B,X	6.5	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:41
7439-92-1	Lead, Total L,M	8.2	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:41
7440-02-0	Nickel, Total	6.4	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:41
7782-49-2	Selenium, Total	0.13	mg/kg dry wt.	1	0.20	0.049	J	08/19/09 13:41
7440-22-4	Silver, Total B,O	0.029	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:41
7440-28-0	Thallium, Total	0.12	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:41
7440-62-2	Vanadium, Total L,M	36	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:41

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP-5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 84.14
Laboratory ID: 0908257-09

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5019 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.074	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 17:31

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:55
Solids: 87.13
Laboratory ID: 0908257-10

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5128 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	2.4	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:44
7440-50-8	Copper, Total B,X	7.4	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:44
7439-92-1	Lead, Total L,M	11	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:44
7440-02-0	Nickel, Total	6.6	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:44
7782-49-2	Selenium, Total	0.078	mg/kg dry wt.	1	0.20	0.049	J	08/19/09 13:44
7440-22-4	Silver, Total B,O	0.057	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:44
7440-28-0	Thallium, Total	0.18	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:44
7440-62-2	Vanadium, Total L,M	36	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:44

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:55
Solids: 87.13
Laboratory ID: 0908257-10

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5088 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.20	mg/kg dry wt.	1	0.20	0.037		08/18/09 17:33

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:10
Solids: 87.50
Laboratory ID: 0908257-12

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5215 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	1.6	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:47
7440-50-8	Copper, Total B,X	8.5	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:47
7439-92-1	Lead, Total L,M	14	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:47
7440-02-0	Nickel, Total	8.6	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:47
7782-49-2	Selenium, Total	0.24	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:47
7440-22-4	Silver, Total B,O	0.039	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:47
7440-28-0	Thallium, Total	0.13	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:47
7440-62-2	Vanadium, Total L,M	25	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:47

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:10
Solids: 87.50
Laboratory ID: 0908257-12

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5105 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.12	mg/kg dry wt.	1	0.20	0.037	J	08/18/09 17:40

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:25
Solids: 87.76
Laboratory ID: 0908257-13

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5059 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	0.92	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:50
7440-50-8	Copper, Total B,X	3.2	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:50
7439-92-1	Lead, Total L,M	4.0	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:50
7440-02-0	Nickel, Total	3.9	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:50
7782-49-2	Selenium, Total	0.20	mg/kg dry wt.	1	0.20	0.049	U	08/19/09 13:50
7440-22-4	Silver, Total B,O	0.018	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:50
7440-28-0	Thallium, Total	0.050	mg/kg dry wt.	1	0.10	0.0061	J	08/19/09 13:50
7440-62-2	Vanadium, Total L,M	15	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:50

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:25
Solids: 87.76
Laboratory ID: 0908257-13

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5126 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.20	mg/kg dry wt.	1	0.20	0.037	U	08/18/09 17:42

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS6

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 13:20
Solids: 76.09
Laboratory ID: 0908257-14

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/17/09 07:30
Initial/Final: 0.5045 g / 250 mL
QC Batch: 0909584

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total	9.4	mg/kg dry wt.	1	0.10	0.030		08/19/09 13:53
7440-50-8	Copper, Total B1	12	mg/kg dry wt.	1	0.20	0.043		08/19/09 13:53
7439-92-1	Lead, Total L1m	36	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:53
7440-02-0	Nickel, Total	14	mg/kg dry wt.	1	0.10	0.025		08/19/09 13:53
7782-49-2	Selenium, Total	0.29	mg/kg dry wt.	1	0.20	0.049		08/19/09 13:53
7440-22-4	Silver, Total	0.086	mg/kg dry wt.	1	0.10	0.011	J	08/19/09 13:53
7440-28-0	Thallium, Total	0.17	mg/kg dry wt.	1	0.10	0.0061		08/19/09 13:53
7440-62-2	Vanadium, Total L1m	37	mg/kg dry wt.	1	0.10	0.032		08/19/09 13:53

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

60SS6

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 13:20
Solids: 76.09
Laboratory ID: 0908257-14

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/18/09 09:00
Initial/Final: 0.5042 g / 250 mL
QC Batch: 0909666

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.37	mg/kg dry wt.	1	0.20	0.037		08/18/09 17:44

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

EQBK-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/13/09 12:00
Solids: 0.00
Laboratory ID: 0908257-15

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3020A Digestion
Prepared: 08/18/09 07:00
Initial/Final: 25 mL / 125 mL
QC Batch: 0909625

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	3.0	ug/L	1	3.0	0.40	U	08/19/09 10:06
7440-38-2	Arsenic, Total	2.0	ug/L	1	2.0	0.39	U	08/19/09 10:06
7440-39-3	Barium, Total	0.61	ug/L	1	2.0	0.32	J	08/19/09 10:06
7440-41-7	Beryllium, Total	2.0	ug/L	1	2.0	0.31	U	08/19/09 11:41
7440-43-9	Cadmium, Total	0.20	ug/L	1	0.20	0.060	U	08/19/09 10:06
7440-47-3	Chromium, Total	0.91	ug/L	1	2.0	0.34	J	08/19/09 10:06
7440-48-4	Cobalt, Total L,O	0.037	ug/L	1	1.0	0.036	J	08/19/09 10:06
7440-50-8	Copper, Total	0.42	ug/L	1	1.0	0.26	J	08/19/09 10:06
7439-92-1	Lead, Total	1.0	ug/L	1	1.0	0.26	U	08/19/09 10:06
7439-96-5	Manganese, Total	0.95	ug/L	1	3.0	0.58	J	08/19/09 10:06
7440-02-0	Nickel, Total	2.0	ug/L	1	2.0	0.46	U	08/19/09 10:06
7782-49-2	Selenium, Total UL,O	3.0	ug/L	1	3.0	0.40	U	08/19/09 11:41
7440-22-4	Silver, Total	0.50	ug/L	1	0.50	0.053	U	08/19/09 10:06
7440-28-0	Thallium, Total	0.20	ug/L	1	0.20	0.050	U	08/19/09 10:06
7440-62-2	Vanadium, Total	1.0	ug/L	1	1.0	0.30	U	08/19/09 10:06
7440-66-6	Zinc, Total	16	ug/L	1	6.0	2.0		08/19/09 10:06

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

30SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:25
Solids: 86.69
Laboratory ID: 0908257-01

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5057 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	17000	mg/kg dry wt.	1	10	1.8		08/25/09 11:40
7440-39-3	Barium, Total K,M	120	mg/kg dry wt.	1	1.0	0.28		08/25/09 11:40
7440-41-7	Beryllium, Total	0.46	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 11:40
7440-43-9	Cadmium, Total L,O	1.2	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 11:40
7440-70-2	Calcium, Total	1100	mg/kg dry wt.	1	50	8.7		08/25/09 11:40
7440-47-3	Chromium, Total	22	mg/kg dry wt.	1	5.0	0.74		08/25/09 11:40
7440-48-4	Cobalt, Total	7.3	mg/kg dry wt.	1	2.0	0.44		08/25/09 11:40
7439-89-6	Iron, Total	20000	mg/kg dry wt.	1	10	0.47		08/25/09 11:40
7439-95-4	Magnesium, Total	920	mg/kg dry wt.	1	50	4.4		08/25/09 11:40
7439-96-5	Manganese, Total	1200	mg/kg dry wt.	1	1.0	0.21		08/25/09 11:40
7440-09-7	Potassium, Total	690	mg/kg dry wt.	1	50	6.8		08/25/09 11:40
7440-23-5	Sodium, Total B,X	14	mg/kg dry wt.	1	100	5.4	J	08/25/09 11:40
7440-66-6	Zinc, Total K,M	32	mg/kg dry wt.	1	5.0	0.79		08/25/09 11:40

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

30SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:40
Solids: 74.39
Laboratory ID: 0908257-02

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.502 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	14000	mg/kg dry wt.	1	10	1.8		08/25/09 11:44
7440-39-3	Barium, Total K,M	39	mg/kg dry wt.	1	1.0	0.28		08/25/09 11:44
7440-41-7	Beryllium, Total	0.21	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 11:44
7440-43-9	Cadmium, Total L,O	1.1	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 11:44
7440-70-2	Calcium, Total B,X	13	mg/kg dry wt.	1	50	8.7	J	08/25/09 11:44
7440-47-3	Chromium, Total	11	mg/kg dry wt.	1	5.0	0.74		08/25/09 11:44
7440-48-4	Cobalt, Total	9.4	mg/kg dry wt.	1	2.0	0.44		08/25/09 11:44
7439-89-6	Iron, Total	21000	mg/kg dry wt.	1	10	0.47		08/25/09 11:44
7439-95-4	Magnesium, Total	1000	mg/kg dry wt.	1	50	4.4		08/25/09 11:44
7439-96-5	Manganese, Total	300	mg/kg dry wt.	1	1.0	0.21		08/25/09 11:44
7440-09-7	Potassium, Total	990	mg/kg dry wt.	1	50	6.8		08/25/09 11:44
7440-23-5	Sodium, Total B,X	6.4	mg/kg dry wt.	1	100	5.4	J	08/25/09 11:44
7440-66-6	Zinc, Total K,M	28	mg/kg dry wt.	1	5.0	0.79		08/25/09 11:44

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

DUP-4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 74.78
Laboratory ID: 0908257-03

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5013 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	16000	mg/kg dry wt.	1	10	1.8		08/25/09 11:48
7440-39-3	Barium, Total K, m	41	mg/kg dry wt.	1	1.0	0.28		08/25/09 11:48
7440-41-7	Beryllium, Total	0.16	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 11:48
7440-43-9	Cadmium, Total L, o	1.2	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 11:48
7440-70-2	Calcium, Total B, x	17	mg/kg dry wt.	1	50	8.7	J	08/25/09 11:48
7440-47-3	Chromium, Total	12	mg/kg dry wt.	1	5.0	0.74		08/25/09 11:48
7440-48-4	Cobalt, Total	9.7	mg/kg dry wt.	1	2.0	0.44		08/25/09 11:48
7439-89-6	Iron, Total	21000	mg/kg dry wt.	1	10	0.47		08/25/09 11:48
7439-95-4	Magnesium, Total	1000	mg/kg dry wt.	1	50	4.4		08/25/09 11:48
7439-96-5	Manganese, Total	290	mg/kg dry wt.	1	1.0	0.21		08/25/09 11:48
7440-09-7	Potassium, Total	1000	mg/kg dry wt.	1	50	6.8		08/25/09 11:48
7440-23-5	Sodium, Total B, x	7.6	mg/kg dry wt.	1	100	5.4	J	08/25/09 11:48
7440-66-6	Zinc, Total K, m	30	mg/kg dry wt.	1	5.0	0.79		08/25/09 11:48

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

30SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:00
Solids: 81.62
Laboratory ID: 0908257-04

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5068 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	31000	mg/kg dry wt.	1	10	1.8		08/25/09 11:52
7440-39-3	Barium, Total K, M	80	mg/kg dry wt.	1	1.0	0.28		08/25/09 11:52
7440-41-7	Beryllium, Total	1.0	mg/kg dry wt.	1	1.0	0.035	U	08/25/09 11:52
7440-43-9	Cadmium, Total	2.2	mg/kg dry wt.	1	2.0	0.24		08/25/09 11:52
7440-70-2	Calcium, Total	460	mg/kg dry wt.	1	50	8.7		08/25/09 11:52
7440-47-3	Chromium, Total	27	mg/kg dry wt.	1	5.0	0.74		08/25/09 11:52
7440-48-4	Cobalt, Total	4.1	mg/kg dry wt.	1	2.0	0.44		08/25/09 11:52
7439-89-6	Iron, Total	35000	mg/kg dry wt.	1	10	0.47		08/25/09 11:52
7439-95-4	Magnesium, Total	1200	mg/kg dry wt.	1	50	4.4		08/25/09 11:52
7439-96-5	Manganese, Total	220	mg/kg dry wt.	1	1.0	0.21		08/25/09 11:52
7440-09-7	Potassium, Total	1000	mg/kg dry wt.	1	50	6.8		08/25/09 11:52
7440-23-5	Sodium, Total B, X	16	mg/kg dry wt.	1	100	5.4	J	08/25/09 11:52
7440-66-6	Zinc, Total K, M	44	mg/kg dry wt.	1	5.0	0.79		08/25/09 11:52

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:30
Solids: 91.11
Laboratory ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5005 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	11000	mg/kg dry wt.	200	2000	370		08/25/09 13:08
7440-39-3	Barium, Total K,m	76	mg/kg dry wt.	1	1.0	0.28		08/25/09 11:55
7440-41-7	Beryllium, Total	0.35	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 11:55
7440-43-9	Cadmium, Total L,o	0.65	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 11:55
7440-70-2	Calcium, Total	660	mg/kg dry wt.	1	50	8.7		08/25/09 11:55
7440-47-3	Chromium, Total	22	mg/kg dry wt.	1	5.0	0.74		08/25/09 11:55
7440-48-4	Cobalt, Total	7.1	mg/kg dry wt.	1	2.0	0.44		08/25/09 11:55
7439-89-6	Iron, Total	12000	mg/kg dry wt.	200	2000	94		08/25/09 13:08
7439-95-4	Magnesium, Total	590	mg/kg dry wt.	1	50	4.4		08/25/09 11:55
7439-96-5	Manganese, Total	420	mg/kg dry wt.	1	1.0	0.21		08/25/09 11:55
7440-09-7	Potassium, Total	520	mg/kg dry wt.	1	50	6.8		08/25/09 11:55
7440-23-5	Sodium, Total B,x	8.1	mg/kg dry wt.	1	100	5.4	J	08/25/09 11:55
7440-66-6	Zinc, Total K,m	24	mg/kg dry wt.	1	5.0	0.79		08/25/09 11:55

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

30SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:35
Solids: 85.63
Laboratory ID: 0908257-06

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.503 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	18000	mg/kg dry wt.	1	10	1.8		08/25/09 12:22
7440-39-3	Barium, Total K, m	49	mg/kg dry wt.	1	1.0	0.28		08/25/09 12:22
7440-41-7	Beryllium, Total	0.14	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 12:22
7440-43-9	Cadmium, Total	1.4	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 12:22
7440-70-2	Calcium, Total	97	mg/kg dry wt.	1	50	8.7		08/25/09 12:22
7440-47-3	Chromium, Total	19	mg/kg dry wt.	1	5.0	0.74		08/25/09 12:22
7440-48-4	Cobalt, Total	9.0	mg/kg dry wt.	1	2.0	0.44		08/25/09 12:22
7439-89-6	Iron, Total	24000	mg/kg dry wt.	1	10	0.47		08/25/09 12:22
7439-95-4	Magnesium, Total	1200	mg/kg dry wt.	1	50	4.4		08/25/09 12:22
7439-96-5	Manganese, Total	350	mg/kg dry wt.	1	1.0	0.21		08/25/09 12:22
7440-09-7	Potassium, Total	1000	mg/kg dry wt.	1	50	6.8		08/25/09 12:22
7440-23-5	Sodium, Total B, X	8.9	mg/kg dry wt.	1	100	5.4	J	08/25/09 12:22
7440-66-6	Zinc, Total K, m	31	mg/kg dry wt.	1	5.0	0.79		08/25/09 12:22

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:15
Solids: 86.27
Laboratory ID: 0908257-07

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5132 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	16000	mg/kg dry wt.	1	10	1.8		08/25/09 12:25
7440-39-3	Barium, Total K,m	76	mg/kg dry wt.	1	1.0	0.28		08/25/09 12:25
7440-41-7	Beryllium, Total	0.30	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 12:25
7440-43-9	Cadmium, Total L,o	0.90	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 12:25
7440-70-2	Calcium, Total	730	mg/kg dry wt.	1	50	8.7		08/25/09 12:25
7440-47-3	Chromium, Total	17	mg/kg dry wt.	1	5.0	0.74		08/25/09 12:25
7440-48-4	Cobalt, Total	5.7	mg/kg dry wt.	1	2.0	0.44		08/25/09 12:25
7439-89-6	Iron, Total	16000	mg/kg dry wt.	1	10	0.47		08/25/09 12:25
7439-95-4	Magnesium, Total	750	mg/kg dry wt.	1	50	4.4		08/25/09 12:25
7439-96-5	Manganese, Total	420	mg/kg dry wt.	1	1.0	0.21		08/25/09 12:25
7440-09-7	Potassium, Total	630	mg/kg dry wt.	1	50	6.8		08/25/09 12:25
7440-23-5	Sodium, Total B,x	11	mg/kg dry wt.	1	100	5.4	J	08/25/09 12:25
7440-66-6	Zinc, Total K,m	28	mg/kg dry wt.	1	5.0	0.79		08/25/09 12:25

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

30SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:25
Solids: 71.27
Laboratory ID: 0908257-08

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5006 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	19000	mg/kg dry wt.	1	10	1.8		08/25/09 12:29
7440-39-3	Barium, Total K, m	76	mg/kg dry wt.	1	1.0	0.28		08/25/09 12:29
7440-41-7	Beryllium, Total	0.16	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 12:29
7440-43-9	Cadmium, Total	1.6	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 12:29
7440-70-2	Calcium, Total	120	mg/kg dry wt.	1	50	8.7		08/25/09 12:29
7440-47-3	Chromium, Total	21	mg/kg dry wt.	1	5.0	0.74		08/25/09 12:29
7440-48-4	Cobalt, Total	11	mg/kg dry wt.	1	2.0	0.44		08/25/09 12:29
7439-89-6	Iron, Total	27000	mg/kg dry wt.	1	10	0.47		08/25/09 12:29
7439-95-4	Magnesium, Total	1300	mg/kg dry wt.	1	50	4.4		08/25/09 12:29
7439-96-5	Manganese, Total J, f	560	mg/kg dry wt.	1	1.0	0.21		08/25/09 12:29
7440-09-7	Potassium, Total	1100	mg/kg dry wt.	1	50	6.8		08/25/09 12:29
7440-23-5	Sodium, Total B, f	11	mg/kg dry wt.	1	100	5.4	J	08/25/09 12:29
7440-66-6	Zinc, Total K, m	36	mg/kg dry wt.	1	5.0	0.79		08/25/09 12:29

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

DUP-5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 84.14
Laboratory ID: 0908257-09

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5315 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	18000	mg/kg dry wt.	1	9.4	1.7		08/25/09 12:32
7440-39-3	Barium, Total K,m	53	mg/kg dry wt.	1	0.94	0.27		08/25/09 12:32
7440-41-7	Beryllium, Total	0.052	mg/kg dry wt.	1	0.94	0.033	J	08/25/09 12:32
7440-43-9	Cadmium, Total	1.4	mg/kg dry wt.	1	1.9	0.23	J	08/25/09 12:32
7440-70-2	Calcium, Total B,x	35	mg/kg dry wt.	1	47	8.2	J	08/25/09 12:32
7440-47-3	Chromium, Total	15	mg/kg dry wt.	1	4.7	0.70		08/25/09 12:32
7440-48-4	Cobalt, Total	8.3	mg/kg dry wt.	1	1.9	0.42		08/25/09 12:32
7439-89-6	Iron, Total	24000	mg/kg dry wt.	1	9.4	0.44		08/25/09 12:32
7439-95-4	Magnesium, Total	1100	mg/kg dry wt.	1	47	4.2		08/25/09 12:32
7439-96-5	Manganese, Total J,f	310	mg/kg dry wt.	1	0.94	0.20		08/25/09 12:32
7440-09-7	Potassium, Total	990	mg/kg dry wt.	1	47	6.4		08/25/09 12:32
7440-23-5	Sodium, Total B,x	7.5	mg/kg dry wt.	1	94	5.1	J	08/25/09 12:32
7440-66-6	Zinc, Total K,m	33	mg/kg dry wt.	1	4.7	0.74		08/25/09 12:32

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:55
Solids: 87.13
Laboratory ID: 0908257-10

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.503 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	21000	mg/kg dry wt.	1	10	1.8		08/25/09 12:36
7440-39-3	Barium, Total K,m	70	mg/kg dry wt.	1	1.0	0.28		08/25/09 12:36
7440-41-7	Beryllium, Total	0.33	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 12:36
7440-43-9	Cadmium, Total L10	1.3	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 12:36
7440-70-2	Calcium, Total	2300	mg/kg dry wt.	1	50	8.7		08/25/09 12:36
7440-47-3	Chromium, Total	26	mg/kg dry wt.	1	5.0	0.74		08/25/09 12:36
7440-48-4	Cobalt, Total	5.5	mg/kg dry wt.	1	2.0	0.44		08/25/09 12:36
7439-89-6	Iron, Total	22000	mg/kg dry wt.	1	10	0.47		08/25/09 12:36
7439-95-4	Magnesium, Total	1300	mg/kg dry wt.	1	50	4.4		08/25/09 12:36
7439-96-5	Manganese, Total	370	mg/kg dry wt.	1	1.0	0.21		08/25/09 12:36
7440-09-7	Potassium, Total	1000	mg/kg dry wt.	1	50	6.8		08/25/09 12:36
7440-23-5	Sodium, Total B,X	15	mg/kg dry wt.	1	100	5.4	J	08/25/09 12:36
7440-66-6	Zinc, Total K,m	32	mg/kg dry wt.	1	5.0	0.79		08/25/09 12:36

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:10
Solids: 87.50
Laboratory ID: 0908257-12

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5051 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	12000	mg/kg dry wt.	1	10	1.8		08/25/09 12:40
7440-39-3	Barium, Total K,m	140	mg/kg dry wt.	1	1.0	0.28		08/25/09 12:40
7440-41-7	Beryllium, Total	0.56	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 12:40
7440-43-9	Cadmium, Total L,O	1.1	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 12:40
7440-70-2	Calcium, Total	2000	mg/kg dry wt.	1	50	8.7		08/25/09 12:40
7440-47-3	Chromium, Total	20	mg/kg dry wt.	1	5.0	0.74		08/25/09 12:40
7440-48-4	Cobalt, Total	7.2	mg/kg dry wt.	1	2.0	0.44		08/25/09 12:40
7439-89-6	Iron, Total	19000	mg/kg dry wt.	1	10	0.47		08/25/09 12:40
7439-95-4	Magnesium, Total	2600	mg/kg dry wt.	1	50	4.4		08/25/09 12:40
7439-96-5	Manganese, Total	720	mg/kg dry wt.	1	1.0	0.21		08/25/09 12:40
7440-09-7	Potassium, Total	980	mg/kg dry wt.	1	50	6.8		08/25/09 12:40
7440-23-5	Sodium, Total B,X	27	mg/kg dry wt.	1	100	5.4	J	08/25/09 12:40
7440-66-6	Zinc, Total K,m	59	mg/kg dry wt.	1	5.0	0.79		08/25/09 12:40

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:25
Solids: 87.76
Laboratory ID: 0908257-13

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.5058 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	8000	mg/kg dry wt.	1	10	1.8		08/25/09 12:43
7440-39-3	Barium, Total K,M	37	mg/kg dry wt.	1	1.0	0.28		08/25/09 12:43
7440-41-7	Beryllium, Total	0.27	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 12:43
7440-43-9	Cadmium, Total L,O	0.60	mg/kg dry wt.	1	2.0	0.24	J	08/25/09 12:43
7440-70-2	Calcium, Total	50	mg/kg dry wt.	1	50	8.7	U	08/25/09 12:43
7440-47-3	Chromium, Total	9.9	mg/kg dry wt.	1	5.0	0.74		08/25/09 12:43
7440-48-4	Cobalt, Total	5.9	mg/kg dry wt.	1	2.0	0.44		08/25/09 12:43
7439-89-6	Iron, Total	12000	mg/kg dry wt.	1	10	0.47		08/25/09 12:43
7439-95-4	Magnesium, Total	670	mg/kg dry wt.	1	50	4.4		08/25/09 12:43
7439-96-5	Manganese, Total	210	mg/kg dry wt.	1	1.0	0.21		08/25/09 12:43
7440-09-7	Potassium, Total	640	mg/kg dry wt.	1	50	6.8		08/25/09 12:43
7440-23-5	Sodium, Total	100	mg/kg dry wt.	1	100	5.4	U	08/25/09 12:43
7440-66-6	Zinc, Total K,M	16	mg/kg dry wt.	1	5.0	0.79		08/25/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

60SS6

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 13:20
Solids: 76.09
Laboratory ID: 0908257-14

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 08/20/09 07:30
Initial/Final: 0.502 g / 50 mL
QC Batch: 0909583

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	19000	mg/kg dry wt.	1	10	1.8		08/25/09 12:47
7440-39-3	Barium, Total K,m	82	mg/kg dry wt.	1	1.0	0.28		08/25/09 12:47
7440-41-7	Beryllium, Total	0.44	mg/kg dry wt.	1	1.0	0.035	J	08/25/09 12:47
7440-43-9	Cadmium, Total	2.2	mg/kg dry wt.	1	2.0	0.24		08/25/09 12:47
7440-70-2	Calcium, Total	110000	mg/kg dry wt.	100	5000	870		08/25/09 13:20
7440-47-3	Chromium, Total	21	mg/kg dry wt.	1	5.0	0.74		08/25/09 12:47
7440-48-4	Cobalt, Total	6.7	mg/kg dry wt.	1	2.0	0.44		08/25/09 12:47
7439-89-6	Iron, Total	23000	mg/kg dry wt.	1	10	0.47		08/25/09 12:47
7439-95-4	Magnesium, Total	50000	mg/kg dry wt.	100	5000	440		08/25/09 13:20
7439-96-5	Manganese, Total	600	mg/kg dry wt.	1	1.0	0.21		08/25/09 12:47
7440-09-7	Potassium, Total	1200	mg/kg dry wt.	1	50	6.8		08/25/09 12:47
7440-23-5	Sodium, Total	140	mg/kg dry wt.	1	100	5.4		08/25/09 12:47
7440-66-6	Zinc, Total K,m	92	mg/kg dry wt.	1	5.0	0.79		08/25/09 12:47

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

EQBK-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/13/09 12:00
Solids: 0.00
Laboratory ID: 0908257-15

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3010A Digestion
Prepared: 08/18/09 07:00
Initial/Final: 25 mL / 25 mL
QC Batch: 0909623

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total VL10	50	ug/L	1	50	24	U	08/20/09 09:17
7440-70-2	Calcium, Total	110	ug/L	1	500	58	J	08/20/09 09:17
7439-89-6	Iron, Total	18	ug/L	1	25	8.0	J	08/20/09 09:17
7439-95-4	Magnesium, Total	500	ug/L	1	500	44	U	08/20/09 09:17
7440-09-7	Potassium, Total	500	ug/L	1	500	98	U	08/20/09 09:17
7440-23-5	Sodium, Total	260	ug/L	1	500	82	J	08/20/09 09:17

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

30SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:25
Solids: 86.69
Laboratory ID: 0908257-01

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3071 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.069	mg/kg dry wt.	1	0.050	0.0093		08/18/09 12:07

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

30SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:40
Solids: 74.39
Laboratory ID: 0908257-02

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3137 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.013	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 12:12

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

DUP-4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 74.78
Laboratory ID: 0908257-03

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3053 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.011	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 12:17

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

30SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:00
Solids: 81.62
Laboratory ID: 0908257-04

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3144 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.11	mg/kg dry wt.	1	0.050	0.0093		08/18/09 12:22

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:30
Solids: 91.11
Laboratory ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3129 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.041	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 12:27

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

30SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:35
Solids: 85.63
Laboratory ID: 0908257-06

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3054 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.019	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:15
Solids: 86.27
Laboratory ID: 0908257-07

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.317 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.061	mg/kg dry wt.	1	0.050	0.0093		08/18/09 12:48

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

30SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:25
Solids: 71.27
Laboratory ID: 0908257-08

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3081 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.026	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 13:03

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

DUP-5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 84.14
Laboratory ID: 0908257-09

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3016 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.029	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 13:08

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:55
Solids: 87.13
Laboratory ID: 0908257-10

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3067 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.075	mg/kg dry wt.	1	0.050	0.0093		08/18/09 13:13

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:10
Solids: 87.50
Laboratory ID: 0908257-12

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3028 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.037	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 13:18

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:25
Solids: 87.76
Laboratory ID: 0908257-13

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3175 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.050	mg/kg dry wt.	1	0.050	0.0093	U	08/18/09 13:24

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

60SS6

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 13:20
Solids: 76.09
Laboratory ID: 0908257-14

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 08/17/09 14:30
Initial/Final: 0.3044 g / 50 mL
QC Batch: 0909585

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.043	mg/kg dry wt.	1	0.050	0.0093	J	08/18/09 13:29

INORGANIC ANALYSIS DATA SHEET
USEPA-7470A

EQBK-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/13/09 12:00
Solids: 0.00
Laboratory ID: 0908257-15

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 7470A Digestion - Total
Prepared: 08/19/09 14:00
Initial/Final: 30 mL / 30 mL
QC Batch: 0909446

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.20	ug/L	1	0.20	0.043	U	08/20/09 10:29

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

30SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:25
Solids: 86.69
Laboratory ID: 0908257-01

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 24.62 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.27	mg/kg dry	1	0.35	0.077	J	08/19/09 12:58

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

30SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 08:40
Solids: 74.39
Laboratory ID: 0908257-02

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 24.58 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.10	mg/kg dry	1	0.40	0.090	J	08/19/09 12:58

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

DUP-4

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 74.78
Laboratory ID: 0908257-03

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 25.53 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.095	mg/kg dry	1	0.40	0.089	J	08/19/09 12:58

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

30SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:00
Solids: 81.62
Laboratory ID: 0908257-04

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 25.3 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.37	mg/kg dry	1	0.37	0.082	U	08/19/09 12:58

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:30
Solids: 91.11
Laboratory ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 25.4 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.12	mg/kg dry	1	0.33	0.073	J	08/19/09 12:58

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

30SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:35
Solids: 85.63
Laboratory ID: 0908257-06

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 24.79 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.35	mg/kg dry	1	0.35	0.078	U	08/19/09 13:06

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

79SS1

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:15
Solids: 86.27
Laboratory ID: 0908257-07

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 24.96 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.087	mg/kg dry	1	0.35	0.077	J	08/19/09 13:06

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

30SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:25
Solids: 71.27
Laboratory ID: 0908257-08

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 25.5 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.42	mg/kg dry	1	0.42	0.094	U	08/19/09 13:06

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

DUP-5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 00:00
Solids: 84.14
Laboratory ID: 0908257-09

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 24.78 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.36	mg/kg dry	1	0.36	0.079	U	08/19/09 13:06

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

79SS2

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 10:55
Solids: 87.13
Laboratory ID: 0908257-10

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 24.62 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.092	mg/kg dry	1	0.34	0.077	J	08/19/09 13:06

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

79SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:10
Solids: 87.50
Laboratory ID: 0908257-12

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/18/09 06:30
Initial/Final: 24.64 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.34	mg/kg dry	1	0.34	0.076	U	08/19/09 13:06

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

79SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:25
Solids: 87.76
Laboratory ID: 0908257-13

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/19/09 07:00
Initial/Final: 25.34 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.34	mg/kg dry	1	0.34	0.076	U	08/19/09 13:42

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

60SS6

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 13:20
Solids: 76.09
Laboratory ID: 0908257-14

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/19/09 07:00
Initial/Final: 25 g / 250 mL
QC Batch: 0909637

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.39	mg/kg dry	1	0.39	0.088	U	08/19/09 14:00

INORGANIC ANALYSIS DATA SHEET
USEPA-9012A

EQBK-3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water
Sampled: 08/13/09 12:00
Solids: 0.00
Laboratory ID: 0908257-15

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 08/17/09 07:00
Initial/Final: 50 mL / 50 mL
QC Batch: 0909427

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	10.0	ug/L	1	10.0	2.30	U	08/19/09 12:28

INORGANIC ANALYSIS DATA SHEET
MSA 29-3.5.2

79SB2A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:00
Solids: 0.00
Laboratory ID: 0908257-11

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/25/09 12:30
Initial/Final: 1.47 g / 1.47 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.85	%	1	0.20	0.0062		08/25/09 13:15

INORGANIC ANALYSIS DATA SHEET
MSA 29-3.5.2

79SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 11:25
Solids: 87.76
Laboratory ID: 0908257-13

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: Method-Specific Preparation
Prepared: 08/26/09 07:00
Initial/Final: 10.03 g / 10.03 mL
QC Batch: 0910014

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-44-0	Carbon, Total Organic	0.20	%	1	0.20	0.0062	U	08/26/09 07:25

DATA VALIDATION WORKSHEET

Volatile Organic Analysis by GC/MS

Reviewer: Andrea Sansom
Date: November 17, 2009
DV Level: II III IV
Review Document:
X NFG - Region III Modifications
X Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809C
Test Name: 8260B
Method No.: VOC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If the temperature of the cooler was elevated (> 10 ^{o}C) or bubble size in aqueous sample was too big (tiny bubble is OK.), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous unpreserved - 7 days for aromatic compounds All others - 14 days.		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per GCMS, 20 samples, batch, matrix, and level)?	X		
3.2	Do any method blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common volatile lab contaminants - methylene chloride, acetone, and 2-butanone) the amount in the associated blank.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If Yes, use same rules above.	X		
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 15% and %D < ± 20%		X	
	For initial Calibration: for %RSD > ± 15%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < control limit? Control limits: >0.10 for chloromethane, 1,1-dichloroethane, & bromoform or >0.30 for chlorobenzene & 1,1,2,2-tetrachloroethane. If yes, L(+)/R(-).		X	

Notes:

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	X		
5.2	Are BFB enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
5.3	Have all samples been analyzed within twelve hours of the BFB tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for BFB been met for each instrument used?	X		
	If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
6.2	Are surrogate recoveries within acceptance criteria (not to exceed 50-150%) for all samples and method blanks?		X	
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?	at DF		
	If any system monitoring compound(s) in the volatile fraction is out of specification, there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? DV report should indicate that extraction efficiency/ method accuracy cannot be verified.		X	

	1 or more <10%	1 high/low	2 or 3 high/low	2 or 3 all low	2 or 3 all high
Positives	L	J	J	L	K
Non-detects	R	UJ	UJ	UL	NONE

Note: The B qualifier remains over surrogate flagging.

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 50-150%?	X		
7.4	Are there any RPD outside the QC limits not to exceed 50%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 50-150%?		X	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?			X
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).		X	
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Was a field duplicate prepared and analyzed at the correct frequency (one per 20 samples, matrix, and level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted to reflect all sample dilutions and dry weight factors?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".	X		

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 15			
	Number of target compounds in each analysis: 50			
	Number of results rejected and not reported: 0			
	% Completeness = 100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809C

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15
Trip Blank	0908257-16

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
Acetone	6.424628E-02	15.19881	1.67	1.342167E-02	0.99487		0.99	
Acrolein	3.332432E-02	15.41244	1.578571	0.2394121	0.99929		0.99	
Acrylonitrile	8.579943E-02	7.940297	2.14	1.710302E-02			15	
Benzene	1.048783	8.738591	3.97	1.414435E-02			15	
Bromobenzene	1.255768	4.556176	8.55	1.934973E-02			15	
Bromochloromethane	0.167315	6.210289	3.331428	0.1140421			15	
Bromodichloromethane	0.2757909	14.49003	5.18	1.818596E-02			15	
Bromoform	0.1279605	28.52738	8.11	7.339563E-03	0.99491		SPCC (0.1)	
Bromomethane	0.2627686	12.10728	1.151667	0.3548961			15	
n-Butylbenzene	2.699252	13.17827	9.953333	5.013233E-02			15	
sec-Butylbenzene	3.231684	10.3913	9.401428	0.0400841			15	
tert-Butylbenzene	2.139395	10.56846	9.182857	5.509415E-02			15	
Carbon Disulfide	0.7367744	18.14396	1.76	8.063699E-03	0.99973		0.99	
Carbon Tetrachloride	0.3188406	16.54904	3.74	1.458965E-02	0.99852		0.99	
Chlorobenzene	1.037954	6.456103	7.298572	0.0485216			SPCC (0.3)	
Chloroethane	0.2006062	7.913097	1.201429	0.3140202			15	
2-Chloroethyl Vinyl Ether	0.1393426	11.19955	5.52	5.142069E-03	0.99656		0.99	
Chloroform	0.4924529	6.093642	3.432857	0.141167			CCC (30)	
1-Chlorohexane	0.372404	6.390304	7.31	1.356388E-02			15	
Chloromethane	0.3899552	19.21217	0.9385714	0.4026685	0.99546		SPCC (0.1)	
2-Chlorotoluene	0.7419214	5.463293	8.752857	5.505134E-02			15	
4-Chlorotoluene	2.566468	5.747223	8.87	2.047888E-02			15	
Cyclohexane	0.397842	12.4901	3.611428	0.1026366			15	
1,2-Dibromo-3-chloropropane	9.030228E-02	24.26994	10.72	1.480693E-02	0.99366		0.99	
Dibromochloromethane	0.2417435	26.11093	6.73	6.642194E-03	0.99761		0.99	
1,2-Dibromoethane	0.269869	9.085845	6.82	0.0138128			15	
Dibromomethane	0.1409882	5.33706	4.995714	0.1062259			15	
trans-1,4-Dichloro-2-butene	0.1927455	10.52385	8.68	1.728173E-02			15	
1,2-Dichlorobenzene	1.306222	10.33924	9.94	1.815323E-02			15	
1,3-Dichlorobenzene	1.469138	5.426032	9.485714	5.731533E-02			15	
1,4-Dichlorobenzene	1.550268	3.709424	9.58	1.029116E-02			15	
Dichlorodifluoromethane	0.2502128	7.293222	0.85	1.519848E-02			15	

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Instrument: 323
Calibration Date: 08/12/09 08:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
1,1-Dichloroethane	0.4620446	5.584198	2.491429	0.1511609			SPCC (0.1)	
1,2-Dichloroethane	0.325603	7.729069	4.02	1.981697E-02			15	
1,1-Dichloroethene	0.2510643	9.450979	1.628571	0.2314767			CCC (30)	
cis-1,2-Dichloroethene	0.3129545	4.863966	3.074286	0.1749913			15	
trans-1,2-Dichloroethene	0.2948184	6.741025	2.14	1.710302E-02			15	
1,2-Dichloroethene (Total)	0.3038864	5.665859	3.074286	0.1749913			15	
1,2-Dichloropropane	0.2633842	5.103919	4.88	1.580108E-02			CCC (30)	
1,3-Dichloropropane	0.5547215	3.595162	6.52	1.559818E-02			15	
2,2-Dichloropropane	0.321017	12.33576	3.057143	0.1600342			15	
1,1-Dichloropropene	0.3685071	8.192642	3.752857	0.1300361			15	
cis-1,3-Dichloropropene	0.3335549	18.43603	5.624286	9.457427E-02	0.99926		0.99	
trans-1,3-Dichloropropene	0.2508747	24.43825	6.191429	6.216939E-02	0.99917		0.99	
Ethylbenzene	1.751759	9.543311	7.417143	6.415254E-02			CCC (30)	
Hexachlorobutadiene	0.5934141	8.525207	11.7	1.812084E-02			15	
2-Hexanone	0.2210287	14.00399	6.651667	5.888445E-02			15	
Iodomethane	0.2210404	62.57181	1.72	1.882391E-02	0.99489		0.99	
Isopropylbenzene	2.668621	7.06959	8.288571	4.365454E-02			15	
4-Isopropyltoluene	2.70552	8.817725	9.551667	0.0468877			15	
Methyl Acetate	0.2220401	10.33117	1.88	3.721705E-03			15	
Methyl tert-Butyl Ether	0.6558451	7.065166	2.14	1.710302E-02			15	
Methylcyclohexane	0.5047911	9.653485	4.794286	0.110324			15	
Methylene Chloride	0.4997852	60.87143	1.94	1.855018E-02	0.99747		0.99	
2-Butanone (MEK)	8.655697E-02	10.73504	3.141667	0.1313573			15	
4-Methyl-2-pentanone (MIBK)	0.222873	10.39145	5.826667	8.891251E-02			15	
Naphthalene	1.781598	37.50275	11.75286	4.210678E-02	0.99817		0.99	
n-Propylbenzene	0.8474714	7.283168	8.697143	5.329137E-02			15	
Styrene	1.10921	13.92827	7.94	1.414435E-02			15	
1,1,1,2-Tetrachloroethane	0.2907576	14.93152	7.393333	7.091848E-02			15	
1,1,2,2-Tetrachloroethane	0.7625957	5.057506	8.627143	5.249606E-02			SPCC (0.3)	
Tetrachloroethene	0.4230979	6.841499	6.445714	8.362781E-02			15	
Toluene	1.293069	23.97872	5.928571	6.404898E-02			CCC (30)	
1,2,3-Trichlorobenzene	0.8154561	23.63279	11.99143	3.830023E-02	0.99941		0.99	

see raw data

Method Path : C:\MSDCHEM\1\METHODS\
Method File : 8260B-LL01.M
Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
Last Update : Thu Aug 13 08:41:36 2009
Response Via : Initial Calibration

40)		dibromomethane	0.140	0.137	0.133	0.132	0.150	0.148	0.147	0.141	5.34
41)		bromodichlorome	0.256	0.236	0.242	0.248	0.292	0.331	0.325	0.276	14.49
42)		methylcyclohexa	0.489	0.462	0.461	0.461	0.528	0.580	0.552	0.505	9.65
43)		2-chloroehtyl v	0.127		0.134	0.153	0.164	0.127	0.130	-----	
								L M= 0.128 R=0.997			
								B= 0.010			
44)		cis-1,3-dichlor	0.301	0.266	0.280	0.302	0.361	0.412	0.412	-----	
								L M= 0.418 R=0.999			
								B= -0.030			
45)		4-methyl-2-pent	0.203	0.178	0.220	0.238	0.260	0.198	0.217	0.216	12.56
46)	s	#Toluene-d8	0.925	0.914	0.916	0.923	0.957	0.959	0.911	0.929	2.19
47)	C	toluene	1.166		1.213	1.060	1.177	1.262	1.192	1.178	5.71#
48)		trans-1,3-dichl	0.220	0.182	0.188	0.229	0.283	0.323	0.330	-----	
								L M= 0.335 R=0.999			
								B= -0.030			
49)		1,1,2-trichloro	0.181	0.169	0.166	0.171	0.197	0.194	0.188	0.181	6.94
50)		Chlorobenzene-d5		----------ISTD----------							
51)		tetrachloroethe	0.408	0.454	0.393	0.388	0.415	0.443	0.459	0.423	6.84
52)		1,3-dichloropro	0.548	0.551	0.539	0.525	0.572	0.566	0.582	0.555	3.60
53)		2-hexanone (MBK	0.194		0.190	0.237	0.269	0.202	0.234	0.221	14.00
54)		dibromochlorome	0.216	0.168	0.185	0.215	0.265	0.308	0.336	-----	
								L M= 0.339 R=0.998			
								B= -0.040			
55)		1,2-dibromoetha	0.266	0.243	0.244	0.253	0.296	0.285	0.302	0.270	9.09
56)	P	chlorobenzene	1.010	1.057	0.981	0.943	1.036	1.105	1.133	1.038	6.46
57)		1,1,1,2-tetrach	0.278	0.238	0.264	0.284	0.321	0.360		0.291	14.93
58)		1-chlorohexane	0.372	0.366	0.341	0.346	0.388	0.408	0.387	0.372	6.39
59)	C	ethylbenzene	1.680	1.632	1.575	1.622	1.809	1.976	1.967	1.752	9.54#
60)		m+p-xylene	0.662	0.625	0.611	0.639	0.714	0.793	0.757	0.686	10.21
61)		o-xylene	0.613	0.544	0.581	0.589	0.674	0.743	0.752	0.642	12.75
62)		styrene	1.058	0.897	0.991	1.040	1.187	1.283	1.310	1.109	13.93
63)	P	bromoform	0.117	0.089	0.100	0.120	0.158	0.185		-----	
								L M= 0.189 R=0.995			
								B= -0.018			
64)	S	#4-Bromofluorob	0.481	0.474	0.477	0.469	0.484	0.477	0.494	0.479	1.69
65)	I	1,4-Dichlorobenzene-d		----------ISTD----------							
66)		isopropylbenzen	2.556	2.570	2.411	2.571	2.852	2.924	2.798	2.669	7.07
67)		bromobenzene	1.216	1.348	1.247	1.179	1.307	1.266	1.227	1.256	4.56
68)	P	1,1,2,2-tetrach	0.774	0.770	0.750	0.744	0.840	0.720	0.740	0.763	5.06
69)		1,4-dichloro-2-	0.183	0.170	0.170	0.192	0.224	0.201	0.210	0.193	10.52
70)		1,2,3-trichloro	0.227	0.220	0.212	0.219	0.249	0.210	0.220	0.222	5.95
71)		n-propylbenzene	0.814	0.807	0.766	0.811	0.907	0.919	0.907	0.847	7.28
72)		2-chlorotoluene	0.709	0.771	0.701	0.689	0.790	0.769	0.764	0.742	5.46
73)		1,3,5-trimethyl	2.565	2.334	2.414	2.489	2.872	2.880	2.754	2.616	8.45
74)		4-chlorotoluene	2.511	2.404	2.477	2.439	2.771	2.747	2.616	2.566	5.75
75)		tert-butylbenze	2.070	1.903	1.923	1.957	2.366	2.366	2.390	2.139	10.57
76)		1,2,4-trimethyl	2.473	2.304	2.249	2.342	2.792	2.778	2.751	2.527	9.52
77)		sec-butylbenzen	3.190	2.873	2.915	2.934	3.487	3.652	3.570	3.232	10.39
78)		4-isopropyltolu	2.674	2.440	2.567	2.578	2.887	3.086	3.072	2.758	9.36
79)		1,3-dichloroben	1.460	1.481	1.404	1.342	1.475	1.541	1.581	1.469	5.43
80)		1,4-dichloroben	1.535	1.522	1.530	1.461	1.572	1.590	1.642	1.550	3.71
81)		1,2-dichloroben	1.230	1.253	1.115	1.236	1.396	1.406	1.509	1.306	10.34
82)		n-butylbenzene	2.559		2.082	2.639	2.941	3.025	2.951	2.699	13.18
83)		1,2-dibromo-3-c	0.082	0.069	0.066	0.096	0.122	0.106		-----	
								L M= 0.109 R=0.994			
								B= -0.002			
84)		hexachloroethan	0.206	0.191	0.199	0.241	0.294	0.339	0.399	-----	
								L M= 0.400 R=0.994			
								B= -0.061			
85)		1,2,4-trichloro	0.674	0.569	0.590	0.830	0.984	1.015	1.090	-----	
								L M= 1.097 R=0.999			

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H12016
Laboratory ID: 9H12068-SCV1
Sequence: 9H12068
Standard ID: 9080037

1,1,1-Trichloroethane	40.0	41.2	103	75-125
1,1,2-Trichloroethane	40.0	42.1	105	75-125
Trichloroethene	40.0	40.9	102	75-125
Trichlorofluoromethane	40.0	40.9	102	75-125
1,2,3-Trichloropropane	40.0	42.2	106	75-125
1,2,4-Trimethylbenzene	40.0	44.4	111	75-125
1,3,5-Trimethylbenzene	40.0	43.8	110	75-125
Vinyl Chloride	40.0	40.0	100	75-125
Xylene, Meta + Para	80.0	88.4	111	75-125
Xylene, Ortho	40.0	44.7	112	75-125
Xylene (Total)	120	133	111	75-125
Dibromofluoromethane	40.0	40.2	101	75-125
1,2-Dichloroethane-d4	40.0	40.4	101	75-125
Toluene-d8	40.0	39.7	99	75-125
4-Bromofluorobenzene	40.0	40.3	101	75-125

* Values outside of QC limits

Missing cyclohexane
methyl acetate
methylcyclohexane
Freon - 112

see raw data

Quantitation Report (Not Edited)

Data Path : C:\MSDChem\1\DATA\08-12-09\
Data File : LCSA.D
InstName : 323
Acq On : 12 Aug 2009 7:14 pm
Operator : JDM
Sample : LCSA
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 13 08:43:38 2009
Quant Method : C:\MSDCHEM\1\METHODS\8260B-LL01.M
Quant Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
QLast Update : Thu Aug 13 08:43:22 2009
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min) Rcv(Ar)
1) Fluorobenzene	4.28	96	974894	40.00	ug/L		0.00 102.87%
50) Chlorobenzene-d5	7.27	117	673069	40.00	ug/L		0.00 100.78%
65) 1,4-Dichlorobenzene-d4	9.55	152	377565	40.00	ug/L		0.00 107.87%
System Monitoring Compounds							
30) #Dibromofluoromethane	3.60	111	250039	40.20	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.50%				
37) #1,2-Dichloroethane-d4	3.94	67	135672	40.35	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.88%				
46) #Toluene-d8	5.86	98	899482	39.72	ug/L		0.00
Spiked Amount 40.000			Recovery = 99.30%				
64) #4-Bromofluorobenzene	8.43	95	325140	40.32	ug/L		0.00
Spiked Amount 40.000			Recovery = 100.80%				
Target Compounds							Qvalue
2) dichlorodifluoromethane	0.85	85	268282	43.99	ug/L		98
3) chloromethane	0.94	50	346113	39.58	ug/L		99
4) vinyl chloride	0.99	62	328418	40.03	ug/L		99
5) dichlorofluoromethane	1.31	67	465960	39.80	ug/L		99
6) bromomethane	1.15	94	244693	38.21	ug/L		99
7) chloroethane	1.20	64	202262	41.37	ug/L		89
8) trichlorofluoromethane	1.33	101	448992	40.91	ug/L		100
9) acrolein	1.58	56	37818	42.34	ug/L	#	98
10) ethyl ether	1.49	74	176252	41.87	ug/L		83
11) acrylonitrile	2.14	53	85651	40.96	ug/L		97
12) 1,1,2-trichloro-1,2,2-trif	1.62	101	264055	38.57	ug/L	#	84
13) 1,1-dichloroethene	1.63	96	253622	41.45	ug/L	#	61
14) iodomethane	1.72	142	269396	36.67	ug/L		92
15) acetone	1.67	43	59924	42.38	ug/L		94
16) methyl acetate	1.88	43	229955	42.49	ug/L		94
17) carbon disulfide	1.76	76	747777	37.95	ug/L		100
18) methylene chloride	1.94	49	365961	42.29	ug/L	#	77
19) trans-1,2-dichloroethene	2.14	96	301650	41.98	ug/L	#	84
20) methyl (tert) butyl ether	2.14	73	704027	44.04	ug/L		100
21) 1,1-dichloroethane	2.49	63	459499	40.80	ug/L		99
22) vinyl acetate	2.56	43	217131	38.90	ug/L		99
23) 2,2-dichloropropane	3.06	77	334675	42.78	ug/L		95
24) cis-1,2-dichloroethene	3.07	96	308406	40.43	ug/L		93
25) 2-butanone (MEK)	3.14	43	79874	37.86	ug/L		90
26) bromochloromethane	3.33	49	165495	40.58	ug/L		98
27) chloroform	3.43	83	472577	39.37	ug/L		99
28) tetrahydrofuran	3.40	71	31436	44.00	ug/L	#	76
29) 1,1,1-trichloroethane	3.58	97	398746	41.18	ug/L		97
31) carbon tetrachloride	3.74	117	349136	39.57	ug/L		99
32) 1,1-dichloropropene	3.75	75	377882	42.07	ug/L		94
33) cyclohexane	3.61	56	396662	40.91	ug/L		96
34) benzene	3.97	78	1077047	42.14	ug/L		92
35) 1,2-dichloroethane	4.02	62	334524	42.15	ug/L		97
36) heptane	4.27	57	271608	44.87	ug/L		87

Quantitation Report (Not Edited)

Data Path : C:\MSDChem\1\DATA\08-12-09\
Data File : LCSA.D
InstName : 323
Acq On : 12 Aug 2009 7:14 pm
Operator : JDM
Sample : LCSA
Misc :
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 13 08:43:38 2009
Quant Method : C:\MSDCHEM\1\METHODS\8260B-LL01.M
Quant Title : VOLATILE GC/MS BY EPA 8260B/624/524.2
QLast Update : Thu Aug 13 08:43:22 2009
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min) Rcv(Ar)
38) trichloroethene	4.64	130	277508	40.89	ug/L		90
39) 1,2-dichloropropane	4.88	63	269562	41.99	ug/L		98
40) dibromomethane	5.00	93	142384	41.44	ug/L	#	83
41) bromodichloromethane	5.18	83	304599	45.32	ug/L		99
42) methylcyclohexane	4.80	83	496817	40.38	ug/L		91
43) 2-chloroehtyl vinyl ether	5.52	63	135820	40.48	ug/L		95
44) cis-1,3-dichloropropene	5.62	75	374242	39.58	ug/L		100
45) 4-methyl-2-pentanone (MIBK	5.83	43	209176	39.66	ug/L	#	87
47) toluene	5.93	91	1200327	41.80	ug/L		98
48) trans-1,3-dichloropropene	6.19	75	302922	40.68	ug/L		99
49) 1,1,2-trichloroethane	6.36	83	185604	42.14	ug/L		95
51) tetrachloroethene	6.45	166	284651	39.98	ug/L		93
52) 1,3-dichloropropane	6.52	76	397353	42.57	ug/L		100
53) 2-hexanone (MBK)	6.65	43	152735	41.07	ug/L		96
54) dibromochloromethane	6.73	129	197105	39.32	ug/L		99
55) 1,2-dibromoethane	6.82	109	197472	43.49	ug/L		100
56) chlorobenzene	7.30	112	737805	42.24	ug/L		89
57) 1,1,1,2-tetrachloroethane	7.39	131	235561	48.15	ug/L		98
58) 1-chlorohexane	7.31	55	261179	41.68	ug/L	#	71
59) ethylbenzene	7.41	91	1296265	43.98	ug/L		90
60) m+p-xylene	7.54	106	1020449	88.44	ug/L	#	73
61) o-xylene	7.92	106	483273	44.72	ug/L	#	78
62) styrene	7.94	104	855337	45.83	ug/L		86
63) bromoform	8.11	173	113327	39.45	ug/L		99
66) isopropylbenzene	8.28	105	1167383	46.34	ug/L		93
67) bromobenzene	8.55	77	478597	40.38	ug/L	#	70
68) 1,1,2,2-tetrachloroethane	8.62	83	297535	41.33	ug/L	#	100
69) 1,4-dichloro-2-butene	8.68	53	79419	43.65	ug/L	#	51
70) 1,2,3-trichloropropane	8.64	110	88638	42.22	ug/L	#	85
71) n-propylbenzene	8.69	120	335777	41.98	ug/L	#	57
72) 2-chlorotoluene	8.75	126	299007	42.70	ug/L	#	71
73) 1,3,5-trimethylbenzene	8.87	105	1082199	43.83	ug/L		90
74) 4-chlorotoluene	8.87	91	1049694	43.33	ug/L		86
75) tert-butylbenzene	9.18	119	888329	43.99	ug/L		89
76) 1,2,4-trimethylbenzene	9.23	105	1058906	44.39	ug/L		90
77) sec-butylbenzene	9.40	105	1391585	45.62	ug/L		92
78) 4-isopropyltoluene	9.55	119	1180778	45.36	ug/L	#	69
79) 1,3-dichlorobenzene	9.48	146	603802	43.54	ug/L		96
80) 1,4-dichlorobenzene	9.58	146	631970	43.19	ug/L		95
81) 1,2-dichlorobenzene	9.94	146	562125	45.59	ug/L		96
82) n-butylbenzene	9.95	91	1121110	44.00	ug/L		93
83) 1,2-dibromo-3-chloropropan	10.72	157	39923	39.69	ug/L	#	82
84) hexachloroethane	10.16	201	111365	35.52	ug/L	#	70
85) 1,2,4-trichlorobenzene	11.52	180	370268	39.23	ug/L		98
86) hexachlorobutadiene	11.70	225	246434	44.00	ug/L		98
87) naphthalene	11.75	128	934454	43.59	ug/L		95
88) 1,2,3-trichlorobenzene	11.99	180	373589	41.39	ug/L		97
89) 2-methylnaphthalene	12.87	142	608438	47.76	ug/L		97

(#) = qualifier out of range (m) = manual integration (+) = signals summed

INITIAL CALIBRATION DATA (Continued)
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H21009
Instrument: 323
Calibration Date: 08/20/09 00:00

Compound	Mean RF	RF RSD	Mean RT	RT RSD	Linear r	Quad COD	Limit	Q
Acetone	6.848457E-02	17.17089	1.671667	0.2445678	0.99924		0.99	
Acrolein	4.796684E-02	5.807019	1.582857	0.3079762			15	
Acrylonitrile	0.125774	4.354666	2.14	1.710302E-02			15	
Benzene	1.379475	3.639042	3.98	1.737091E-02			15	
Bromobenzene	1.29291	5.26879	8.551429	3.988673E-02			15	
Bromochloromethane	0.2385806	7.177049	3.332857	0.1468855			15	
Bromodichloromethane	0.3319173	11.54585	5.18	1.818596E-02			15	
Bromoform	0.1694453	29.01542	8.11	7.236907E-03	0.99851		SPCC (0.1)	
Bromomethane	0.2714496	18.59759	1.16	1.686532E-02	0.99954		0.99	
n-Butylbenzene	1.710485	12.77417	9.958571	3.538224E-02			15	
sec-Butylbenzene	2.303896	10.82676	9.4	4.488543E-03			15	
tert-Butylbenzene	1.599732	9.856238	9.182857	5.509415E-02			15	
Carbon Disulfide	0.7807143	14.04866	1.76	7.950915E-03			15	
Carbon Tetrachloride	0.3740255	7.996066	3.751429	0.1007619			15	
Chlorobenzene	1.202778	5.676541	7.3	0.0202292			SPCC (0.3)	
Chloroethane	0.3021875	21.6871	1.21	1.549643E-02	0.99967		0.99	
Chloroform	0.566675	5.594426	3.44	1.856063E-02			CCC (30)	
1-Chlorohexane	0.3301878	5.48957	7.31	1.356388E-02			15	
Chloromethane	0.4562859	12.87081	0.95	6.79932E-03			SPCC (0.1)	
2-Chlorotoluene	0.7091848	3.448218	8.754286	6.010339E-02			15	
4-Chlorotoluene	2.427239	6.885568	8.87	2.047888E-02			15	
Cyclohexane	0.4952136	13.59728	3.627143	0.1341891			15	
1,2-Dibromo-3-chloropropane	8.976719E-02	16.24527	10.72	1.480693E-02	0.99970		0.99	
Dibromochloromethane	0.2892855	21.88535	6.73	6.642194E-03	0.99879		0.99	
1,2-Dibromoethane	0.2399982	16.13161	6.82	0.0138128	0.99256		0.99	
Dibromomethane	0.1661008	3.650001	4.998571	0.0752526			15	
trans-1,4-Dichloro-2-butene	0.1547269	7.2138	8.68	1.728173E-02			15	
1,2-Dichlorobenzene	1.301283	4.325152	9.94	1.815323E-02			15	
1,3-Dichlorobenzene	1.432226	2.080205	9.488571	4.143682E-02			15	
1,4-Dichlorobenzene	1.554347	8.571322	9.58	1.029116E-02			15	
Dichlorodifluoromethane	0.3553881	9.540223	0.8571429	0.5689998			15	
1,1-Dichloroethane	0.5802812	6.00599	2.5	0			SPCC (0.1)	

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9H21009
Laboratory ID: 9H21016-SCV1
Sequence: 9H21016
Standard ID: 9080037

1,2-Dichlorobenzene	40.0	41.2	103	75-125
1,3-Dichlorobenzene	40.0	40.7	102	75-125
1,4-Dichlorobenzene	40.0	38.8	97	75-125
Dichlorodifluoromethane	40.0	42.8	107	75-125
1,1-Dichloroethane	40.0	38.6	97	75-125
1,2-Dichloroethane	40.0	39.2	98	75-125
1,1-Dichloroethene	40.0	39.3	98	75-125
cis-1,2-Dichloroethene	40.0	40.7	102	75-125
trans-1,2-Dichloroethene	40.0	39.0	98	75-125
1,2-Dichloroethene (Total)	80.0	79.7	100	75-125
1,2-Dichloropropane	40.0	40.0	100	75-125
1,3-Dichloropropane	40.0	38.2	96	75-125
2,2-Dichloropropane	40.0	43.3	108	75-125
1,1-Dichloropropene	40.0	42.8	107	75-125
cis-1,3-Dichloropropene	40.0	32.7	82	75-125
trans-1,3-Dichloropropene	40.0	31.1	78	75-125
Ethylbenzene	40.0	41.5	104	75-125
Hexachlorobutadiene	40.0	45.2	113	75-125
2-Hexanone	40.0	37.9	95	75-125
Iodomethane	40.0	47.7	119	75-125
Isopropylbenzene	40.0	49.1	123	75-125
4-Isopropyltoluene	40.0	48.8	122	75-125
Methyl Acetate	40.0	39.2	98	75-125
Methyl tert-Butyl Ether	40.0	41.5	104	75-125
Methylcyclohexane	40.0	42.6	107	75-125
Methylene Chloride	40.0	40.3	101	75-125
2-Butanone (MEK)	40.0	41.5	104	75-125
4-Methyl-2-pentanone (MIBK)	40.0	36.0	90	75-125

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H21019

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H21009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	9H21019-TUN1	BFB0820A.D	08/20/09 09:33
Calibration Check	9H21019-CCV1	LCS.D	08/20/09 16:09
LCS	0909853-BS1	LCS.D	08/20/09 16:09
Blank	0909853-BLK1	BLK0820A.D	08/20/09 17:34
30SS2	0908257-04	0908257-04.D	08/20/09 18:30
79SS2	0908257-10	0908257-10.D	08/20/09 18:58
60SS6	0908257-14	0908257-14.D	08/20/09 19:26

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 323
Lab File ID: LCS.D
Sequence: 9H21019
Lab Sample ID: 9H21019-CCV1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9H21009
Calibration Date: 08/20/09 00:00
Injection Date: 08/20/09
Injection Time: 16:09

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,1-Dichloropropene	A	40.0	42.8	0.4307847	0.4609524		7.0	25
cis-1,3-Dichloropropene	L	40.0	32.7	0.3129208	0.3014032		-18.3	25
trans-1,3-Dichloropropene	L	40.0	31.1	0.2362102	0.2309485		-22.3	25
Ethylbenzene	A	40.0	41.5	1.820594	1.889136		3.8	20
Hexachlorobutadiene	L	40.0	45.2	0.3058962	0.3089768		13.0	25
2-Hexanone	L	40.0	37.9	0.1360151	0.1624954		-5.2	40
Isopropylbenzene	A	40.0	49.1	2.345852	2.879439		22.7	25
4-Isopropyltoluene	A	40.0	48.8	2.077675	2.196856		5.7	25
Methyl Acetate	A	40.0	39.2	0.2719282	0.2663001		-2.1	25
Methyl tert-Butyl Ether	A	40.0	41.5	0.754976	0.7832166		3.7	25
Methylcyclohexane	A	40.0	42.6	0.4017684	0.4280466		6.5	25
Methylene Chloride	L	40.0	40.3	0.4771947	0.4066476		0.8	25
2-Butanone (MEK)	A	40.0	41.5	3.959752E-02	4.290736E-02		3.7	40
4-Methyl-2-pentanone (MIBK)	L	40.0	36.0	0.1301185	0.1639254		-9.9	40
Naphthalene	L	40.0	40.6	1.574428	2.051027		1.5	25
n-Propylbenzene	A	40.0	41.6	0.7849987	0.8170981		4.1	25
Styrene	L	40.0	40.1	1.014105	1.143813		0.3	25
1,1,1,2-Tetrachloroethane	A	40.0	42.6	0.3519588	0.3744871		6.4	25
1,1,2,2-Tetrachloroethane	A	40.0	41.3	0.8276287	0.8540893	0.3	3.2	25
Tetrachloroethene	A	40.0	39.5	0.5445473	0.537347		-1.3	25
Toluene	A	40.0	40.2	1.434744	1.443336		0.6	20
1,2,3-Trichlorobenzene	A	40.0	43.6	0.6580022	0.7164718		8.9	25
1,2,4-Trichlorobenzene	A	40.0	44.0	0.6755571	0.742353		9.9	25
1,1,1-Trichloroethane	A	40.0	40.1	0.4417232	0.4423619		0.1	25
1,1,2-Trichloroethane	A	40.0	39.5	0.2263921	0.2235285		-1.3	25
Trichloroethene	A	40.0	40.6	0.3454067	0.3508389		1.6	25
Trichlorofluoromethane	A	40.0	39.1	0.6557434	0.6415817		-2.2	25
1,2,3-Trichloropropane	A	40.0	39.4	0.2516022	0.2480833		-1.4	25
1,1,2-Trichloro-1,2,2-trifluoroeth	A	40.0	37.7	0.4072785	0.3841843		-5.7	25

QC BATCH SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

QC Batch: 0909747 QC Batch Matrix: Soil Preparation: 5035 Soil Purge & Trap - MS

Sample Name	Lab Sample ID	Date Prepared	Observations
30SS1	0908257-01	08/18/09 06:00	
30SB1B	0908257-02	08/18/09 06:00	
DUP-4	0908257-03	08/18/09 06:00	
30SS2	0908257-04	08/18/09 06:00	
30SS3	0908257-05	08/18/09 06:00	
30SB2B	0908257-06	08/18/09 06:00	
79SS1	0908257-07	08/18/09 06:00	
30SB3B	0908257-08	08/18/09 06:00	
DUP-5	0908257-09	08/18/09 06:00	
79SS2	0908257-10	08/18/09 06:00	
79SS3	0908257-12	08/18/09 06:00	
79SB2B	0908257-13	08/18/09 06:00	
60SS6	0908257-14	08/18/09 06:00	
Blank	0909747-BLK1	08/18/09 06:00	
Blank	0909747-BLK2	08/19/09 09:00	
LCS	0909747-BS1	08/18/09 06:00	
LCS	0909747-BS2	08/19/09 09:00	
30SS3	0909747-MS1	08/19/09 09:00	
30SS3	0909747-MSD1	08/19/09 09:00	

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909747-BLK1 File ID: BLK0818.D

Prepared: 08/18/09 06:00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

Analyzed: 08/18/09 08:30 Instrument: 323

QC Batch: 0909747 Sequence: 9H20018 Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	0.20	5.0	5.0	ug/kg wet	U
79-20-9	Methyl Acetate	2.4	20	20	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	0.49	5.0	5.0	ug/kg wet	U
108-87-2	Methylcyclohexane	0.88	10	10	ug/kg wet	U
75-09-2	Methylene Chloride	1.2	20	7.2	ug/kg wet	J
78-93-3	2-Butanone (MEK)	2.3	20	20	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.18	10	10	ug/kg wet	U
100-42-5	Styrene	0.78	5.0	5.0	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	0.78	5.0	5.0	ug/kg wet	U
127-18-4	Tetrachloroethene	0.75	5.0	5.0	ug/kg wet	U
108-88-3	Toluene	0.60	5.0	5.0	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	0.39	20	2.3	ug/kg wet	J
120-82-1	1,2,4-Trichlorobenzene	0.71	5.0	5.0	ug/kg wet	U
71-55-6	1,1,1-Trichloroethane	0.84	5.0	5.0	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	0.92	5.0	5.0	ug/kg wet	U
79-01-6	Trichloroethene	0.43	5.0	5.0	ug/kg wet	U
75-69-4	Trichlorofluoromethane	0.31	5.0	5.0	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.52	5.0	5.0	ug/kg wet	U
75-01-4	Vinyl Chloride	0.26	5.0	5.0	ug/kg wet	U
1330-20-7	Xylene (Total)	1.0	5.0	5.0	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	42.5	106	78 - 121	
1,2-Dichloroethane-d4	40.0	43.1	108	66 - 124	
Toluene-d8	40.0	39.3	98	85 - 115	
4-Bromofluorobenzene	40.0	35.2	88	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	891132	4.27	947725	4.28	
Chlorobenzene-d5	612590	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	237731	9.55	350029	9.55	

METHOD BLANK DATA SHEET
USEPA-8260B

LSS w/ MS + MSD only

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909747-BLK2 File ID: BLK0819.D

Prepared: 08/19/09 09:00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5 g / 5 mL

Analyzed: 08/19/09 12:31 Instrument: 323

QC Batch: 0909747 Sequence: 9H20028 Calibration: 9H12016

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	0.20	5.0	5.0	ug/kg wet	U
79-20-9	Methyl Acetate	2.4	20	20	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	0.49	5.0	5.0	ug/kg wet	U
108-87-2	Methylcyclohexane	0.88	10	10	ug/kg wet	U
75-09-2	Methylene Chloride	1.2	20	20	ug/kg wet	U
78-93-3	2-Butanone (MEK)	2.3	20	20	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.18	10	10	ug/kg wet	U
100-42-5	Styrene	0.78	5.0	5.0	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	0.78	5.0	5.0	ug/kg wet	U
127-18-4	Tetrachloroethene	0.75	5.0	5.0	ug/kg wet	U
108-88-3	Toluene	0.60	5.0	5.0	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	0.39	20	2.1	ug/kg wet	J
120-82-1	1,2,4-Trichlorobenzene	0.71	5.0	5.0	ug/kg wet	U
71-55-6	1,1,1-Trichloroethane	0.84	5.0	5.0	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	0.92	5.0	5.0	ug/kg wet	U
79-01-6	Trichloroethene	0.43	5.0	5.0	ug/kg wet	U
75-69-4	Trichlorofluoromethane	0.31	5.0	5.0	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.52	5.0	5.0	ug/kg wet	U
75-01-4	Vinyl Chloride	0.26	5.0	5.0	ug/kg wet	U
1330-20-7	Xylene (Total)	1.0	5.0	5.0	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	40.0	100	78 - 121	
1,2-Dichloroethane-d4	40.0	41.2	103	66 - 124	
Toluene-d8	40.0	38.0	95	85 - 115	
4-Bromofluorobenzene	40.0	38.6	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	1018361	4.28	947725	4.28	
Chlorobenzene-d5	679397	7.27	667870	7.27	
1,4-Dichlorobenzene-d4	339773	9.55	350029	9.55	

QC BATCH SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809C

Client: URS Corporation

Project: RFAAP SSP at Six Sites

QC Batch: 0909853 QC Batch Matrix: Soil

Preparation: 5030B Aqueous Purge & Trap

Sample Name	Lab Sample ID	Date Prepared	Observations
30SS2	0908257-04	08/20/09 08:00	
79SS2	0908257-10	08/20/09 08:00	
60SS6	0908257-14	08/20/09 08:00	
Blank	0909853-BLK1	08/20/09 08:00	
LCS	0909853-BS1	08/20/09 08:00	

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc. SDG: SS0809C

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0909853-BLK1 File ID: BLK0820A.D

Prepared: 08/20/09 08:00 Preparation: 5030B Aqueous Purge & Initial/Final: 5 g / 250 mL

Analyzed: 08/20/09 17:34 Instrument: 323

QC Batch: 0909853 Sequence: 9H21019 Calibration: 9H21009

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	14	50	50	ug/kg wet	U
79-20-9	Methyl Acetate	14	250	250	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	6.9	50	50	ug/kg wet	U
108-87-2	Methylcyclohexane	8.8	250	250	ug/kg wet	U
75-09-2	Methylene Chloride	10	250	24	ug/kg wet	J
78-93-3	2-Butanone (MEK)	25	2500	2500	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	24	2500	2500	ug/kg wet	U
100-42-5	Styrene	9.4	50	50	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	14	50	50	ug/kg wet	U
127-18-4	Tetrachloroethene	19	57	57	ug/kg wet	U
108-88-3	Toluene	15	50	50	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	10	100	100	ug/kg wet	U
120-82-1	1,2,4-Trichlorobenzene	18	100	100	ug/kg wet	U
71-55-6	1,1,1-Trichloroethane	16	50	50	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	25	75	75	ug/kg wet	U
79-01-6	Trichloroethene	18	54	54	ug/kg wet	U
75-69-4	Trichlorofluoromethane	16	50	50	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	8.3	250	250	ug/kg wet	U
75-01-4	Vinyl Chloride	12	50	50	ug/kg wet	U
1330-20-7	Xylene (Total)	43	150	150	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	39.2	98	78 - 121	
1,2-Dichloroethane-d4	40.0	40.8	102	66 - 124	
Toluene-d8	40.0	38.8	97	85 - 115	
4-Bromofluorobenzene	40.0	38.7	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	690677	4.28	740105	4.28	
Chlorobenzene-d5	527544	7.27	539083	7.27	
1,4-Dichlorobenzene-d4	257379	9.55	287402	9.55	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 3.5 g / 5 mL

Laboratory ID: 0909747-MS1

QC Batch: 0909747

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acetone	62.7	13.1	73.8	97	20 - 160	ug/kg dry
Benzene	62.7	ND	52.9	84	75 - 125	ug/kg dry
Bromochloromethane	62.7	ND	49.4	79	70 - 125	ug/kg dry
Bromodichloromethane	62.7	ND	50.2	80	70 - 130	ug/kg dry
Bromoform	62.7	ND	43.3	69	55 - 135	ug/kg dry
Bromomethane	62.7	ND	45.1	72	30 - 160	ug/kg dry
Carbon Disulfide	62.7	ND	48.5	77	45 - 160	ug/kg dry
Carbon Tetrachloride	62.7	ND	48.1	77	65 - 135	ug/kg dry
Chlorobenzene	62.7	ND	49.7	79	75 - 125	ug/kg dry
Chloroethane	62.7	ND	52.6	84	40 - 155	ug/kg dry
Chloroform	62.7	ND	52.0	83	70 - 125	ug/kg dry
Chloromethane	62.7	ND	50.2	80	50 - 130	ug/kg dry
Cyclohexane	62.7	ND	44.4	71	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	62.7	ND	51.0	81	40 - 135	ug/kg dry
Dibromochloromethane	62.7	ND	46.4	74	65 - 130	ug/kg dry
1,2-Dibromoethane	62.7	ND	57.4	91	70 - 125	ug/kg dry
1,2-Dichlorobenzene	62.7	ND	45.0	72 *	75 - 120	ug/kg dry
1,3-Dichlorobenzene	62.7	ND	45.7	73	70 - 125	ug/kg dry
1,4-Dichlorobenzene	62.7	ND	46.5	74	70 - 125	ug/kg dry
Dichlorodifluoromethane	62.7	ND	51.9	83	35 - 135	ug/kg dry
1,1-Dichloroethane	62.7	ND	50.8	81	75 - 125	ug/kg dry
1,2-Dichloroethane	62.7	ND	53.7	86	70 - 135	ug/kg dry
1,1-Dichloroethene	62.7	ND	53.9	86	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	62.7	ND	52.8	84	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	62.7	ND	52.0	83	65 - 135	ug/kg dry
1,2-Dichloropropane	62.7	ND	49.6	79	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	62.7	ND	43.3	69 *	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	62.7	ND	40.9	65	65 - 125	ug/kg dry
Ethylbenzene	62.7	ND	49.4	79	75 - 125	ug/kg dry
2-Hexanone	62.7	ND	54.9	87	45 - 145	ug/kg dry
Isopropylbenzene	62.7	ND	52.5	84	75 - 130	ug/kg dry
Methyl Acetate	62.7	ND	58.9	94	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	62.7	ND	49.6	79	63 - 127	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 3.5 g / 5 mL

Laboratory ID: 0909747-MS1

QC Batch: 0909747

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Methylcyclohexane	62.7	ND	38.8	62 *	70 - 130	ug/kg dry
Methylene Chloride	62.7	ND	49.2	78	55 - 140	ug/kg dry
2-Butanone (MEK)	62.7	ND	53.3	85	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	62.7	ND	53.5	85	45 - 145	ug/kg dry
Styrene	62.7	ND	49.1	78	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	62.7	ND	60.1	96	55 - 130	ug/kg dry
Tetrachloroethene	62.7	ND	49.1	78	65 - 140	ug/kg dry
Toluene	62.7	ND	48.2	77	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	62.7	ND	33.3	53 *	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	62.7	ND	31.2	50 *	65 - 130	ug/kg dry
1,1,1-Trichloroethane	62.7	ND	51.9	83	70 - 135	ug/kg dry
1,1,2-Trichloroethane	62.7	ND	52.4	84	60 - 125	ug/kg dry
Trichloroethene	62.7	ND	50.0	80	75 - 125	ug/kg dry
Trichlorofluoromethane	62.7	ND	52.9	84	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	62.7	ND	48.5	77 *	80 - 120	ug/kg dry
Vinyl Chloride	62.7	ND	52.5	84	60 - 125	ug/kg dry
Xylene (Total)	188	ND	151	80	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 3.3 g / 5 mL

Laboratory ID: 0909747-MSD1

QC Batch: 0909747

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acetone	66.5	60.9	72	19	30	20 - 160	ug/kg dry
Benzene	66.5	59.3	89	11	30	75 - 125	ug/kg dry
Bromochloromethane	66.5	55.5	83	12	30	70 - 125	ug/kg dry
Bromodichloromethane	66.5	52.0	78	3	30	70 - 130	ug/kg dry
Bromoform	66.5	46.1	69	6	30	55 - 135	ug/kg dry
Bromomethane	66.5	50.6	76	12	30	30 - 160	ug/kg dry
Carbon Disulfide	66.5	52.4	79	8	30	45 - 160	ug/kg dry
Carbon Tetrachloride	66.5	50.4	76	5	30	65 - 135	ug/kg dry
Chlorobenzene	66.5	54.6	82	9	30	75 - 125	ug/kg dry
Chloroethane	66.5	56.0	84	6	30	40 - 155	ug/kg dry
Chloroform	66.5	53.8	81	4	30	70 - 125	ug/kg dry
Chloromethane	66.5	52.3	79	4	30	50 - 130	ug/kg dry
Cyclohexane	66.5	53.7	81	19	30	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	66.5	45.1	68	12	30	40 - 135	ug/kg dry
Dibromochloromethane	66.5	49.9	75	7	30	65 - 130	ug/kg dry
1,2-Dibromoethane	66.5	58.4	88	2	30	70 - 125	ug/kg dry
1,2-Dichlorobenzene	66.5	51.3	77	13	30	75 - 120	ug/kg dry
1,3-Dichlorobenzene	66.5	52.4	79	14	30	70 - 125	ug/kg dry
1,4-Dichlorobenzene	66.5	51.9	78	11	30	70 - 125	ug/kg dry
Dichlorodifluoromethane	66.5	56.5	85	9	30	35 - 135	ug/kg dry
1,1-Dichloroethane	66.5	52.6	79	3	30	75 - 125	ug/kg dry
1,2-Dichloroethane	66.5	53.7	81	0.05	30	70 - 135	ug/kg dry
1,1-Dichloroethene	66.5	56.6	85	5	30	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	66.5	55.3	83	5	30	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	66.5	53.3	80	2	30	65 - 135	ug/kg dry
1,2-Dichloropropane	66.5	50.8	76	2	30	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	66.5	45.3	68 *	5	30	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	66.5	42.4	64 *	4	30	65 - 125	ug/kg dry
Ethylbenzene	66.5	54.9	83	11	30	75 - 125	ug/kg dry
2-Hexanone	66.5	54.2	81	1	30	45 - 145	ug/kg dry
Isopropylbenzene	66.5	55.2	83	5	30	75 - 130	ug/kg dry
Methyl Acetate	66.5	55.6	84	6	30	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	66.5	49.0	74	1	30	63 - 127	ug/kg dry
Methylcyclohexane	66.5	41.8	63 *	7	30	70 - 130	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 3.3 g / 5 mL

Laboratory ID: 0909747-MSD1

QC Batch: 0909747

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Methylene Chloride	66.5	50.1	75	2	30	55 - 140	ug/kg dry
2-Butanone (MEK)	66.5	50.4	76	6	30	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	66.5	51.0	77	5	30	45 - 145	ug/kg dry
Styrene	66.5	55.0	83	11	30	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	66.5	58.5	88	3	30	55 - 130	ug/kg dry
Tetrachloroethene	66.5	52.9	80	7	30	65 - 140	ug/kg dry
Toluene	66.5	49.7	75	3	30	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	66.5	35.0	53 *	5	30	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	66.5	33.1	50 *	6	30	65 - 130	ug/kg dry
1,1,1-Trichloroethane	66.5	52.8	79	2	30	70 - 135	ug/kg dry
1,1,2-Trichloroethane	66.5	51.9	78	1	30	60 - 125	ug/kg dry
Trichloroethene	66.5	52.0	78	4	30	75 - 125	ug/kg dry
Trichlorofluoromethane	66.5	55.4	83	5	30	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	66.5	52.5	79 *	8	30	80 - 120	ug/kg dry
Vinyl Chloride	66.5	55.3	83	5	30	60 - 125	ug/kg dry
Xylene (Total)	200	169	85	11	30	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

INTERNAL STANDARD AREA AND RT SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H20018
Instrument: 323
Matrix: Soil
Calibration: 9H12016

Internal Standard	Response	RT	Reference Response	Reference RT	Area %	Area % Limits	RT Diff	RT Diff Limit	Q
30SB3B (0908257-08)			**Lab File ID: 0908257-08.D**			**Analyzed: 08/18/09 13:02**			
Fluorobenzene	805259	4.27	947725	4.28	85	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	542531	7.27	667870	7.27	81	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	200336	9.55	350029	9.55	57	50 - 200	0.0000	+/-0.50	
DUP-5 (0908257-09)			**Lab File ID: 0908257-09.D**			**Analyzed: 08/18/09 13:35**			
Fluorobenzene	817367	4.28	947725	4.28	86	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	535960	7.27	667870	7.27	80	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	194915	9.55	350029	9.55	56	50 - 200	0.0000	+/-0.50	
79SS2 (0908257-10)			**Lab File ID: 0908257-10.D**			**Analyzed: 08/18/09 14:07**			
Fluorobenzene	770815	4.27	947725	4.28	81	50 - 200	-0.0100	+/-0.50	
Chlorobenzene-d5	492935	7.27	667870	7.27	74	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	153498	9.55	350029	9.55	44	50 - 200	0.0000	+/-0.50	*
79SB2B (0908257-13)			**Lab File ID: 0908257-13.D**			**Analyzed: 08/18/09 15:11**			
Fluorobenzene	823948	4.28	947725	4.28	87	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	569740	7.27	667870	7.27	85	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	251065	9.55	350029	9.55	72	50 - 200	0.0000	+/-0.50	
60SS6 (0908257-14)			**Lab File ID: 0908257-14.D**			**Analyzed: 08/18/09 15:45**			
Fluorobenzene	837134	4.28	947725	4.28	88	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	535093	7.27	667870	7.27	80	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	165615	9.55	350029	9.55	47	50 - 200	0.0000	+/-0.50	*
79SS1 (0908257-07)			**Lab File ID: 0908257-07A.D**			**Analyzed: 08/18/09 16:17**			
Fluorobenzene	854720	4.28	947725	4.28	90	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	592182	7.27	667870	7.27	89	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	244942	9.55	350029	9.55	70	50 - 200	0.0000	+/-0.50	
79SS3 (0908257-12)			**Lab File ID: 0908257-12A.D**			**Analyzed: 08/18/09 17:22**			
Fluorobenzene	870635	4.28	947725	4.28	92	50 - 200	0.0000	+/-0.50	
Chlorobenzene-d5	528914	7.27	667870	7.27	79	50 - 200	0.0000	+/-0.50	
1,4-Dichlorobenzene-d4	223877	9.55	350029	9.55	64	50 - 200	0.0000	+/-0.50	

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20018
Matrix: Soil

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 323
Calibration: 9H12016

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
30SS3 (0908257-05)	**Lab File ID: 0908257-05.D Analyzed: 08/18/09 11:24**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	100	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	103	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	95	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	89	85 - 120	
30SB2B (0908257-06)	**Lab File ID: 0908257-06.D Analyzed: 08/18/09 11:57**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	102	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	106	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	97	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	95	85 - 120	
30SB3B (0908257-08)	**Lab File ID: 0908257-08.D Analyzed: 08/18/09 13:02**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	98	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	96	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	96	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	85	85 - 120	
DUP-5 (0908257-09)	**Lab File ID: 0908257-09.D Analyzed: 08/18/09 13:35**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	95	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	95	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	93	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	87	85 - 120	
79SS2 (0908257-10)	**Lab File ID: 0908257-10.D Analyzed: 08/18/09 14:07**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	100	78 - 121	
1,2-Dichloroethane-d4	3.95	3.94	0.01	+/-1.0	100	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	95	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	88	85 - 120	
79SB2B (0908257-13)	**Lab File ID: 0908257-13.D Analyzed: 08/18/09 15:11**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	95	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	100	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	95	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	94	85 - 120	
60SS6 (0908257-14)	**Lab File ID: 0908257-14.D Analyzed: 08/18/09 15:45**						
Dibromofluoromethane	3.60	3.60	0.00	+/-1.0	98	78 - 121	
1,2-Dichloroethane-d4	3.94	3.94	0.00	+/-1.0	100	66 - 124	
Toluene-d8	5.86	5.86	0.00	+/-1.0	93	85 - 115	
4-Bromofluorobenzene	8.43	8.43	0.00	+/-1.0	79	85 - 120	*

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client: [illegible] **Date Received:** 8-4-09 **Sheet Completed By:** FL

Work Order: 0908257 **Date Form Completed:** 8-4-09 **Sheet Reviewed By:** DW

0908257

Low Level Soils

	Yes	No	N/A
Were Samples Received in 40 mL VOA Vials Containing a Stir Bar and Pre-Preserved with Sodium Bisulfate?		✓	
Were Samples Received Non-Preserved in Encore Samplers?	X		
If Received in Encore Samplers, was Sample Received and Preserved Within 48 Hours of Sample Collection?	X		

High Level Soils

Samples Collected in Which of the Following Ways?

	Yes	No	N/A
Tared 40, 60, or 120 mL Containers:			
Were Samples Received Pre-Preserved Within 4 Days After Collection?			
En Core Samplers:			
Were Samples Received Within 40 Hours After Collection then Preserved Within 48 Hours of Collection?	X		
Were Samples Shaken/Sonicated Within 8 Hours of Solvent Addition?	X		
Was Solvent Removed Within 24 Hours of Shake/Sonication?	X		

Equipment and Reagents

Methanol Lot Number: [illegible]

Sodium Bisulfate Lot Number: NA

Balance Number: 24

NOTE: MeOH or Bisulfate must be added within 48 hours of sample collection.

NOTE: All high level soil samples must be shaken for two minutes. Samples originating in Michigan or Wisconsin must also be sonicated (ASAP next business day when received late Friday or on the weekend).

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS **Chain-of-Custody Number** 128111/128114

Date and Time Sample(s) Received: 8.14.09 / 9:00 **Sample(s) from Wisconsin or Michigan?** Yes / (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0908257-01 30SS1 HL	Yes / No	4.7	4.7	[illegible]	8.14.09	11:45	Yes / No	[illegible]	8.14.09	11:45			
LLA	Yes / No	4.2					Yes / No						
LLB	Yes / No	4.2					Yes / No						
0908257-02 30SB1B HL	Yes / No	4.7	4.7	[illegible]	8.14.9	11:45	Yes / No						
LLA	Yes / No	4.6					Yes / No						
LLB	Yes / No	4.9					Yes / No						
0908257-03 Dup.1 HL	Yes / No	4.4	4.4	[illegible]	8.14.09	11:45	Yes / No						
LLA	Yes / No	3.1					Yes / No						
LLB	Yes / No	3.4					Yes / No						
0908257-04 30SS2 HL	Yes / No	3.2	3.2	[illegible]	8.14.9	11:45	Yes / No						
LLA	Yes / No	3.5					Yes / No						
LLB	Yes / No	3.7					Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: _____ **Chain-of-Custody Number** _____

Date and Time Sample(s) Received: _____ **Sample(s) from Wisconsin or Michigan?** Yes / No

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
30552 HLA	Yes / No	4.0	4.0				Yes / No						
HLB	Yes / No	4.0	4.0				Yes / No						
LLA	Yes / No	3.6					Yes / No						
LLB	Yes / No	4.2					Yes / No						
MS LLC	Yes / No	3.5					Yes / No						
MS LLD	Yes / No	3.7					Yes / No						
MS LLE	Yes / No	3.3					Yes / No						
MS LLF	Yes / No	3.5					Yes / No						
30582B HL	Yes / No	4.3	4.3				Yes / No						
LLA	Yes / No	4.3					Yes / No						
LLB	Yes / No	4.6					Yes / No						
79551 HL	Yes / No	4.3	4.3				Yes / No						
LLA	Yes / No	3.9					Yes / No						
LLB	Yes / No	3.7					Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: _____ **Chain-of-Custody Number** _____

Date and Time Sample(s) Received: _____ **Sample(s) from Wisconsin or Michigan?** Yes / No

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0908257-08 305B3B HL	Yes / No	5.0	5.0			11:45	Yes / No			11:55			
LLA	Yes / No	5.0					Yes / No						
LLB	Yes / No	4.8					Yes / No						
0908257-09 DUP 5 HL	Yes / No	4.7	4.7				Yes / No						
LLA	Yes / No	4.8					Yes / No						
LLB	Yes / No	5.0					Yes / No						
0908257-10 79552 HL	Yes / No	4.5	4.5				Yes / No						
LLA	Yes / No	3.7					Yes / No						
LLB	Yes / No	4.3					Yes / No						
~~79580A~~ HL	Yes / No						Yes / No						
~~LLA~~	Yes / No						Yes / No						
~~LLB~~	Yes / No						Yes / No						
0908257-12 79553 HL	Yes / No	4.69	4.6				Yes / No						
LLA	Yes / No	4.7					Yes / No						
LLB	Yes / No	4.1					Yes / No						
	Yes / No						Yes / No						

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: _____ **Chain-of-Custody Number** _____

Date and Time Sample(s) Received: _____ **Sample(s) from Wisconsin or Michigan?** Yes / No

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
795B2B 090857-13 HL	Yes / No	4.5	4.5	[illegible]	[illegible]	16:45	Yes / No	[illegible]	[illegible]	16:55			
LLA	Yes / No	4.2					Yes / No						
LLB	Yes / No	4.3					Yes / No						
60556 090857-14 HL	Yes / No	3.5	3.5				Yes / No						
LLA	Yes / No	3.4					Yes / No						
LLB	Yes / No	3.5					Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						

DATA VALIDATION WORKSHEET

Semivolatile Organic Analysis

Reviewer: Andrea Sansom
Date: November 4, 2009
DV Level: II III IV
Review Document:
_X_ NFG - Region III Modifications
_X_ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809B
Test Name: SVOC
Method No.: 8270C

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{O}C), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common phthalate contaminants) the amount in the associated blank.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.	X		
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the Dv report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: $r \geq 0.99$, %RSD $\leq$ 15%, ICV %D < 30%, and CCV %D $\leq$ 20%.	X		
	For initial Calibration: for %RSD > $\pm$ 15%, but < $\pm$ 50%, J(+) only. for %RSD > $\pm$ 50%, but < $\pm$ 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < 0.05? (n-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-dinitrophenol, & 4-nitrophenol) If yes, J(+)/R(-).		X	

Notes: ICAL 9H18007

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for decafluorotriphenylphosphine (DFTPP)?	X		
5.2	Are DFTPP enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
	If DFTPP was analyzed simultaneously with any calibration standard or blank, the instrument performance check (IPC) is rejected "R" as well as all associated data.			
5.3	Have all samples been analyzed within twelve hours of the DFTPP tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for DFTPP been met for each instrument used?	X		
	If the DFTPP criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
6.2	Are surrogate recoveries within acceptance criteria not to exceed 10-150% for all samples and method blanks?	X		
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?			X
	If any two base/neutral or acid fraction are out of specification, or if any one base/neutral or acid extractable surrogate has a recovery of less than 10%, then there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? (recoveries may be diluted out.)			X
	1 or more <10% 2 or 3 high/low 2 or 3 all low 2 or 3 all high Positives L J L K Non-detects R UJ UL NONE			
	Note: The B qualifier remains over surrogate flagging.			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 10-150%?	X		
7.4	Are there any RPDs outside the QC limits not to exceed 60%?	X		
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 10-150%?	X		
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?			X
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).	X		
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".			X

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 14			
	Number of target compounds in each analysis: 67			
	Number of results rejected and not reported: 13			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 98.6%			

Notes:

SAMPLE ID SUMMARY

USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

QC BATCH SUMMARY

USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809C

Client: URS Corporation

Project: RFAAP SSP at Six Sites

QC Batch: 0909484 QC Batch Matrix: Water

Preparation: 3510C Liquid-Liquid Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
EQBK-3	0908257-15	08/17/09 08:51	
Blank	0909484-BLK1	08/14/09 08:51	
Blank	0909484-BLK2	08/17/09 08:51	
~~Blank~~	~~0909484-BLK3~~	~~08/17/09 08:51~~	~~aecom~~
LCS	0909484-BS1	08/14/09 08:51	
LCS	0909484-BS2	08/17/09 08:51	
~~LCS~~	~~0909484-BS3~~	~~08/17/09 08:51~~	~~aecom~~
LCS Dup	0909484-BSD1	08/14/09 08:51	

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Water
Laboratory ID: 0909484-BLK2
File ID: 0909484-blk2.D
Prepared: 08/17/09 08:51
Preparation: 3510C Liquid-Liquid Extı
Initial/Final: 1000 mL / 1 mL
Analyzed: 08/18/09 01:19
Instrument: 308
QC Batch: 0909484
Sequence: 9H18024
Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
83-32-9	Acenaphthene	0.030	0.50	0.50	ug/L	U
208-96-8	Acenaphthylene	0.020	0.50	0.50	ug/L	U
98-86-2	Acetophenone	0.068	5.0	5.0	ug/L	U
120-12-7	Anthracene	0.036	0.50	0.50	ug/L	U
1912-24-9	Atrazine	0.051	5.0	5.0	ug/L	U
100-52-7	Benzaldehyde	0.22	5.0	5.0	ug/L	U
56-55-3	Benzo(a)anthracene	0.022	0.50	0.50	ug/L	U
50-32-8	Benzo(a)pyrene	0.042	0.50	0.50	ug/L	U
205-99-2	Benzo(b)fluoranthene	0.11	0.50	0.50	ug/L	U
207-08-9	Benzo(k)fluoranthene	0.12	0.50	0.50	ug/L	U
191-24-2	Benzo(g,h,i)perylene	0.098	0.50	0.50	ug/L	U
92-52-4	1,1'-Biphenyl	0.10	5.0	5.0	ug/L	U
101-55-3	4-Bromophenyl Phenyl Ether	0.036	5.0	5.0	ug/L	U
85-68-7	Butyl Benzyl Phthalate	0.058	5.0	0.070	ug/L	J
105-60-2	Caprolactam	0.21	5.0	5.0	ug/L	U
86-74-8	Carbazole	0.047	5.0	5.0	ug/L	U
59-50-7	4-Chloro-3-methylphenol	0.031	5.0	5.0	ug/L	U
106-47-8	4-Chloroaniline	0.15	5.0	5.0	ug/L	U
111-91-1	Bis(2-chloroethoxy)methane	0.035	5.0	5.0	ug/L	U
111-44-4	Bis(2-chloroethyl) Ether	0.035	5.0	5.0	ug/L	U
108-60-1	Bis(2-chloroisopropyl) Ether	0.059	5.0	5.0	ug/L	U
91-58-7	2-Chloronaphthalene	0.029	5.0	5.0	ug/L	U
95-57-8	2-Chlorophenol	0.080	5.0	5.0	ug/L	U
7005-72-3	4-Chlorophenyl Phenyl Ether	0.031	5.0	5.0	ug/L	U
218-01-9	Chrysene	0.036	0.50	0.50	ug/L	U
53-70-3	Dibenz(a,h)anthracene	0.070	0.50	0.50	ug/L	U
132-64-9	Dibenzofuran	0.039	5.0	5.0	ug/L	U
84-74-2	Di-n-butyl Phthalate	0.27	5.0	0.34	ug/L	J
91-94-1	3,3´-Dichlorobenzidine	0.64	5.0	5.0	ug/L	U
120-83-2	2,4-Dichlorophenol	0.056	5.0	5.0	ug/L	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BS2

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	10.0	11.5	115 *	45 - 110	ug/L
Acenaphthylene	10.0	11.7	117 *	50 - 105	ug/L
Acetophenone	10.0	8.61	86	54 - 113	ug/L
Anthracene	10.0	12.1	121 *	55 - 110	ug/L
Atrazine	10.0	9.72	97	61 - 139	ug/L
Benzaldehyde	10.0	6.75	68	25 - 141	ug/L
Benzo(a)anthracene	10.0	12.2	122 *	55 - 110	ug/L
Benzo(a)pyrene	10.0	12.5	125 *	55 - 110	ug/L
Benzo(b)fluoranthene	10.0	12.4	124 *	45 - 120	ug/L
Benzo(k)fluoranthene	10.0	12.9	129 *	45 - 125	ug/L
Benzo(g,h,i)perylene	10.0	12.4	124	40 - 125	ug/L
1,1'-Biphenyl	10.0	8.64	86	59 - 114	ug/L
4-Bromophenyl Phenyl Ether	9.80	11.7	119 *	50 - 115	ug/L
Butyl Benzyl Phthalate	9.80	12.4	127 *	45 - 115	ug/L
Caprolactam	10.0	2.41	24 *	25 - 135	ug/L
Carbazole	10.0	15.4	154 *	50 - 115	ug/L
4-Chloro-3-methylphenol	10.0	11.5	115 *	45 - 110	ug/L
4-Chloroaniline	9.80	8.94	91	15 - 110	ug/L
Bis(2-chloroethoxy)methane	9.80	10.1	103	45 - 105	ug/L
Bis(2-chloroethyl) Ether	9.80	9.77	100	35 - 110	ug/L
Bis(2-chloroisopropyl) Ether	9.80	10.1	103	25 - 130	ug/L
2-Chloronaphthalene	9.60	11.0	114 *	50 - 105	ug/L
2-Chlorophenol	10.0	10.5	105	35 - 105	ug/L
4-Chlorophenyl Phenyl Ether	9.80	11.6	119 *	50 - 110	ug/L
Chrysene	10.0	11.8	118 *	55 - 110	ug/L
Dibenz(a,h)anthracene	10.0	12.2	122	40 - 125	ug/L
Dibenzofuran	9.80	11.9	121 *	55 - 105	ug/L
Di-n-butyl Phthalate	9.80	12.3	126 *	55 - 115	ug/L
3,3'-Dichlorobenzidine	20.0	16.4	82	20 - 110	ug/L
2,4-Dichlorophenol	10.0	11.1	111 *	50 - 105	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BS2

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Diethyl Phthalate	9.80	12.8	130 *	40 - 120	ug/L
2,4-Dimethylphenol	10.0	8.61	86	30 - 110	ug/L
Dimethyl Phthalate	9.80	11.8	120	25 - 125	ug/L
4,6-Dinitro-2-methylphenol	10.0	11.8	118	40 - 130	ug/L
2,4-Dinitrophenol	10.0	10.2	102	15 - 140	ug/L
2,4-Dinitrotoluene	9.60	12.4	130 *	50 - 120	ug/L
2,6-Dinitrotoluene	9.60	11.5	120 *	50 - 115	ug/L
Di-n-octyl Phthalate	9.80	12.4	127	35 - 135	ug/L
Bis(2-ethylhexyl) Phthalate	9.80	12.3	126 *	40 - 125	ug/L
Fluoranthene	10.0	12.2	122 *	55 - 115	ug/L
Fluorene	10.0	11.7	117 *	50 - 110	ug/L
Hexachlorobenzene	9.60	11.5	119 *	50 - 110	ug/L
Hexachlorobutadiene	9.60	9.96	104	25 - 105	ug/L
Hexachlorocyclopentadiene	9.60	10.2	106	30 - 141	ug/L
Hexachloroethane	9.60	10.1	105 *	30 - 95	ug/L
Indeno(1,2,3-cd)pyrene	10.0	12.2	122	45 - 125	ug/L
Isophorone	9.60	9.69	101	50 - 110	ug/L
2-Methylnaphthalene	9.80	11.6	119 *	45 - 105	ug/L
2-Methylphenol	10.0	9.78	98	40 - 110	ug/L
4-Methylphenol	10.0	10.5	105	30 - 110	ug/L
Naphthalene	10.0	10.3	103 *	40 - 100	ug/L
2-Nitroaniline	9.80	12.8	131 *	50 - 115	ug/L
3-Nitroaniline	9.80	10.2	104	20 - 125	ug/L
4-Nitroaniline	9.80	10.9	111	35 - 120	ug/L
Nitrobenzene	9.60	10.3	108	45 - 110	ug/L
4-Nitrophenol	10.0	4.78	48	0 - 125	ug/L
2-Nitrophenol	10.0	11.3	113	40 - 115	ug/L
N-Nitroso-diphenylamine	9.80	9.76	100	50 - 110	ug/L
N-Nitroso-di-n-propylamine	9.80	11.2	114	35 - 130	ug/L
Pentachlorophenol	10.0	14.0	140 *	40 - 115	ug/L

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Water

Laboratory ID: 0909484-BS2

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3510C Liquid-Liquid Extraction
Initial/Final: 1000 mL / 1 mL
QC Batch: 0909484
Sequence: 9H18024

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Phenanthrene	10.0	11.9	119 *	50 - 115	ug/L
Phenol	10.0	5.38	54	0 - 115	ug/L
Pyrene	10.0	12.3	123	50 - 130	ug/L
1,2,4,5-Tetrachlorobenzene	5.00	5.48	110	40 - 140	ug/L
2,3,4,6-Tetrachlorophenol	10.0	12.6	126 *	40 - 115	ug/L
2,4,6-Trichlorophenol	10.0	11.9	119 *	50 - 115	ug/L
2,4,5-Trichlorophenol	10.0	12.5	125 *	50 - 110	ug/L

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

QC BATCH SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0909777
QC Batch Matrix: Soil
Preparation: 3550B Sonication Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
30SS1	0908257-01	08/20/09 08:09	
30SB1B	0908257-02	08/20/09 08:09	
DUP-4	0908257-03	08/20/09 08:09	
30SS2	0908257-04	08/20/09 08:09	
30SB2B	0908257-06	08/20/09 08:09	
79SS1	0908257-07	08/20/09 08:09	
30SB3B	0908257-08	08/20/09 08:09	
DUP-5	0908257-09	08/20/09 08:09	
79SS2	0908257-10	08/20/09 08:09	
Blank	0909777-BLK1	08/20/09 08:09	
LCS	0909777-BS1	08/20/09 08:09	

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909777-BLK1
File ID: 0909777-blk1.D
Prepared: 08/20/09 08:09
Preparation: 3550B Sonication Extract
Initial/Final: 30 g / 1 mL
Analyzed: 08/21/09 16:20
Instrument: 308
QC Batch: 0909777
Sequence: 9H24008
Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
83-32-9	Acenaphthene	0.78	17	17	ug/kg wet	U
208-96-8	Acenaphthylene	1.7	17	17	ug/kg wet	U
98-86-2	Acetophenone	3.7	170	170	ug/kg wet	U
120-12-7	Anthracene	2.6	17	17	ug/kg wet	U
1912-24-9	Atrazine	4.5	170	170	ug/kg wet	U
100-52-7	Benzaldehyde	6.2	170	170	ug/kg wet	U
56-55-3	Benzo(a)anthracene	1.1	17	17	ug/kg wet	U
50-32-8	Benzo(a)pyrene	1.4	17	17	ug/kg wet	U
205-99-2	Benzo(b)fluoranthene	2.9	17	17	ug/kg wet	U
207-08-9	Benzo(k)fluoranthene	1.3	17	17	ug/kg wet	U
191-24-2	Benzo(g,h,i)perylene	0.94	67	67	ug/kg wet	U
92-52-4	1,1'-Biphenyl	0.83	170	170	ug/kg wet	U
101-55-3	4-Bromophenyl Phenyl Ether	1.5	170	170	ug/kg wet	U
85-68-7	Butyl Benzyl Phthalate	4.9	170	170	ug/kg wet	U
105-60-2	Caprolactam	13	330	330	ug/kg wet	U
86-74-8	Carbazole	84	330	330	ug/kg wet	U
59-50-7	4-Chloro-3-methylphenol	3.3	170	170	ug/kg wet	U
106-47-8	4-Chloroaniline	7.1	170	170	ug/kg wet	U
111-91-1	Bis(2-chloroethoxy)methane	1.2	170	170	ug/kg wet	U
111-44-4	Bis(2-chloroethyl) Ether	1.9	170	170	ug/kg wet	U
108-60-1	Bis(2-chloroisopropyl) Ether	6.6	170	170	ug/kg wet	U
91-58-7	2-Chloronaphthalene	2.2	170	170	ug/kg wet	U
95-57-8	2-Chlorophenol	3.8	170	170	ug/kg wet	U
7005-72-3	4-Chlorophenyl Phenyl Ether	3.4	170	170	ug/kg wet	U
218-01-9	Chrysene	3.5	17	17	ug/kg wet	U
53-70-3	Dibenz(a,h)anthracene	7.7	67	67	ug/kg wet	U
132-64-9	Dibenzofuran	8.8	170	170	ug/kg wet	U
84-74-2	Di-n-butyl Phthalate	25	170	110	ug/kg wet	J
91-94-1	3,3´-Dichlorobenzidine	28	240	240	ug/kg wet	U
120-83-2	2,4-Dichlorophenol	3.4	170	170	ug/kg wet	U

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909777-BLK1
File ID: 0909777-blk1.D
Prepared: 08/20/09 08:09
Preparation: 3550B Sonication Extract
Initial/Final: 30 g / 1 mL
Analyzed: 08/21/09 16:20
Instrument: 308
QC Batch: 0909777
Sequence: 9H24008
Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
84-66-2	Diethyl Phthalate	3.5	170	170	ug/kg wet	U
105-67-9	2,4-Dimethylphenol	1.5	170	170	ug/kg wet	U
131-11-3	Dimethyl Phthalate	0.87	170	170	ug/kg wet	U
534-52-1	4,6-Dinitro-2-methylphenol	20	170	170	ug/kg wet	U
51-28-5	2,4-Dinitrophenol	100	330	330	ug/kg wet	U
121-14-2	2,4-Dinitrotoluene	19	170	170	ug/kg wet	U
606-20-2	2,6-Dinitrotoluene	2.3	170	170	ug/kg wet	U
117-84-0	Di-n-octyl Phthalate	5.3	170	170	ug/kg wet	U
117-81-7	Bis(2-ethylhexyl) Phthalate	4.6	170	5.0	ug/kg wet	J
206-44-0	Fluoranthene	0.76	17	17	ug/kg wet	U
86-73-7	Fluorene	6.9	33	33	ug/kg wet	U
118-74-1	Hexachlorobenzene	4.3	170	170	ug/kg wet	U
87-68-3	Hexachlorobutadiene	3.4	170	170	ug/kg wet	U
77-47-4	Hexachlorocyclopentadiene	2.0	170	170	ug/kg wet	U
67-72-1	Hexachloroethane	2.5	170	170	ug/kg wet	U
193-39-5	Indeno(1,2,3-cd)pyrene	3.7	67	67	ug/kg wet	U
78-59-1	Isophorone	6.2	170	170	ug/kg wet	U
91-57-6	2-Methylnaphthalene	0.45	170	170	ug/kg wet	U
95-48-7	2-Methylphenol	4.8	170	170	ug/kg wet	U
106-44-5	4-Methylphenol	4.4	170	170	ug/kg wet	U
91-20-3	Naphthalene	2.1	17	17	ug/kg wet	U
88-74-4	2-Nitroaniline	7.1	170	170	ug/kg wet	U
99-09-2	3-Nitroaniline	7.1	170	170	ug/kg wet	U
100-01-6	4-Nitroaniline	1.6	170	170	ug/kg wet	U
98-95-3	Nitrobenzene	5.2	170	170	ug/kg wet	U
100-02-7	4-Nitrophenol	130	670	670	ug/kg wet	U
88-75-5	2-Nitrophenol	6.6	170	170	ug/kg wet	U
86-30-6	N-Nitroso-diphenylamine	9.7	170	170	ug/kg wet	U
621-64-7	N-Nitroso-di-n-propylamine	5.6	170	170	ug/kg wet	U
87-86-5	Pentachlorophenol	44	330	330	ug/kg wet	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0909777-BS1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
QC Batch: 0909777
Sequence: 9H24008

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	333	305	92	45 - 110	ug/kg wet
Acenaphthylene	333	304	91	45 - 105	ug/kg wet
Acetophenone	333	219	66	50 - 150	ug/kg wet
Anthracene	333	310	93	55 - 105	ug/kg wet
Atrazine	333	278	84	61 - 146	ug/kg wet
Benzaldehyde	333	7.67	2 *	50 - 150	ug/kg wet
Benzo(a)anthracene	333	306	92	50 - 110	ug/kg wet
Benzo(a)pyrene	333	307	92	50 - 110	ug/kg wet
Benzo(b)fluoranthene	333	316	95	45 - 115	ug/kg wet
Benzo(k)fluoranthene	333	296	89	45 - 125	ug/kg wet
Benzo(g,h,i)perylene	333	318	95	40 - 125	ug/kg wet
1,1'-Biphenyl	333	286	86	60 - 131	ug/kg wet
4-Bromophenyl Phenyl Ether	327	303	93	45 - 115	ug/kg wet
Butyl Benzyl Phthalate	327	340	104	50 - 125	ug/kg wet
Caprolactam	333	283	85	62 - 112	ug/kg wet
Carbazole	333	439	132 *	45 - 115	ug/kg wet
4-Chloro-3-methylphenol	307	256	84	45 - 115	ug/kg wet
4-Chloroaniline	333	115	34	10 - 95	ug/kg wet
Bis(2-chloroethoxy)methane	327	277	85	45 - 110	ug/kg wet
Bis(2-chloroethyl) Ether	327	277	85	40 - 105	ug/kg wet
Bis(2-chloroisopropyl) Ether	327	287	88	20 - 115	ug/kg wet
2-Chloronaphthalene	333	312	94	45 - 105	ug/kg wet
2-Chlorophenol	307	284	93	45 - 105	ug/kg wet
4-Chlorophenyl Phenyl Ether	327	304	93	45 - 110	ug/kg wet
Chrysene	333	302	91	55 - 110	ug/kg wet
Dibenz(a,h)anthracene	333	330	99	40 - 125	ug/kg wet
Dibenzofuran	333	318	95	50 - 105	ug/kg wet
Di-n-butyl Phthalate	327	415	127 *	55 - 110	ug/kg wet
3,3´-Dichlorobenzidine	667	368	55	10 - 130	ug/kg wet
2,4-Dichlorophenol	307	277	90	45 - 110	ug/kg wet

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0909777-BS1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
QC Batch: 0909777
Sequence: 9H24008

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Diethyl Phthalate	327	325	99	50 - 115	ug/kg wet
2,4-Dimethylphenol	307	249	81	30 - 105	ug/kg wet
Dimethyl Phthalate	327	302	92	50 - 110	ug/kg wet
4,6-Dinitro-2-methylphenol	307	256	83	30 - 135	ug/kg wet
2,4-Dinitrophenol	307	234	76	15 - 130	ug/kg wet
2,4-Dinitrotoluene	333	336	101	50 - 115	ug/kg wet
2,6-Dinitrotoluene	333	303	91	50 - 110	ug/kg wet
Di-n-octyl Phthalate	327	370	113	40 - 130	ug/kg wet
Bis(2-ethylhexyl) Phthalate	327	350	107	45 - 125	ug/kg wet
Fluoranthene	333	305	92	55 - 115	ug/kg wet
Fluorene	333	302	91	50 - 110	ug/kg wet
Hexachlorobenzene	333	287	86	45 - 120	ug/kg wet
Hexachlorobutadiene	333	288	86	40 - 115	ug/kg wet
Hexachlorocyclopentadiene	333	315	95	10 - 113	ug/kg wet
Hexachloroethane	333	309	93	35 - 110	ug/kg wet
Indeno(1,2,3-cd)pyrene	333	326	98	40 - 120	ug/kg wet
Isophorone	333	300	90	45 - 110	ug/kg wet
2-Methylnaphthalene	333	316	95	45 - 105	ug/kg wet
2-Methylphenol	333	290	87	40 - 105	ug/kg wet
4-Methylphenol	333	364	109 *	40 - 105	ug/kg wet
Naphthalene	333	292	88	40 - 105	ug/kg wet
2-Nitroaniline	333	344	103	45 - 120	ug/kg wet
3-Nitroaniline	333	190	57	25 - 110	ug/kg wet
4-Nitroaniline	333	235	71	35 - 115	ug/kg wet
Nitrobenzene	333	304	91	40 - 115	ug/kg wet
4-Nitrophenol	307	342	111	15 - 140	ug/kg wet
2-Nitrophenol	307	293	96	40 - 110	ug/kg wet
N-Nitroso-diphenylamine	327	223	68	50 - 115	ug/kg wet
N-Nitroso-di-n-propylamine	327	300	92	40 - 115	ug/kg wet
Pentachlorophenol	307	256	84	25 - 120	ug/kg wet

QC BATCH SUMMARY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0909841
QC Batch Matrix: Soil
Preparation: 3550B Sonication Extraction

Sample Name	Lab Sample ID	Date Prepared	Observations
30SS3	0908257-05	08/21/09 08:19	
79SS3	0908257-12	08/21/09 08:19	
79SB2B	0908257-13	08/21/09 08:19	
60SS6	0908257-14	08/21/09 08:19	
Blank	0909841-BLK1	08/21/09 08:19	
LCS	0909841-BS1	08/21/09 08:19	
30SS3	0909841-MS1	08/21/09 08:19	
30SS3	0909841-MSD1	08/21/09 08:19	

METHOD BLANK DATA SHEET
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0909841-BLK1
File ID: 0909841-blk1.D
Prepared: 08/21/09 08:19
Preparation: 3550B Sonication Extract
Initial/Final: 30 g / 1 mL
Analyzed: 08/26/09 09:57
Instrument: 308
QC Batch: 0909841
Sequence: 9H26032
Calibration: 9H18007

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
84-66-2	Diethyl Phthalate	3.5	170	170	ug/kg wet	U
105-67-9	2,4-Dimethylphenol	1.5	170	170	ug/kg wet	U
131-11-3	Dimethyl Phthalate	0.87	170	170	ug/kg wet	U
534-52-1	4,6-Dinitro-2-methylphenol	20	170	170	ug/kg wet	U
51-28-5	2,4-Dinitrophenol	100	330	330	ug/kg wet	U
121-14-2	2,4-Dinitrotoluene	19	170	170	ug/kg wet	U
606-20-2	2,6-Dinitrotoluene	2.3	170	170	ug/kg wet	U
117-84-0	Di-n-octyl Phthalate	5.3	170	170	ug/kg wet	U
117-81-7	Bis(2-ethylhexyl) Phthalate	4.6	170	4.7	ug/kg wet	J
206-44-0	Fluoranthene	0.76	17	17	ug/kg wet	U
86-73-7	Fluorene	6.9	33	33	ug/kg wet	U
118-74-1	Hexachlorobenzene	4.3	170	170	ug/kg wet	U
87-68-3	Hexachlorobutadiene	3.4	170	170	ug/kg wet	U
77-47-4	Hexachlorocyclopentadiene	2.0	170	170	ug/kg wet	U
67-72-1	Hexachloroethane	2.5	170	170	ug/kg wet	U
193-39-5	Indeno(1,2,3-cd)pyrene	3.7	67	67	ug/kg wet	U
78-59-1	Isophorone	6.2	170	170	ug/kg wet	U
91-57-6	2-Methylnaphthalene	0.45	170	170	ug/kg wet	U
95-48-7	2-Methylphenol	4.8	170	170	ug/kg wet	U
106-44-5	4-Methylphenol	4.4	170	170	ug/kg wet	U
91-20-3	Naphthalene	2.1	17	17	ug/kg wet	U
88-74-4	2-Nitroaniline	7.1	170	170	ug/kg wet	U
99-09-2	3-Nitroaniline	7.1	170	170	ug/kg wet	U
100-01-6	4-Nitroaniline	1.6	170	170	ug/kg wet	U
98-95-3	Nitrobenzene	5.2	170	170	ug/kg wet	U
100-02-7	4-Nitrophenol	130	670	670	ug/kg wet	U
88-75-5	2-Nitrophenol	6.6	170	170	ug/kg wet	U
86-30-6	N-Nitroso-diphenylamine	9.7	170	170	ug/kg wet	U
621-64-7	N-Nitroso-di-n-propylamine	5.6	170	170	ug/kg wet	U
87-86-5	Pentachlorophenol	44	330	330	ug/kg wet	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0909841-BS1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
QC Batch: 0909841
Sequence: 9H26032

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Acenaphthene	333	288	86	45 - 110	ug/kg wet
Acenaphthylene	333	289	87	45 - 105	ug/kg wet
Acetophenone	333	219	66	50 - 150	ug/kg wet
Anthracene	333	300	90	55 - 105	ug/kg wet
Atrazine	333	280	84	61 - 146	ug/kg wet
Benzaldehyde	333	13.7	4 *	50 - 150	ug/kg wet
Benzo(a)anthracene	333	316	95	50 - 110	ug/kg wet
Benzo(a)pyrene	333	312	94	50 - 110	ug/kg wet
Benzo(b)fluoranthene	333	319	96	45 - 115	ug/kg wet
Benzo(k)fluoranthene	333	321	96	45 - 125	ug/kg wet
Benzo(g,h,i)perylene	333	313	94	40 - 125	ug/kg wet
1,1'-Biphenyl	333	265	80	60 - 131	ug/kg wet
4-Bromophenyl Phenyl Ether	327	276	84	45 - 115	ug/kg wet
Butyl Benzyl Phthalate	327	346	106	50 - 125	ug/kg wet
Caprolactam	333	302	91	62 - 112	ug/kg wet
Carbazole	333	351	105	45 - 115	ug/kg wet
4-Chloro-3-methylphenol	307	271	88	45 - 115	ug/kg wet
4-Chloroaniline	333	96.7	29	10 - 95	ug/kg wet
Bis(2-chloroethoxy)methane	327	273	84	45 - 110	ug/kg wet
Bis(2-chloroethyl) Ether	327	262	80	40 - 105	ug/kg wet
Bis(2-chloroisopropyl) Ether	327	282	86	20 - 115	ug/kg wet
2-Chloronaphthalene	333	295	89	45 - 105	ug/kg wet
2-Chlorophenol	307	262	86	45 - 105	ug/kg wet
4-Chlorophenyl Phenyl Ether	327	293	90	45 - 110	ug/kg wet
Chrysene	333	325	97	55 - 110	ug/kg wet
Dibenz(a,h)anthracene	333	328	98	40 - 125	ug/kg wet
Dibenzofuran	333	303	91	50 - 105	ug/kg wet
Di-n-butyl Phthalate	327	314	96	55 - 110	ug/kg wet
3,3'-Dichlorobenzidine	667	357	54	10 - 130	ug/kg wet
2,4-Dichlorophenol	307	264	86	45 - 110	ug/kg wet

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 1 mL

Laboratory ID: 0909841-MS1

QC Batch: 0909841

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acenaphthene	366	ND	251	68	45 - 110	ug/kg dry
Acenaphthylene	366	ND	252	69	45 - 105	ug/kg dry
Acetophenone	366	ND	183	50	50 - 150	ug/kg dry
Anthracene	366	ND	237	65	55 - 105	ug/kg dry
Atrazine	366	ND	217	59 *	61 - 146	ug/kg dry
Benzaldehyde	366	ND	7.68	2 *	50 - 150	ug/kg dry
Benzo(a)anthracene	366	2.56	264	71	50 - 110	ug/kg dry
Benzo(a)pyrene	366	2.20	255	69	50 - 110	ug/kg dry
Benzo(b)fluoranthene	366	3.29	280	76	45 - 115	ug/kg dry
Benzo(k)fluoranthene	366	1.83	267	72	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	366	1.46	191	52	40 - 125	ug/kg dry
1,1'-Biphenyl	366	ND	236	64	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	359	ND	243	68	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	359	ND	327	91	50 - 125	ug/kg dry
Caprolactam	366	ND	226	62	62 - 112	ug/kg dry
Carbazole	366	ND	265	72	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	337	ND	225	67	45 - 115	ug/kg dry
4-Chloroaniline	366	ND	53.8	15	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	359	ND	244	68	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	359	ND	256	72	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	359	ND	254	71	20 - 115	ug/kg dry
2-Chloronaphthalene	366	ND	257	70	45 - 105	ug/kg dry
2-Chlorophenol	337	ND	242	72	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	359	ND	240	67	45 - 110	ug/kg dry
Chrysene	366	ND	268	73	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	366	ND	215	59	40 - 125	ug/kg dry
Dibenzofuran	366	ND	260	71	50 - 105	ug/kg dry
Di-n-butyl Phthalate	359	ND	268	75	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	732	ND	80.9	11	10 - 130	ug/kg dry
2,4-Dichlorophenol	337	ND	215	64	45 - 110	ug/kg dry
Diethyl Phthalate	359	ND	254	71	50 - 115	ug/kg dry
2,4-Dimethylphenol	337	ND	223	66	30 - 105	ug/kg dry
Dimethyl Phthalate	359	ND	252	70	50 - 110	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

30SS3

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 1 mL
Laboratory ID: 0909841-MS1
QC Batch: 0909841

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
4,6-Dinitro-2-methylphenol	337	ND	142	42	30 - 135	ug/kg dry
2,4-Dinitrophenol	337	ND	93.3	28	15 - 130	ug/kg dry
2,4-Dinitrotoluene	366	ND	270	74	50 - 115	ug/kg dry
2,6-Dinitrotoluene	366	ND	251	68	50 - 110	ug/kg dry
Di-n-octyl Phthalate	359	ND	359	100	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	359	16.1	360	96	45 - 125	ug/kg dry
Fluoranthene	366	2.56	221	60	55 - 115	ug/kg dry
Fluorene	366	ND	251	68	50 - 110	ug/kg dry
Hexachlorobenzene	366	ND	237	65	45 - 120	ug/kg dry
Hexachlorobutadiene	366	ND	224	61	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	366	ND	51.2	14	10 - 113	ug/kg dry
Hexachloroethane	366	ND	236	65	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	366	ND	211	58	40 - 120	ug/kg dry
Isophorone	366	ND	254	70	45 - 110	ug/kg dry
2-Methylnaphthalene	366	2.93	268	72	45 - 105	ug/kg dry
2-Methylphenol	366	ND	241	66	40 - 105	ug/kg dry
4-Methylphenol	366	ND	284	77	40 - 105	ug/kg dry
Naphthalene	366	ND	248	68	40 - 105	ug/kg dry
2-Nitroaniline	366	ND	288	79	45 - 120	ug/kg dry
3-Nitroaniline	366	ND	119	32	25 - 110	ug/kg dry
4-Nitroaniline	366	ND	141	39	35 - 115	ug/kg dry
Nitrobenzene	366	ND	274	75	40 - 115	ug/kg dry
4-Nitrophenol	337	ND	237	70	15 - 140	ug/kg dry
2-Nitrophenol	337	ND	247	73	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	359	ND	194	54	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	359	ND	267	75	40 - 115	ug/kg dry
Pentachlorophenol	337	ND	223	66	25 - 120	ug/kg dry
Phenanthrene	366	2.93	275	74	50 - 110	ug/kg dry
Phenol	337	ND	248	74	40 - 100	ug/kg dry
Pyrene	366	3.29	285	77	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	183	ND	115	63	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	337	ND	200	60	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	337	ND	228	68	45 - 110	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 1 mL

Laboratory ID: 0909841-MS1

QC Batch: 0909841

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
2,4,5-Trichlorophenol	366	ND	213	58	50 - 110	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

30SS3

USEPA-8270C

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 1 mL

Laboratory ID: 0909841-MSD1

QC Batch: 0909841

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acenaphthene	366	255	70	2	30	45 - 110	ug/kg dry
Acenaphthylene	366	255	70	1	30	45 - 105	ug/kg dry
Acetophenone	366	202	55	10	30	50 - 150	ug/kg dry
Anthracene	366	247	67	4	30	55 - 105	ug/kg dry
Atrazine	366	228	62	5	30	61 - 146	ug/kg dry
Benzaldehyde	366	9.51	3 *	21	30	50 - 150	ug/kg dry
Benzo(a)anthracene	366	266	72	0.8	30	50 - 110	ug/kg dry
Benzo(a)pyrene	366	262	71	2	30	50 - 110	ug/kg dry
Benzo(b)fluoranthene	366	308	83	9	30	45 - 115	ug/kg dry
Benzo(k)fluoranthene	366	257	70	4	30	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	366	195	53	2	30	40 - 125	ug/kg dry
1,1'-Biphenyl	366	239	65	1	30	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	359	245	68	0.7	30	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	359	332	93	2	30	50 - 125	ug/kg dry
Caprolactam	366	214	58 *	6	30	62 - 112	ug/kg dry
Carbazole	366	284	77	7	30	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	337	224	67	0.5	30	45 - 115	ug/kg dry
4-Chloroaniline	366	50.9	14	6	30	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	359	258	72	6	30	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	359	283	79	10	30	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	359	276	77	8	30	20 - 115	ug/kg dry
2-Chloronaphthalene	366	263	72	2	30	45 - 105	ug/kg dry
2-Chlorophenol	337	260	77	7	30	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	359	239	67	0.3	30	45 - 110	ug/kg dry
Chrysene	366	276	75	3	30	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	366	221	60	3	30	40 - 125	ug/kg dry
Dibenzofuran	366	262	72	0.7	30	50 - 105	ug/kg dry
Di-n-butyl Phthalate	359	273	76	2	30	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	732	125	17	43 *	30	10 - 130	ug/kg dry
2,4-Dichlorophenol	337	225	67	4	30	45 - 110	ug/kg dry
Diethyl Phthalate	359	266	74	5	30	50 - 115	ug/kg dry
2,4-Dimethylphenol	337	218	65	2	30	30 - 105	ug/kg dry
Dimethyl Phthalate	359	253	71	0.4	30	50 - 110	ug/kg dry
4,6-Dinitro-2-methylphenol	337	136	40	4	30	30 - 135	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 1 mL

Laboratory ID: 0909841-MSD1

QC Batch: 0909841

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
2,4-Dinitrophenol	337	88.5	26	5	30	15 - 130	ug/kg dry
2,4-Dinitrotoluene	366	280	76	3	30	50 - 115	ug/kg dry
2,6-Dinitrotoluene	366	265	72	6	30	50 - 110	ug/kg dry
Di-n-octyl Phthalate	359	359	100	0	30	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	359	348	93	3	30	45 - 125	ug/kg dry
Fluoranthene	366	224	61	1	30	55 - 115	ug/kg dry
Fluorene	366	249	68	0.7	30	50 - 110	ug/kg dry
Hexachlorobenzene	366	237	65	0.2	30	45 - 120	ug/kg dry
Hexachlorobutadiene	366	232	64	4	30	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	366	47.6	13	7	30	10 - 113	ug/kg dry
Hexachloroethane	366	247	67	4	30	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	366	211	58	0.2	30	40 - 120	ug/kg dry
Isophorone	366	266	73	4	30	45 - 110	ug/kg dry
2-Methylnaphthalene	366	283	76	5	30	45 - 105	ug/kg dry
2-Methylphenol	366	273	75	12	30	40 - 105	ug/kg dry
4-Methylphenol	366	297	81	5	30	40 - 105	ug/kg dry
Naphthalene	366	261	71	5	30	40 - 105	ug/kg dry
2-Nitroaniline	366	281	77	2	30	45 - 120	ug/kg dry
3-Nitroaniline	366	116	32	2	30	25 - 110	ug/kg dry
4-Nitroaniline	366	160	44	13	30	35 - 115	ug/kg dry
Nitrobenzene	366	293	80	7	30	40 - 115	ug/kg dry
4-Nitrophenol	337	241	72	2	30	15 - 140	ug/kg dry
2-Nitrophenol	337	261	78	5	30	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	359	192	54	0.9	30	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	359	289	81	8	30	40 - 115	ug/kg dry
Pentachlorophenol	337	226	67	2	30	25 - 120	ug/kg dry
Phenanthrene	366	269	73	2	30	50 - 110	ug/kg dry
Phenol	337	267	79	7	30	40 - 100	ug/kg dry
Pyrene	366	287	78	0.6	30	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	183	115	63	0.3	30	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	337	199	59	0.7	30	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	337	219	65	4	30	45 - 110	ug/kg dry
2,4,5-Trichlorophenol	366	217	59	2	30	50 - 110	ug/kg dry

DATA VALIDATION WORKSHEET

Pesticides/PCBs

Reviewer: Andrea Sansom
Date: November 17, 2009
DV Level: II III IV
Review Document:
X SW-846 - 8081/8082
X NFG - Region III Modifications
____ CLP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809C
Test Name: PEST/PCB
Method No.: 8081A/8082

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV report.			

Notes:

2.0 Preservation/ Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampleing to date of analysis, been exceeded? If yes, J(+)/UJ(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to five times the amount in the associated blank.		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note it in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards included in the calibration curve? 1016 and 1260 need at least three peaks at five concentrations. The multi-component target compounds (the other Aroclors, Toxaphene, & Chlordane) must each be analyzed separately at a single concentration level during the initial calibration sequence.	X		
4.2	Has a continuing calibration standard been analyzed for every 12 hours or twenty samples?	X		
4.3	Are all calibration standard (IC and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r>0.99, %RSD < ± 20% and %D < ± 15%		X	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Do all standard retention times in the continuing calibration fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.	X		

Notes:

5.0 GC/ECD Instrument Performance Check for Pesticides		Yes	No	NA
5.1	Is the 4,4'-DDT breakdown </= to 15%? If No, for positive DDT results, DDT-L(+), DDD/DDE - NJ(+). For non detect DDT results, DDD/DDE - R(+).	X		
5.2	Is the endrin breakdown </= to 15%? If No, for positive endrin results, endrin-L(+), endrin aldehyde/ketone - NJ(+). For non-detect DDT results, endrin aldehyde/ketone - R(+).	X		

Notes:

6.0 Surrogate Recovery				Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?			X		
6.2	Do all surrogate retention times fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.			X		
6.3	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?			X		
6.4	If No in Section 6.3, are these sample(s) or method blank(s) reanalyzed?					X
6.5	If No in Section 6.4, is any sample dilution factor greater than 10? (recoveries may be diluted out.)					X
	# of outliers	Recovery	Sample result from column with non-conformance	Sample result from column without non-conformance		
	1 out	high/low	No action	No action		
	2 out	2 high same column	K	No action		
		2 low same column	L, UL	No action		
		mixed same column	J, UJ	No action		
		2 high diff columns	J	Not applicable		
		2 low diff columns	J, UJ	Not applicable		
		mixed diff columns	Professional judgement	Not applicable		
	3 out	All high	K	Not applicable		
		All low	L, UL	Not applicable		
		2 high, 1 low	K (2 high)	J (1 low 2nd column)		
		2 low, 1 high	L, UJ (2 low)	J (1 high 2nd column)		
		other mixed	J, UJ	Not applicable		
	4 out	All high	K	Not applicable		
		All low	L, UL	Not applicable		
		Mixed	J, UJ	Not applicable		
	If any recovery is >0% and <10% then L(+)/R(-).					
	If any recovery is 0% then R(+/-).					

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 30-150%?		X	
7.4	Are there any RPDs outside the QC limits not to exceed 60%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 30-150%?		X	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	If Yes, J(+) only.			

Notes:

9.0 Field Duplicate		Yes	No	NA
9.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
9.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

10.0 Compound Identification and Detection Limit Verification		Yes	No	NA
10.1	Is the percent difference calculated for the positive sample results on both columns < 40%? If No, J(+).		X	
10.2	Do detection limits meet those required by the project QAPP and were properly adjusted for dilution factors and moisture?	X		

Notes:

11.0 Pesticide Cleanup Checks		Yes	No	NA
11.1	Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts to reduce matrix interference caused by polar compounds.)			
	Every lot number of Florisil cartridges used for sample cleanup must be checked by spiking with 2,4,5-trichlorophenol and the midpoint concentration of Individual Standard Mixture A.			
11.2	Are all samples listed on the Pesticide Florisil cartridge Check Form?			
11.3	Are percent recoveries of pesticide and surrogate compounds within control limit, 80-120%(if the recovery of 2,4,5-trichlorophenol < 5%), for the florisil cartridge check? If No, the raw data should be examined for the presence of polar interferences and professional judgement should be used in qualifying the data.			

Notes:

CLP requirement, not provided

12.0 Data Completeness				Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	Pest	PCB	X		
	Number of samples:	14	14			
	Number of target compounds in each analysis:	21	7			
	Number of results rejected and not reported:	0	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)					
	% Completeness =	100%	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I01016-CCV1	A85_228-0	08/27/09 18:37
Calibration Check	9I01016-CCV1	B85_228-0	08/27/09 18:37
Calibration Check	9I01016-CCV2	A85_229-0	08/27/09 19:15
Calibration Check	9I01016-CCV2	B85_229-0	08/27/09 19:15
LCS Dup	0909501-BSD2	A85_235-0	08/27/09 23:36
LCS Dup	0909501-BSD2	B85_235-0	08/27/09 23:36
LCS	0909501-BS2	A85_236-0	08/28/09 00:14
LCS	0909501-BS2	B85_236-0	08/28/09 00:14
LCS Dup	0909501-BSD1	A85_237-0	08/28/09 00:51
LCS Dup	0909501-BSD1	B85_237-0	08/28/09 00:51
LCS	0909501-BS1	A85_238-0	08/28/09 01:29
LCS	0909501-BS1	B85_238-0	08/28/09 01:29
Blank	0909501-BLK1	A85_239-0	08/28/09 02:06
Blank	0909501-BLK1	B85_239-0	08/28/09 02:06
Calibration Check	9I01016-CCV3	A85_240-0	08/28/09 02:43
Calibration Check	9I01016-CCV3	B85_240-0	08/28/09 02:43
Calibration Check	9I01016-CCV4	A85_241-0	08/28/09 03:21
Calibration Check	9I01016-CCV4	B85_241-0	08/28/09 03:21
EQBK-3	0908257-15	A85_247-0	08/28/09 07:05
EQBK-3	0908257-15	B85_247-0	08/28/09 07:05
LCS	0909501-BS4	A85_249-0	08/28/09 08:20
LCS	0909501-BS4	B85_249-0	08/28/09 08:20
LCS	0909501-BS3	A85_250-0	08/28/09 08:58
LCS	0909501-BS3	B85_250-0	08/28/09 08:58
Blank	0909501-BLK2	A85_251-0	08/28/09 09:35
Blank	0909501-BLK2	B85_251-0	08/28/09 09:35
Calibration Check	9I01016-CCV5	A85_252-0	08/28/09 10:12
Calibration Check	9I01016-CCV5	B85_252-0	08/28/09 10:12
Calibration Check	9I01016-CCV6	A85_253-0	08/28/09 10:50
Calibration Check	9I01016-CCV6	B85_253-0	08/28/09 10:50

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: A85_229-0
Calibration Date: 08/25/09 10:09
Sequence: 9I01016
Injection Date: 08/27/09
Lab Sample ID: 9I01016-CCV2
Injection Time: 19:15

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.600	1130574	1550682		20.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9I08007
Lab File ID: A85_252-0
Calibration Date: 08/25/09 10:09
Sequence: 9I01016
Injection Date: 08/28/09
Lab Sample ID: 9I01016-CCV5
Injection Time: 10:12

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0392	5995468	5877630		-2.0	20
beta-BHC	A	0.0400	0.0364	2149098	1954396		-9.1	20
gamma-BHC (Lindane)	A	0.0400	0.0384	5196859	4991550		-4.0	20
delta-BHC	A	0.0400	0.0372	4581752	4256335		-7.1	20
alpha-Chlordane	A	0.0400	0.0363	3932349	3571820		-9.2	20
gamma-Chlordane	A	0.0400	0.0367	4120711	3781483		-8.2	20
4,4'-DDD	A	0.0400	0.0367	2967226	2725048		-8.2	20
4,4'-DDE	A	0.0400	0.0367	3848836	3528583		-8.3	20
4,4'-DDT	A	0.0400	0.0340	2970675	2526720		-14.9	20
Aldrin	A	0.0400	0.0384	4724988	4533383		-4.1	20
Dieldrin	A	0.0400	0.0366	3824875	3497635		-8.6	20
Endosulfan I	A	0.0400	0.0367	3657648	3352413		-8.3	20
Endosulfan II	A	0.0400	0.0363	2824035	2565200		-9.2	20
Endosulfan Sulfate	A	0.0400	0.0370	2450729	2265386		-7.6	20
Endrin	A	0.0400	0.0363	3387779	3074303		-9.3	20
Endrin Aldehyde	A	0.0400	0.0366	1862380	1702350		-8.6	20
Endrin Ketone	A	0.0400	0.0368	2856336	2627935		-8.0	20
Heptachlor	A	0.0400	0.0380	5472984	5198428		-5.0	20
Heptachlor Epoxide	A	0.0400	0.0370	4140288	3833283		-7.4	20
Methoxychlor	A	0.0400	0.0336	1602837	1344557		-16.1	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_253-0
Sequence: 9I01016
Lab Sample ID: 9I01016-CCV6

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9I08007
Calibration Date: 08/25/09 10:09
Injection Date: 08/28/09
Injection Time: 10:50

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.603	1130574	1558464		20.6	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016
Matrix: Water

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV1)		**Lab File ID: A85_228-0**		**Analyzed: 08/27/09 18:37**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	104	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	99	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	105	80 - 120	
Decachlorobiphenyl [2C]	24.07	24.11	-0.04	+/-1.0	106	80 - 120	
Calibration Check (9I01016-CCV2)		**Lab File ID: A85_229-0**		**Analyzed: 08/27/09 19:15**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	112	80 - 120	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	130	80 - 120	*
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	109	80 - 120	
LCS Dup (0909501-BSD2)		**Lab File ID: A85_235-0**		**Analyzed: 08/27/09 23:36**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	69	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	59	25 - 140	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	109	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	90	30 - 135	
LCS (0909501-BS2)		**Lab File ID: A85_236-0**		**Analyzed: 08/28/09 00:14**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	74	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	61	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	115	30 - 135	
Decachlorobiphenyl [2C]	24.10	24.11	-0.01	+/-1.0	93	30 - 135	
LCS Dup (0909501-BSD1)		**Lab File ID: A85_237-0**		**Analyzed: 08/28/09 00:51**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	60	25 - 140	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	57	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	91	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	92	30 - 135	
LCS (0909501-BS1)		**Lab File ID: A85_238-0**		**Analyzed: 08/28/09 01:29**			
Tetrachloro-m-xylene	7.80	7.78	0.02	+/-1.0	72	25 - 140	
Tetrachloro-m-xylene [2C]	8.83	8.82	0.01	+/-1.0	66	25 - 140	
Decachlorobiphenyl	21.35	21.32	0.03	+/-1.0	97	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	99	30 - 135	
Blank (0909501-BLK1)		**Lab File ID: A85_239-0**		**Analyzed: 08/28/09 02:06**			
Tetrachloro-m-xylene	7.76	7.78	-0.02	+/-1.0	132	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	127	25 - 140	
Decachlorobiphenyl	21.28	21.32	-0.04	+/-1.0	126	30 - 135	
Decachlorobiphenyl [2C]	24.04	24.11	-0.07	+/-1.0	130	30 - 135	

for STD

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I01016
Instrument: 199
Matrix: Water
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV3)		**Lab File ID: A85_240-0**		**Analyzed: 08/28/09 02:43**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	107	80 - 120	
Tetrachloro-m-xylene [2C]	8.82	8.82	0.00	+/-1.0	101	80 - 120	
Decachlorobiphenyl	21.31	21.32	-0.01	+/-1.0	108	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	110	80 - 120	
Calibration Check (9I01016-CCV4)		**Lab File ID: A85_241-0**		**Analyzed: 08/28/09 03:21**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	113	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	94	80 - 120	
Decachlorobiphenyl	21.32	21.32	0.00	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.08	24.11	-0.03	+/-1.0	106	80 - 120	
EQBK-3 (0908257-15)		**Lab File ID: A85_247-0**		**Analyzed: 08/28/09 07:05**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	75	25 - 140	
Tetrachloro-m-xylene [2C]	8.79	8.82	-0.03	+/-1.0	71	25 - 140	
Decachlorobiphenyl	21.29	21.32	-0.03	+/-1.0	91	30 - 135	
Decachlorobiphenyl [2C]	24.04	24.11	-0.07	+/-1.0	94	30 - 135	
LCS (0909501-BS4)		**Lab File ID: A85_249-0**		**Analyzed: 08/28/09 08:20**			
Tetrachloro-m-xylene	7.78	7.78	0.00	+/-1.0	82	25 - 140	
Tetrachloro-m-xylene [2C]	8.80	8.82	-0.02	+/-1.0	70	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	106	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	88	30 - 135	
LCS (0909501-BS3)		**Lab File ID: A85_250-0**		**Analyzed: 08/28/09 08:58**			
Tetrachloro-m-xylene	7.77	7.78	-0.01	+/-1.0	64	25 - 140	
Tetrachloro-m-xylene [2C]	8.78	8.82	-0.04	+/-1.0	61	25 - 140	
Decachlorobiphenyl	21.34	21.32	0.02	+/-1.0	94	30 - 135	
Decachlorobiphenyl [2C]	24.09	24.11	-0.02	+/-1.0	100	30 - 135	
Blank (0909501-BLK2)		**Lab File ID: A85_251-0**		**Analyzed: 08/28/09 09:35**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	89	25 - 140	
Tetrachloro-m-xylene [2C]	8.76	8.82	-0.06	+/-1.0	88	25 - 140	
Decachlorobiphenyl	21.30	21.32	-0.02	+/-1.0	90	30 - 135	
Decachlorobiphenyl [2C]	24.05	24.11	-0.06	+/-1.0	98	30 - 135	
Calibration Check (9I01016-CCV5)		**Lab File ID: A85_252-0**		**Analyzed: 08/28/09 10:12**			
Tetrachloro-m-xylene	7.79	7.78	0.01	+/-1.0	99	80 - 120	
Tetrachloro-m-xylene [2C]	8.81	8.82	-0.01	+/-1.0	95	80 - 120	
Decachlorobiphenyl	21.33	21.32	0.01	+/-1.0	97	80 - 120	
Decachlorobiphenyl [2C]	24.06	24.11	-0.05	+/-1.0	99	80 - 120	

Tox SW

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I01016
Matrix: Water

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I08007

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I01016-CCV6)		**Lab File ID: A85_253-0**		**Analyzed: 08/28/09 10:50**			
Tetrachloro-m-xylene	7.73	7.78	-0.05	+/-1.0	116	80 - 120	
Tetrachloro-m-xylene [2C]	8.75	8.82	-0.07	+/-1.0	96	80 - 120	
Decachlorobiphenyl	21.29	21.32	-0.03	+/-1.0	129	80 - 120	*
Decachlorobiphenyl [2C]	24.03	24.11	-0.08	+/-1.0	108	80 - 120	

Tet STD

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02060

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02023

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I02060-CCV1	A85_366-0	09/01/09 05:02
Calibration Check	9I02060-CCV1	B85_366-0	09/01/09 05:02
Cal Standard	9I02060-CAL1	A85_367-0	09/01/09 05:40
Cal Standard	9I02060-CAL1	B85_367-0	09/01/09 05:40
Cal Standard	9I02060-CAL2	A85_368-0	09/01/09 06:17
Cal Standard	9I02060-CAL2	B85_368-0	09/01/09 06:17
Cal Standard	9I02060-CAL3	A85_369-0	09/01/09 06:55
Cal Standard	9I02060-CAL3	B85_369-0	09/01/09 06:55
Cal Standard	9I02060-CAL4	A85_370-0	09/01/09 07:32
Cal Standard	9I02060-CAL4	B85_370-0	09/01/09 07:32
Cal Standard	9I02060-CAL5	A85_371-0	09/01/09 08:10
Cal Standard	9I02060-CAL5	B85_371-0	09/01/09 08:10
Cal Standard	9I02060-CAL6	A85_372-0	09/01/09 08:47
Cal Standard	9I02060-CAL6	B85_372-0	09/01/09 08:47
Secondary Cal Check	9I02060-SCV1	A85_373-0	09/01/09 09:25
Secondary Cal Check	9I02060-SCV1	B85_373-0	09/01/09 09:25
Calibration Check	9I02060-CCV2	A85_380-0	09/01/09 13:48
Calibration Check	9I02060-CCV2	B85_380-0	09/01/09 13:48
Calibration Check	9I02060-CCV3	A85_381-0	09/01/09 14:25
Calibration Check	9I02060-CCV3	B85_381-0	09/01/09 14:25
79SS1	0908257-07	A85_382-0	09/01/09 15:06
79SS1	0908257-07	B85_382-0	09/01/09 15:06
30SB2B	0908257-06	A85_383-0	09/01/09 15:44
30SB2B	0908257-06	B85_383-0	09/01/09 15:44
30SS3	0908257-05	A85_384-0	09/01/09 16:54
30SS3	0908257-05	B85_384-0	09/01/09 16:54
30SS2	0908257-04	A85_385-0	09/01/09 17:31
30SS2	0908257-04	B85_385-0	09/01/09 17:31
DUP-4	0908257-03	A85_386-0	09/01/09 18:09
DUP-4	0908257-03	B85_386-0	09/01/09 18:09
30SB1B	0908257-02	A85_387-0	09/01/09 18:46
30SB1B	0908257-02	B85_387-0	09/01/09 18:46

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02060

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02023

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
30SS1	0908257-01	A85_388-0	09/01/09 19:24	
30SS1	0908257-01	B85_388-0	09/01/09 19:24	
LCS	0909903-BS2	A85_389-0	09/01/09 20:01	
LCS	0909903-BS2	B85_389-0	09/01/09 20:01	
Blank	0909903-BLK1	A85_390-0	09/01/09 20:39	
Blank	0909903-BLK1	B85_390-0	09/01/09 20:39	
LCS	0909903-BS1	A85_391-0	09/01/09 21:16	
LCS	0909903-BS1	B85_391-0	09/01/09 21:16	
Calibration Check	9I02060-CCV4	A85_392-0	09/01/09 21:54	Full X
Calibration Check	9I02060-CCV4	B85_392-0	09/01/09 21:54	✓
Calibration Check	9I02060-CCV5	A85_393-0	09/01/09 22:31	T6X ✓
Calibration Check	9I02060-CCV5	B85_393-0	09/01/09 22:31	✓

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_366-0
Sequence: 9I02060
Lab Sample ID: 9I02060-CCV1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9I02023
Calibration Date: 09/01/09 13:38
Injection Date: 09/01/09
Injection Time: 05:02

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	Q	0.500	0.420	1130574	1061404		-15.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B85_366-0
Sequence: 9I02060
Lab Sample ID: 9I02060-CCV1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9I02023
Calibration Date: 09/01/09 13:38
Injection Date: 09/01/09
Injection Time: 05:02

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.400	1494910	1188680		-20.5	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A85_392-0
Sequence: 9I02060
Lab Sample ID: 9I02060-CCV4

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9I02023
Calibration Date: 09/01/09 13:38
Injection Date: 09/01/09
Injection Time: 21:54

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0354	5698337	5037145		-11.6	20
beta-BHC	A	0.0400	0.0338	1860024	1572285		-15.5	20
gamma-BHC (Lindane)	A	0.0400	0.0349	4919128	4290805		-12.8	20
delta-BHC	A	0.0400	0.0340	3908982	3326323		-14.9	20
alpha-Chlordane	A	0.0400	0.0349	3412570	2976058		-12.8	20
gamma-Chlordane	A	0.0400	0.0344	3580808	3078483		-14.0	20
4,4'-DDD	A	0.0400	0.0323	2014020	1625925		-19.3	20
4,4'-DDE	A	0.0400	0.0319	2829768	2258342		-20.2	20 *
4,4'-DDT	A	0.0400	0.0339	2260051	1917099		-15.2	20
Aldrin	A	0.0400	0.0349	4304170	3760273		-12.6	20
Dieldrin	A	0.0400	0.0355	3265030	2897930		-11.2	20
Endosulfan I	A	0.0400	0.0357	3230024	2886085		-10.6	20
Endosulfan II	A	0.0400	0.0360	2378452	2143439		-9.9	20
Endosulfan Sulfate	A	0.0400	0.0366	2058291	1885315		-8.4	20
Endrin	A	0.0400	0.0346	2896946	2504625		-13.5	20
Endrin Aldehyde	A	0.0400	0.0372	1537011	1429633		-7.0	20
Endrin Ketone	A	0.0400	0.0370	2349628	2172305		-7.5	20
Heptachlor	A	0.0400	0.0347	5022702	4354308		-13.3	20
Heptachlor Epoxide	A	0.0400	0.0353	3676436	3240590		-11.9	20
Methoxychlor	A	0.0400	0.0339	1123213	952190		-15.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9I02073

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9I02023

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I02073-CCV1	A85_396-0	09/02/09 00:24
Calibration Check	9I02073-CCV1	B85_396-0	09/02/09 00:24
Calibration Check	9I02073-CCV2	A85_397-0	09/02/09 01:01
Calibration Check	9I02073-CCV2	B85_397-0	09/02/09 01:01
30SS3	0909903-MSD2	A85_398-0	09/02/09 01:39
30SS3	0909903-MSD2	B85_398-0	09/02/09 01:39
30SS3	0909903-MS2	A85_399-0	09/02/09 02:16
30SS3	0909903-MS2	B85_399-0	09/02/09 02:16
60SS6	0908257-14	A85_400-0	09/02/09 02:54
60SS6	0908257-14	B85_400-0	09/02/09 02:54
79SB2B	0908257-13	A85_401-0	09/02/09 03:31
79SB2B	0908257-13	B85_401-0	09/02/09 03:31
79SS3	0908257-12	A85_402-0	09/02/09 04:09
79SS3	0908257-12	B85_402-0	09/02/09 04:09
79SS2	0908257-10	A85_403-0	09/02/09 04:46
79SS2	0908257-10	B85_403-0	09/02/09 04:46
DUP-5	0908257-09	A85_404-0	09/02/09 05:24
DUP-5	0908257-09	B85_404-0	09/02/09 05:24
30SB3B	0908257-08	A85_405-0	09/02/09 06:01
30SB3B	0908257-08	B85_405-0	09/02/09 06:01
30SS3	0909903-MSD1	A85_406-0	09/02/09 06:39
30SS3	0909903-MSD1	B85_406-0	09/02/09 06:39
30SS3	0909903-MS1	A85_407-0	09/02/09 07:16
30SS3	0909903-MS1	B85_407-0	09/02/09 07:16
Calibration Check	9I02073-CCV3	A85_408-0	09/02/09 07:54
Calibration Check	9I02073-CCV3	B85_408-0	09/02/09 07:54
Calibration Check	9I02073-CCV4	A85_409-0	09/02/09 08:31
Calibration Check	9I02073-CCV4	B85_409-0	09/02/09 08:31

Full ✓ ✓
Tox ✓ ✓
Full ✓ ✓
Tox ✓ ✓

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8081A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 10 mL

Laboratory ID: 0909903-MS1
QC Batch: 0909903

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
alpha-BHC	0.0146	ND	0.0131	89	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0146	ND	0.0132	90	60 - 125	mg/kg dry
beta-BHC	0.0146	ND	0.0130	89	60 - 125	mg/kg dry
beta-BHC [2C]	0.0146	ND	0.0129	88	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0146	ND	0.0129	88	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0146	ND	0.0134	91	60 - 125	mg/kg dry
delta-BHC	0.0146	ND	0.0140	96	55 - 130	mg/kg dry
delta-BHC [2C]	0.0146	ND	0.0137	94	55 - 130	mg/kg dry
alpha-Chlordane	0.0146	ND	0.0134	92	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0146	ND	0.0132	90	65 - 120	mg/kg dry
gamma-Chlordane	0.0146	ND	0.0131	90	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0146	ND	0.0137	94	65 - 125	mg/kg dry
4,4'-DDD	0.0146	ND	0.0144	98	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0146	ND	0.0137	94	30 - 135	mg/kg dry
4,4'-DDE	0.0146	ND	0.0143	98	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0146	ND	0.0131	89	70 - 125	mg/kg dry
4,4'-DDT	0.0146	ND	0.0146	100	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0146	ND	0.0156	107	45 - 140	mg/kg dry
Aldrin	0.0146	ND	0.0123	84	45 - 140	mg/kg dry
Aldrin [2C]	0.0146	ND	0.0131	89	45 - 140	mg/kg dry
Dieldrin	0.0146	ND	0.0143	98	65 - 125	mg/kg dry
Dieldrin [2C]	0.0146	ND	0.0139	95	65 - 125	mg/kg dry
Endosulfan I	0.0146	ND	0.0110	75	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0146	ND	0.0109	74	15 - 135	mg/kg dry
Endosulfan II	0.0146	ND	0.0127	87	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0146	ND	0.0135	92	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0146	ND	0.0150	103	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0146	ND	0.0147	101	60 - 135	mg/kg dry
Endrin	0.0146	ND	0.0135	92	60 - 135	mg/kg dry
Endrin [2C]	0.0146	ND	0.0140	96	60 - 135	mg/kg dry
Endrin Aldehyde	0.0146	ND	0.0138	94	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0146	ND	0.0142	97	35 - 145	mg/kg dry
Endrin Ketone	0.0146	ND	0.0148	101	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8081A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 10 mL

Laboratory ID: 0909903-MS1
QC Batch: 0909903

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Endrin Ketone [2C]	0.0146	ND	0.0143	97	65 - 135	mg/kg dry
Heptachlor	0.0146	ND	0.0128	87	50 - 140	mg/kg dry
Heptachlor [2C]	0.0146	ND	0.0131	89	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0146	ND	0.0134	91	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0146	ND	0.0140	95	65 - 130	mg/kg dry
Methoxychlor	0.0146	ND	0.0151	104	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0146	ND	0.0172	117	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909903-MSD1

QC Batch: 0909903

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
alpha-BHC	0.0146	0.0117	80	12	30	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0146	0.0120	82	9	30	60 - 125	mg/kg dry
beta-BHC	0.0146	0.0111	76	16	30	60 - 125	mg/kg dry
beta-BHC [2C]	0.0146	0.0112	77	14	30	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0146	0.0114	78	13	30	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0146	0.0119	81	12	30	60 - 125	mg/kg dry
delta-BHC	0.0146	0.0117	80	18	30	55 - 130	mg/kg dry
delta-BHC [2C]	0.0146	0.0119	81	15	30	55 - 130	mg/kg dry
alpha-Chlordane	0.0146	0.0115	78	16	30	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0146	0.0117	80	12	30	65 - 120	mg/kg dry
gamma-Chlordane	0.0146	0.0112	77	16	30	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0146	0.0119	81	15	30	65 - 125	mg/kg dry
4,4'-DDD	0.0146	0.0118	81	20	30	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0146	0.0116	79	17	30	30 - 135	mg/kg dry
4,4'-DDE	0.0146	0.0117	80	21	30	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0146	0.0115	79	12	30	70 - 125	mg/kg dry
4,4'-DDT	0.0146	0.0121	82	19	30	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0146	0.0130	89	19	30	45 - 140	mg/kg dry
Aldrin	0.0146	0.0111	76	11	30	45 - 140	mg/kg dry
Aldrin [2C]	0.0146	0.0117	80	11	30	45 - 140	mg/kg dry
Dieldrin	0.0146	0.0121	83	17	30	65 - 125	mg/kg dry
Dieldrin [2C]	0.0146	0.0122	83	13	30	65 - 125	mg/kg dry
Endosulfan I	0.0146	0.00948	65	15	30	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0146	0.00991	68	9	30	15 - 135	mg/kg dry
Endosulfan II	0.0146	0.0108	73	17	30	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0146	0.0114	78	17	30	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0146	0.0129	88	15	30	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0146	0.0128	88	14	30	60 - 135	mg/kg dry
Endrin	0.0146	0.0115	78	16	30	60 - 135	mg/kg dry
Endrin [2C]	0.0146	0.0120	82	15	30	60 - 135	mg/kg dry
Endrin Aldehyde	0.0146	0.0123	84	12	30	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0146	0.0123	84	15	30	35 - 145	mg/kg dry
Endrin Ketone	0.0146	0.0127	87	15	30	65 - 135	mg/kg dry
Endrin Ketone [2C]	0.0146	0.0124	84	14	30	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909903-MSD1

QC Batch: 0909903

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Heptachlor	0.0146	0.0113	77	12	30	50 - 140	mg/kg dry
Heptachlor [2C]	0.0146	0.0119	81	10	30	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0146	0.0113	78	17	30	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0146	0.0121	83	14	30	65 - 130	mg/kg dry
Methoxychlor	0.0146	0.0128	88	17	30	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0146	0.0150	103	13	30	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909903-MS2

QC Batch: 0909903

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Toxaphene	0.366	ND	0.332	91	40 - 150	mg/kg dry
Toxaphene [2C]	0.366	ND	0.310	85	40 - 150	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8081A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30 g / 10 mL

Laboratory ID: 0909903-MSD2
QC Batch: 0909903

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Toxaphene	0.366	0.341	93	3	30	40 - 150	mg/kg dry
Toxaphene [2C]	0.366	0.305	83	2	30	40 - 150	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

SAMPLE ID SUMMARY

USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

DUAL COLUMN CONFIRMATION CHECK

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 08/13/09 09:30
Solids: 91.11
QC Batch: 0909902
GC Column(1): DB-35 30m x 0.32mm

Laboratory ID: 0908257-05
Prepared: 08/24/09 08:06
Preparation: 3550B Sonication Extracti
Sequence: 9H27065
GC Column(2): DB-XLB 30m x 0.32mm

SDG: SS0809C
Project: RFAAP SSP at Six Sites
File ID: A42_051-0
Analyzed: 08/26/09 02:06
Instrument: 144

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
PCB-1254	* 1	13.59	13.59143	0.00143	47033.04	13.9	17.2
	2	11.51	12.04	0.53	22751.27	11.7	
PCB-1260	1	15.01	15.02	0.01	8315.65	6.80	
	* 2	13.33	13.34	0.01	24847.34	13.5	66.0

* Column used for quantitation

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8082

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909902-MS1

QC Batch: 0909902

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
PCB-1016	183	ND	163	89	40 - 140	ug/kg dry
PCB-1016 [2C]	183	ND	167	91	40 - 140	ug/kg dry
PCB-1260	183	6.80	210	111	60 - 130	ug/kg dry
PCB-1260 [2C]	183	13.5	196	100	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

30SS3

USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0909902-MSD1

QC Batch: 0909902

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
PCB-1016	183	166	91	2	30	40 - 140	ug/kg dry
PCB-1016 [2C]	183	166	91	0.5	30	40 - 140	ug/kg dry
PCB-1260	183	209	110	0.4	30	60 - 130	ug/kg dry
PCB-1260 [2C]	183	190	96	3	30	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Reviewer: Andrea Sansom
Date: November 18, 2009
DV Level: II III IV
Review Document:
_X__ Region III Modified for National Functional Guidelines
____ NFG for organic Data review (February 1994)
_X__ Project QAPP/SAP

Explosives

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809C
Test Name: Explosives
Method No.: 8330-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%		X	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 40-150%?		X	
6.4	Are there any RPDs outside the QC limits not to exceed 60%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)

		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 40-150%?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate

		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are all positive identifications confirmed on second column or detector? If not, reject or estimate this detection.	ND		
9.2	For positive sample detections, is RPD <40% between first and second columns. If not, apply J.			X
9.3	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

10.0 Data Completeness			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	14			
	Number of target compounds in each analysis:	14			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25052

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Calibration Check	9H25052-CCV1	expa002-0	08/25/09 10:17	X
Blank	0909645-BLK1	expa003-0	08/25/09 11:01	
LCS	0909645-BS1	expa004-0	08/25/09 11:43	
LCS Dup	0909645-BSD1	expa005-0	08/25/09 12:25	
EQBK-3	0908257-15	expa008-0	08/25/09 14:32	
Calibration Check	9H25052-CCV2	expa009-0	08/25/09 15:14	X

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa002-0
Sequence: 9H25052
Lab Sample ID: 9H25052-CCV1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/25/09
Injection Time: 10:17

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	734	21.60856	19.83125		-8.2	20
1,3-Dinitrobenzene	A	800	735	23.2766	21.39309		-8.1	20
2,4,6-Trinitrotoluene	A	800	748	14.05836	13.1488		-6.5	20
2,4-Dinitrotoluene	A	800	745	15.58131	14.50565		-6.9	20
2,6-Dinitrotoluene	A	800	718	8.967104	8.044175		-10.3	20
2-Amino-4,6-dinitrotoluene	A	800	704	7.924614	6.973425		-12.0	20
2-Nitrotoluene	A	800	707	6.897007	6.095213		-11.6	20
3-Nitrotoluene	A	800	714	6.600428	5.887		-10.8	20
4-Amino-2,6-dinitrotoluene	A	800	675	6.172953	5.208163		-15.6	20
4-Nitrotoluene	A	800	721	5.405638	4.874138		-9.8	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	696	7.391476	6.43285		-13.0	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	691	9.42282	8.133713		-13.7	20
Nitrobenzene	A	800	733	14.12719	12.9502		-8.3	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	689	8.330255	7.17535		-13.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa009-0
Sequence: 9H25052
Lab Sample ID: 9H25052-CCV2

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/25/09
Injection Time: 15:14

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	749	21.60856	20.22		-6.4	20
1,3-Dinitrobenzene	A	800	754	23.2766	21.94		-5.7	20
2,4,6-Trinitrotoluene	A	800	774	14.05836	13.5975		-3.3	20
2,4-Dinitrotoluene	A	800	777	15.58131	15.13875		-2.8	20
2,6-Dinitrotoluene	A	800	751	8.967104	8.41625		-6.1	20
2-Amino-4,6-dinitrotoluene	A	800	719	7.924614	7.12375		-10.1	20
2-Nitrotoluene	A	800	784	6.897007	6.7625		-2.0	20
3-Nitrotoluene	A	800	754	6.600428	6.22		-5.8	20
4-Amino-2,6-dinitrotoluene	A	800	700	6.172953	5.40375		-12.5	20
4-Nitrotoluene	A	800	780	5.405638	5.27125		-2.5	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	710	7.391476	6.56		-11.2	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	709	9.42282	8.35625		-11.3	20
Nitrobenzene	A	800	759	14.12719	13.4075		-5.1	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	679	8.330255	7.07125		-15.1	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

SURROGATE STANDARD RECOVERY AND RT SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25052
Matrix: Water

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H25052-CCV1)		**Lab File ID: expa002-0**		**Analyzed: 08/25/09 10:17**			
4-Nitroaniline	8.36	8.86	-0.50	+/-1.0	81	85 - 115	*
Blank (0909645-BLK1)		**Lab File ID: expa003-0**		**Analyzed: 08/25/09 11:01**			
4-Nitroaniline	8.37	8.86	-0.49	+/-1.0	86	29 - 138	
LCS (0909645-BS1)		**Lab File ID: expa004-0**		**Analyzed: 08/25/09 11:43**			
4-Nitroaniline	8.38	8.86	-0.48	+/-1.0	90	29 - 138	
LCS Dup (0909645-BSD1)		**Lab File ID: expa005-0**		**Analyzed: 08/25/09 12:25**			
4-Nitroaniline	8.40	8.86	-0.46	+/-1.0	81	29 - 138	
EQBK-3 (0908257-15)		**Lab File ID: expa008-0**		**Analyzed: 08/25/09 14:32**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	75	29 - 138	
Calibration Check (9H25052-CCV2)		**Lab File ID: expa009-0**		**Analyzed: 08/25/09 15:14**			
4-Nitroaniline	8.29	8.86	-0.57	+/-1.0	82	85 - 115	*

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H27001

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H27001-CCV1	expa002-0	08/26/09 10:11
Blank	0909683-BLK1	expa006-0	08/26/09 13:02
LCS	0909683-BS1	expa007-0	08/26/09 13:45
Calibration Check	9H27001-CCV2	xpa011-20090826-171921-	08/26/09 17:19
30SS1	0908257-01	expa019-0	08/26/09 22:57
Calibration Check	9H27001-CCV3	expa020-0	08/26/09 23:41
30SB1B	0908257-02	expa021-0	08/27/09 00:23
DUP-4	0908257-03	expa022-0	08/27/09 01:05
30SS2	0908257-04	expa023-0	08/27/09 01:47
30SB2B	0908257-06	expa024-0	08/27/09 02:29
79SS1	0908257-07	expa025-0	08/27/09 03:11
30SB3B	0908257-08	expa026-0	08/27/09 03:54
DUP-5	0908257-09	expa027-0	08/27/09 04:36
79SS2	0908257-10	expa028-0	08/27/09 05:18
Calibration Check	9H27001-CCV4	expa031-0	08/27/09 07:24

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H27001
Instrument: 221
Matrix: Soil
Calibration: 9F23012

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H27001-CCV1)		**Lab File ID: expa002-0**		**Analyzed: 08/26/09 10:11**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	80	85 - 115	*
Blank (0909683-BLK1)		**Lab File ID: expa006-0**		**Analyzed: 08/26/09 13:02**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	99	57 - 139	
LCS (0909683-BS1)		**Lab File ID: expa007-0**		**Analyzed: 08/26/09 13:45**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	110	57 - 139	
Calibration Check (9H27001-CCV2)		**Lab File ID: expa011-20090**		**Analyzed: 08/26/09 17:19**			
4-Nitroaniline	8.35	8.86	-0.51	+/-1.0	81	85 - 115	*
30SS1 (0908257-01)		**Lab File ID: expa019-0**		**Analyzed: 08/26/09 22:57**			
4-Nitroaniline	8.34	8.86	-0.52	+/-1.0	90	57 - 139	
Calibration Check (9H27001-CCV3)		**Lab File ID: expa020-0**		**Analyzed: 08/26/09 23:41**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	82	85 - 115	*
30SB1B (0908257-02)		**Lab File ID: expa021-0**		**Analyzed: 08/27/09 00:23**			
4-Nitroaniline	8.41	8.86	-0.45	+/-1.0	95	57 - 139	
DUP-4 (0908257-03)		**Lab File ID: expa022-0**		**Analyzed: 08/27/09 01:05**			
4-Nitroaniline	8.38	8.86	-0.48	+/-1.0	92	57 - 139	
30SS2 (0908257-04)		**Lab File ID: expa023-0**		**Analyzed: 08/27/09 01:47**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	90	57 - 139	
30SB2B (0908257-06)		**Lab File ID: expa024-0**		**Analyzed: 08/27/09 02:29**			
4-Nitroaniline	8.43	8.86	-0.43	+/-1.0	93	57 - 139	
79SS1 (0908257-07)		**Lab File ID: expa025-0**		**Analyzed: 08/27/09 03:11**			
4-Nitroaniline	8.40	8.86	-0.46	+/-1.0	89	57 - 139	
30SB3B (0908257-08)		**Lab File ID: expa026-0**		**Analyzed: 08/27/09 03:54**			
4-Nitroaniline	8.40	8.86	-0.46	+/-1.0	91	57 - 139	
DUP-5 (0908257-09)		**Lab File ID: expa027-0**		**Analyzed: 08/27/09 04:36**			
4-Nitroaniline	8.43	8.86	-0.43	+/-1.0	92	57 - 139	
79SS2 (0908257-10)		**Lab File ID: expa028-0**		**Analyzed: 08/27/09 05:18**			
4-Nitroaniline	8.35	8.86	-0.51	+/-1.0	87	57 - 139	
Calibration Check (9H27001-CCV4)		**Lab File ID: expa031-0**		**Analyzed: 08/27/09 07:24**			
4-Nitroaniline	8.37	8.86	-0.49	+/-1.0	82	85 - 115	*

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa002-0
Sequence: 9H27001
Lab Sample ID: 9H27001-CCV1

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/26/09
Injection Time: 10:11

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	726	21.60856	19.61276		-9.2	20
1,3-Dinitrobenzene	A	800	727	23.2766	21.15786		-9.1	20
2,4,6-Trinitrotoluene	A	800	739	14.05836	12.99258		-7.6	20
2,4-Dinitrotoluene	A	800	757	15.58131	14.7521		-5.3	20
2,6-Dinitrotoluene	A	800	723	8.967104	8.104475		-9.6	20
2-Amino-4,6-dinitrotoluene	A	800	762	7.924614	7.549875		-4.7	20
2-Nitrotoluene	A	800	772	6.897007	6.657288		-3.5	20
3-Nitrotoluene	A	800	753	6.600428	6.209475		-5.9	20
4-Amino-2,6-dinitrotoluene	A	800	726	6.172953	5.605513		-9.2	20
4-Nitrotoluene	A	800	744	5.405638	5.029075		-7.0	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	689	7.391476	6.364238		-13.9	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	671	9.42282	7.90215		-16.1	20
Nitrobenzene	A	800	725	14.12719	12.80818		-9.3	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	667	8.330255	6.94935		-16.6	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 221
Lab File ID: expa011-20090826-171921-0
Sequence: 9H27001
Lab Sample ID: 9H27001-CCV2

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Calibration: 9F23012
Calibration Date: 06/22/09 14:47
Injection Date: 08/26/09
Injection Time: 17:19

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	748	21.60856	20.20375		-6.5	20
1,3-Dinitrobenzene	A	800	748	23.2766	21.76875		-6.5	20
2,4,6-Trinitrotoluene	A	800	756	14.05836	13.29		-5.5	20
2,4-Dinitrotoluene	A	800	750	15.58131	14.61		-6.2	20
2,6-Dinitrotoluene	A	800	707	8.967104	7.9275		-11.6	20
2-Amino-4,6-dinitrotoluene	A	800	720	7.924614	7.1325		-10.0	20
2-Nitrotoluene	A	800	728	6.897007	6.27625		-9.0	20
3-Nitrotoluene	A	800	718	6.600428	5.92625		-10.2	20
4-Amino-2,6-dinitrotoluene	A	800	682	6.172953	5.265		-14.7	20
4-Nitrotoluene	A	800	730	5.405638	4.935		-8.7	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	714	7.391476	6.5925		-10.8	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	671	9.42282	7.9		-16.2	20
Nitrobenzene	A	800	745	14.12719	13.155		-6.9	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	694	8.330255	7.2275		-13.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa020-0
Calibration Date: 06/22/09 14:47
Sequence: 9H27001
Injection Date: 08/26/09
Lab Sample ID: 9H27001-CCV3
Injection Time: 23:41

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	741	21.60856	20.025		-7.3	20
1,3-Dinitrobenzene	A	800	738	23.2766	21.48375		-7.7	20
2,4,6-Trinitrotoluene	A	800	749	14.05836	13.16375		-6.4	20
2,4-Dinitrotoluene	A	800	755	15.58131	14.70875		-5.6	20
2,6-Dinitrotoluene	A	800	720	8.967104	8.065		-10.1	20
2-Amino-4,6-dinitrotoluene	A	800	714	7.924614	7.0675		-10.8	20
2-Nitrotoluene	A	800	738	6.897007	6.36		-7.8	20
3-Nitrotoluene	A	800	715	6.600428	5.905		-10.5	20
4-Amino-2,6-dinitrotoluene	A	800	679	6.172953	5.2325		-15.2	20
4-Nitrotoluene	A	800	727	5.405638	4.9125		-9.1	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	711	7.391476	6.56625		-11.2	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	669	9.42282	7.875		-16.4	20
Nitrobenzene	A	800	722	14.12719	12.75625		-9.7	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	698	8.330255	7.2675		-12.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H28027

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

E2

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H28027-CCV1	expa002-0	08/27/09 14:39
Blank	0909778-BLK1	expa003-0	08/27/09 15:21
LCS	0909778-BS1	expa004-0	08/27/09 16:03
30SS3	0908257-05	expa005-0	08/27/09 16:47
Calibration Check	9H28027-CCV2	expa006-0	08/27/09 17:29
79SS3	0908257-12	expa007-0	08/27/09 18:11
79SB2B	0908257-13	expa008-0	08/27/09 18:53
60SS6	0908257-14	expa009-0	08/27/09 19:35
30SS3	0909778-MS1	expa012-0	08/27/09 21:42
30SS3	0909778-MSD1	expa013-0	08/27/09 22:24
Calibration Check	9H28027-CCV3	expa017-0	08/28/09 01:13

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H28027
Matrix: Soil

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9H28027-CCV1)		**Lab File ID: expa002-0**		**Analyzed: 08/27/09 14:39**			
4-Nitroaniline	8.35	8.86	-0.51	+/-1.0	82	85 - 115	*
Blank (0909778-BLK1)		**Lab File ID: expa003-0**		**Analyzed: 08/27/09 15:21**			
4-Nitroaniline	8.38	8.86	-0.48	+/-1.0	92	57 - 139	
LCS (0909778-BS1)		**Lab File ID: expa004-0**		**Analyzed: 08/27/09 16:03**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	133	57 - 139	
30SS3 (0908257-05)		**Lab File ID: expa005-0**		**Analyzed: 08/27/09 16:47**			
4-Nitroaniline	8.33	8.86	-0.53	+/-1.0	86	57 - 139	
Calibration Check (9H28027-CCV2)		**Lab File ID: expa006-0**		**Analyzed: 08/27/09 17:29**			
4-Nitroaniline	8.35	8.86	-0.51	+/-1.0	96	85 - 115	
79SS3 (0908257-12)		**Lab File ID: expa007-0**		**Analyzed: 08/27/09 18:11**			
4-Nitroaniline	8.42	8.86	-0.44	+/-1.0	90	57 - 139	
79SB2B (0908257-13)		**Lab File ID: expa008-0**		**Analyzed: 08/27/09 18:53**			
4-Nitroaniline	8.39	8.86	-0.47	+/-1.0	97	57 - 139	
60SS6 (0908257-14)		**Lab File ID: expa009-0**		**Analyzed: 08/27/09 19:35**			
4-Nitroaniline	8.40	8.86	-0.46	+/-1.0	92	57 - 139	
Matrix Spike (0909778-MS1)		**Lab File ID: expa012-0**		**Analyzed: 08/27/09 21:42**			
4-Nitroaniline	8.30	8.86	-0.56	+/-1.0	89	57 - 139	
Matrix Spike Dup (0909778-MSD1)		**Lab File ID: expa013-0**		**Analyzed: 08/27/09 22:24**			
4-Nitroaniline	8.37	8.86	-0.49	+/-1.0	95	57 - 139	
Calibration Check (9H28027-CCV3)		**Lab File ID: expa017-0**		**Analyzed: 08/28/09 01:13**			
4-Nitroaniline	8.34	8.86	-0.52	+/-1.0	86	85 - 115	

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa002-0
Calibration Date: 06/22/09 14:47
Sequence: 9H28027
Injection Date: 08/27/09
Lab Sample ID: 9H28027-CCV1
Injection Time: 14:39

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	741	21.60856	20.0075		-7.4	20
1,3-Dinitrobenzene	A	800	741	23.2766	21.5475		-7.4	20
2,4,6-Trinitrotoluene	A	800	751	14.05836	13.19		-6.2	20
2,4-Dinitrotoluene	A	800	762	15.58131	14.83375		-4.8	20
2,6-Dinitrotoluene	A	800	734	8.967104	8.2325		-8.2	20
2-Amino-4,6-dinitrotoluene	A	800	721	7.924614	7.14625		-9.8	20
2-Nitrotoluene	A	800	754	6.897007	6.5		-5.8	20
3-Nitrotoluene	A	800	774	6.600428	6.38625		-3.2	20
4-Amino-2,6-dinitrotoluene	A	800	715	6.172953	5.515		-10.7	20
4-Nitrotoluene	A	800	835	5.405638	5.64375		4.4	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	709	7.391476	6.5525		-11.4	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	672	9.42282	7.91		-16.1	20
Nitrobenzene	A	800	738	14.12719	13.0325		-7.7	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	688	8.330255	7.16125		-14.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa006-0
Calibration Date: 06/22/09 14:47
Sequence: 9H28027
Injection Date: 08/27/09
Lab Sample ID: 9H28027-CCV2
Injection Time: 17:29

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	760	21.60856	20.26		-6.2	20
1,3-Dinitrobenzene	A	800	750	23.2766	21.64875		-7.0	20
2,4,6-Trinitrotoluene	A	800	753	14.05836	13.225		-5.9	20
2,4-Dinitrotoluene	A	800	754	15.58131	14.68125		-5.8	20
2,6-Dinitrotoluene	A	800	713	8.967104	7.9825		-11.0	20
2-Amino-4,6-dinitrotoluene	A	800	738	7.924614	7.28125		-8.1	20
2-Nitrotoluene	A	800	736	6.897007	6.335		-8.1	20
3-Nitrotoluene	A	800	744	6.600428	6.11625		-7.3	20
4-Amino-2,6-dinitrotoluene	A	800	712	6.172953	5.46625		-11.4	20
4-Nitrotoluene	A	800	745	5.405638	5.0175		-7.2	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	752	7.391476	6.64375		-10.1	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	670	9.42282	7.88625		-16.3	20
Nitrobenzene	A	800	744	14.12719	13.025		-7.8	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	703	8.330255	7.2625		-12.8	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: expa017-0
Calibration Date: 06/22/09 14:47
Sequence: 9H28027
Injection Date: 08/28/09
Lab Sample ID: 9H28027-CCV3
Injection Time: 01:13

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	744	21.60856	20.09375		-7.0	20
1,3-Dinitrobenzene	A	800	757	23.2766	22.0275		-5.4	20
2,4,6-Trinitrotoluene	A	800	754	14.05836	13.24125		-5.8	20
2,4-Dinitrotoluene	A	800	760	15.58131	14.7575		-5.3	20
2,6-Dinitrotoluene	A	800	719	8.967104	8.0325		-10.4	20
2-Amino-4,6-dinitrotoluene	A	800	747	7.924614	7.27		-8.3	20
2-Nitrotoluene	A	800	751	6.897007	6.42		-6.9	20
3-Nitrotoluene	A	800	784	6.600428	6.3775		-3.4	20
4-Amino-2,6-dinitrotoluene	A	800	744	6.172953	5.63		-8.8	20
4-Nitrotoluene	A	800	781	5.405638	5.20125		-3.8	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	693	7.391476	6.40375		-13.4	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	662	9.42282	7.78375		-17.4	20
Nitrobenzene	A	800	753	14.12719	13.295		-5.9	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	713	8.330255	7.4175		-11.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY

USEPA-8330

Hydro

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9I03030

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Instrument: 221

Calibration: 9F26006

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9I03030-CCV1	expa002-0	08/28/09 16:59
Blank	0909645-BLK2	expa003-0	08/28/09 17:32
Calibration Check	9I03030-CCV2	expa007-0	08/28/09 19:40

0908257-15	expa006	08/28/09 1908
0908257-04	expa011	8/28/09 2148
0908257-10	expa012	8/28/09 2220
0908257-05	expa013	8/28/09 2252
0908257-13	expa014	~~8/28~~ 8/28/09 2324

SURROGATE STANDARD RECOVERY AND RT SUMMARY

USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9I03030
Instrument: 221
Matrix: Water
Calibration: 9F26006

Lab Sample Id Surrogate Compound Name	RT	Calibration Mean RT	RT Diff	RT Diff Limit	% Recovery	Recovery Limits	Q
Calibration Check (9I03030-CCV1)		**Lab File ID: expa002-0**		**Analyzed: 08/28/09 16:59**			
4-Nitroaniline	4.68	4.72	-0.04	+/-1.0	85	85 - 115	
Blank (0909645-BLK2)		**Lab File ID: expa003-0**		**Analyzed: 08/28/09 17:32**			
4-Nitroaniline	4.71	4.72	-0.01	+/-1.0	87	29 - 138	
Calibration Check (9I03030-CCV2)		**Lab File ID: expa007-0**		**Analyzed: 08/28/09 19:40**			
4-Nitroaniline	4.71	4.72	-0.01	+/-1.0	89	85 - 115	

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8330

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 8330 Extraction
Initial/Final: 2 g / 20 mL

Laboratory ID: 0909778-MS1
QC Batch: 0909778

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	ND	1.63	81	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	ND	1.77	89	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	ND	1.77	89	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	2.00	ND	1.79	90	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	ND	1.74	87	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	ND	3.51	88	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	ND	1.76	88	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	ND	2.07	104	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	ND	2.06	103	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	ND	1.93	96	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	2.00	ND	1.77	88	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	ND	1.48	74	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	ND	1.82	91	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	2.00	ND	1.71	86	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8330

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 8330 Extraction
Initial/Final: 2 g / 20 mL

Laboratory ID: 0909778-MSD1
QC Batch: 0909778

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	1.69	85	4	30	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	1.79	90	1	30	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	1.78	89	0.3	30	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	2.00	1.79	90	0.08	30	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	1.75	87	0.5	30	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	3.34	83	5	30	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	1.78	89	1	30	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	1.74	87	18	30	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	1.68	84	21	30	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	1.77	88	9	30	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	2.00	1.91	96	8	30	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	1.51	75	2	30	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	1.84	92	0.6	30	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	2.00	1.71	86	0.06	30	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Nitroglycerin/PETN

Reviewer: Andrea Sansom
Date: November 18, 2009
DV Level: II III IV
Review Document:
_X__ Region III Modified for National Functional Guidelines
____ NFG for organic Data review (February 1994)
____ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809C
Test Name: Nitroglycerin/PETN
Method No.: 8332-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.		X	
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.	X		

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%	X		
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification

		Yes	No	NA
9.1	Are any target compounds detected in the field samples? If Yes, is all positive identifications were confirmed in second column? Apply J flag if RPD >40% between first and second columns.		X	
9.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	DQOs		

Notes:

10.0 Data Completeness

			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	14			
	Number of target compounds in each analysis:	2			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

SAMPLE ID SUMMARY

USEPA-8332

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809C

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8332

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 8332 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0909779-MS1

QC Batch: 0909779

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Nitroglycerin	10.0	ND	10.1	101	70 - 120	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	ND	9.30	93	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8332

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 8332 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0909779-MSD1

QC Batch: 0909779

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Nitroglycerin	10.0	9.99	100	1	20	70 - 120	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	9.66	97	4	20	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET
INORGANIC - ICP, CVAA, AND CYANIDE
REGION III - NATIONAL FUNCTIONAL GUIDELINES

SDG No.: SS0809C
Project No.: 11657490.40000

Project Name: Radford SSP
Reviewer: Andrea Sansom
Date: November 19, 2009

1.0 Chain of Custody/Sample Condition/Raw Data		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X			X			X			X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X			X			X			X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X			X			X			X	
1.4	Does sample preservation, collection and storage meet method requirement? (For metal: water samples: with Nitric Acid to pH < 2, and soil/sediment samples: 4 ^{o}C $\pm$ 2 ^{o}C)	X			X			X			X		
1.5	Are the digestion logs present and complete with pH values, sample weights, dilutions, final volumes. % solids (for soil samples), and preparation dates? For any missing or incomplete documentation, contact the laboratory for explanation/resubmittal.	X			X			X			X		

Note:

2.0 Holding Time		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
2.1	Have any technical holding times, determined from date of collection to date of analysis, been exceeded? (Hg: 28days, CN: 14 days, other metals: 6 months) Action:L(+)/UL(-). If the holding time is grossly exceeded (twice the holding time criteria), L(+)/R(-).		X			X			X			X	

Note:

3.0 Instrument Calibration		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
3.1	Are sufficient standards included in the calibration curve? (ICP& ICPMS: blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL; CVAA: blank + five standards with one standard at the RL). If not, qualify with "R".	6+BLK			4+BLK			5+BLK			6+BLK		
3.2	Are the correlation coefficients > 0.99? Action: J(+)/UJ(-).	X			X			X			X		
3.3	Once per calibration, did a high and low distilled standard recovery within 85-115%? If no, follow 3.6.										X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X			X			X			X		
3.5	Was continuing calibration verification (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during an analytical run and at the end of the analytical run? If not, document and flag based on professional judgement.	X			X			X			X		
3.6	Are all calibration standard percent recoveries (ICV and CCV) within the control limits? For ICP 90%-110%; Hg 80-120%; CN 85-115%.	X			X			X			X		
	ICV and CCV: Action: L(+)/R(-) L(+)/UL(-) K(+) Mercury < 65% 65% - 79% > 120% Cyanide < 65% 65% - 84% > 115% Other Metals < 75% 75% - 89% > 110%												
3.7	For ICP & ICPMS, did the CRDL standard recover between 80-120%?			X			X	X			X		
	<50% 50%-79% >120% 2xCRDL>[sample]>IDL L(+)/R(-) L(+)/UL(-) K												

Note: _____

4.0 Blanks

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
4.1	Were method blank (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X			X			X			X		
4.2	Were calibration blanks (ICB and CCBs) analyzed immediately after each and every ICV and CCVs? Action: If no ICB was run, all associated data are rejected. If the frequency of the CCBs does not follow requirement, all associated data are qualified "J".	X			X			X			X		
4.3	Are there reported MB or ICB/CCBs values > MDL?	X			X				X			X	
	Sample Results > MDL												
	< 5X Blank Contamination B												
4.4	Are there negative blank results with the absolute value > MDL?	X			X				X			X	
	Sample Results Non-detects > MDL												
	< 5X absolute Blank Contamination UL L												
4.5	Are there reported field blank > ± MDL?	X			X				X			X	
	Sample Results > MDL												
	< 5X Blank Contamination B												

Note: _____

5.0 ICP Interference Check Sample (ICS)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
5.1	Was ICS analyzed at beginning of each ICP run?	X			X								
5.2	Are the ICS AB recoveries within 80% - 120%?	X			X								
5.3	Are the results for unspiked analytes (in ICS A) < ± RL?	X			X								
5.4	If not, are the associated sample Al, Ca, Fe, and Mg concentrations less than the level in the ICS?			X			X						
	If not...												
	Action: Not Spiked Analytes Spiked analytes (ICS AB analytes)												
	< -MDL > MDL < 50% 50% - 79% >120%												
	L(+)/UL(-) K(+) L(+)/R(-) L(+)/UL(-) K(+)												

Note: _____

6.0 Laboratory Control Sample (LCS)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
6.1	Was an LCS prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+) any sample not associated with LCS results.	X			X			X			X		
6.2	Is any LCS recovery outside the control limits? (Aqueous limits: 80% - 120% - except Ag and Sb; Solid limits: as per EPA-EMSL/LV)		X			X			X			X	
	Action: Solid: < LCL L(+)/UL(-); > UCL K(+). Aqueous: < 50% L(+)/R(-); 50% - 79% L(+)/UL(-); > 120% K(+)												

Note:

7.0 Laboratory Duplicates (MSD)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
7.1	Were Laboratory duplicates prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+), using professional judgement, analytes not associated with duplicate results.	X			X			X			X		
	For aqueous 6010B and Hg - RPD< 25%, aqueous CN - RPD < 20%, aqueous 6020 - RPD < 20%, and for soil - use laboratory generated limits for MS/MSD.												
7.2	Are all analyte duplicate results within control limits? If no, qualify all associated field samples J(+)/UJ( ) for the analyte with results that fall outside criteria.	X			X			X			X		

Note:

8.0 Spike Sample Analysis -Pre-Digestion/Post-Digestion

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
8.1	Was a spiked sample prepared and analyzed at the correct frequency (one per 20 samples, batch, matrix and level)? If not, J(+) with professional judgement.	X			X			X			X		
8.2	For all analytes with sample concentration > 4 x spike concentration, are spike recoveries within the control limit of 75-125%?		X			X		X			X		
	%R > 125% / 30%< %R < 74% / < 30%												
	Positive: K / L / L												
	Non-detect: None / UL / R												
8.3	Where pre-digestion matrix spike analytes were outside the acceptable recovery limits(except Ag), was a post-digestion spike performed? Note any failures in DV report, but no data qualifying action is required.	X			X			X			X		

Note: _____

9.0 Instrument Detection Limits (IDL)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
9.1	Are all IDLs/RLs equal to or less than the reporting limits specified?	X			X			X			X		

Note: _____

10.0 ICP/AA Serial Dilutions (Not for Mercury Analysis)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
10.1	Were serial dilutions performed?	X			X								
10.2	Was a five-fold dilution performed?	X			X								
10.3	Did the serial dilution results agree within 10% for ICP analyte concentration > 5 X the RL for 6010 or > 20 X the RL for 6020 in the original sample? If no, J(+).	X			X								

Note: _____

11.0 Field Duplicate Samples

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
11.1	Were any field duplicates submitted for metal analysis?	X			X			X			X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.												
11.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report		X			X			X			X	

Note: _____

12.0 Result Verification/ Internal Standards/ Tune

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
12.1	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?			X			X			X	X		
12.2	Were all dilution reflected in the positive results and detection limits?	X			X					X			X
12.3	Were the Internal Standard recoveries within 30-120%	X			X								
12.4	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution?	X											
12.5	Were the tune mass calibrations < 0.1 amu from the true value?	X											
12.6	Was the resolution check peak width < 0.9 amu at 10% peak height?	X											

Note: 6020, 6010, 7471 soils were air dried before digestion therefore no percent solids adjustments were required.

13.0 Completeness Calculation

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
13.1	Is % completeness within the control limits? (Control limit 90%)	X			X			X			X		
13.1.1	Number of samples:												
13.1.2	Number of target compounds in each analysis:												
13.1.3	Number of results rejected and not reported:												
	% Completeness = (13.1.1 x 13.1.2 - 13.1.3) x 100/(13.1.1 x 13.1.2)												
	% Completeness =	100%			100%			100%			100%		

Note: _____

SAMPLE ID SUMMARY

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H19009-CAL1	9h19009-001	08/19/09 08:24
Cal Standard	9H19009-CAL2	9h19009-002	08/19/09 08:28
Cal Standard	9H19009-CAL3	9h19009-003	08/19/09 08:33
Cal Standard	9H19009-CAL4	9h19009-004	08/19/09 08:37
Cal Standard	9H19009-CAL5	9h19009-005	08/19/09 08:42
Cal Standard	9H19009-CAL6	9h19009-006	08/19/09 08:46
Cal Standard	9H19009-CAL7	9h19009-007	08/19/09 08:51
Cal Standard	9H19009-CAL8	9h19009-008	08/19/09 08:55
Secondary Cal Check	9H19009-SCV1	9h19009-009	08/19/09 08:59
Calibration Check	9H19009-CCV1	9h19009-009	08/19/09 08:59
Calibration Blank	9H19009-CCB1	9h19009-010	08/19/09 09:09
Interference Check A	9H19009-IFA1	9h19009-011	08/19/09 09:13
Interference Check B	9H19009-IFB1	9h19009-012	08/19/09 09:18
Calibration Check	9H19009-CCV2	9h19009-013	08/19/09 09:22
Calibration Blank	9H19009-CCB2	9h19009-014	08/19/09 09:32
Blank	0909625-BLK1	9h19009-015	08/19/09 09:36
LCS	0909625-BS1	9h19009-016	08/19/09 09:41
LCS Dup	0909625-BSD1	9h19009-017	08/19/09 09:47
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06
EQBK-3	0908257-15	9h19009-020	08/19/09 10:06

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19009

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9H19009-CCV3	9h19009-021	08/19/09 10:10
Calibration Blank	9H19009-CCB3	9h19009-022	08/19/09 10:20

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19009

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H19009

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19009-CCB1	Antimony	0.15	0.60	0.080	ug/L	J	08/19/09 09:09
	Arsenic	0.13	0.40	0.077	ug/L	J	08/19/09 09:09
	Barium	-0.0040	0.40	0.063	ug/L	U	08/19/09 09:09
	Cadmium	-0.00044	0.040	0.012	ug/L	U	08/19/09 09:09
	Chromium	0.0028	0.40	0.069	ug/L	U	08/19/09 09:09
	Cobalt	-0.0031	0.20	0.0073	ug/L	U	08/19/09 09:09
	Copper	0.0014	0.20	0.053	ug/L	U	08/19/09 09:09
	Lead	0.0026	0.20	0.052	ug/L	U	08/19/09 09:09
	Manganese	-0.0027	0.60	0.12	ug/L	U	08/19/09 09:09
	Nickel	0.0033	0.40	0.092	ug/L	U	08/19/09 09:09
	Silver	0.0080	0.10	0.011	ug/L	U	08/19/09 09:09
	Thallium	-0.0028	0.040	0.0099	ug/L	U	08/19/09 09:09
	Vanadium	0.0047	0.20	0.059	ug/L	U	08/19/09 09:09
	Zinc	0.0012	1.2	0.40	ug/L	U	08/19/09 09:09
9H19009-CCB2	Antimony	0.10	0.60	0.080	ug/L	J	08/19/09 09:32
	Arsenic	0.014	0.40	0.077	ug/L	U	08/19/09 09:32
	Barium	-0.00053	0.40	0.063	ug/L	U	08/19/09 09:32
	Cadmium	-0.00034	0.040	0.012	ug/L	U	08/19/09 09:32
	Chromium	0.015	0.40	0.069	ug/L	U	08/19/09 09:32
	Cobalt	-0.0054	0.20	0.0073	ug/L	U	08/19/09 09:32
	Copper	-0.00062	0.20	0.053	ug/L	U	08/19/09 09:32
	Lead	0.0011	0.20	0.052	ug/L	U	08/19/09 09:32
	Manganese	-0.0018	0.60	0.12	ug/L	U	08/19/09 09:32
	Nickel	-0.00066	0.40	0.092	ug/L	U	08/19/09 09:32
	Silver	0.0062	0.10	0.011	ug/L	U	08/19/09 09:32
	Thallium	-0.00095	0.040	0.0099	ug/L	U	08/19/09 09:32
	Vanadium	-0.0074	0.20	0.059	ug/L	U	08/19/09 09:32
	Zinc	0.012	1.2	0.40	ug/L	U	08/19/09 09:32
0909625-BLK1	Antimony, Total	3.0	3.0	0.40	ug/L	U	08/19/09 09:36
	Arsenic, Total	2.0	2.0	0.39	ug/L	U	08/19/09 09:36
	Barium, Total	2.0	2.0	0.32	ug/L	U	08/19/09 09:36
	Cadmium, Total	0.20	0.20	0.060	ug/L	U	08/19/09 09:36
	Chromium, Total	2.0	2.0	0.34	ug/L	U	08/19/09 09:36

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H19009
Instrument ID: 114
Calibration: 9H19009

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
0909625-BLK1	Cobalt, Total	1.0	1.0	0.036	ug/L	U	08/19/09 09:36
	Copper, Total	1.0	1.0	0.26	ug/L	U	08/19/09 09:36
	Lead, Total	1.0	1.0	0.26	ug/L	U	08/19/09 09:36
	Manganese, Total	3.0	3.0	0.58	ug/L	U	08/19/09 09:36
	Nickel, Total	2.0	2.0	0.46	ug/L	U	08/19/09 09:36
	Silver, Total	0.50	0.50	0.053	ug/L	U	08/19/09 09:36
	Thallium, Total	0.20	0.20	0.050	ug/L	U	08/19/09 09:36
	Vanadium, Total	1.0	1.0	0.30	ug/L	U	08/19/09 09:36
	Zinc, Total	2.1	6.0	2.0	ug/L	J	08/19/09 09:36
9H19009-CCB3	Antimony	0.086	0.60	0.080	ug/L	J	08/19/09 10:20
	Arsenic	0.016	0.40	0.077	ug/L	U	08/19/09 10:20
	Barium	0.00018	0.40	0.063	ug/L	U	08/19/09 10:20
	Cadmium	0.00012	0.040	0.012	ug/L	U	08/19/09 10:20
	Chromium	0.053	0.40	0.069	ug/L	U	08/19/09 10:20
	Cobalt	-0.0081	0.20	0.0073	ug/L	J	08/19/09 10:20
	Copper	-0.00064	0.20	0.053	ug/L	U	08/19/09 10:20
	Lead	0.0016	0.20	0.052	ug/L	U	08/19/09 10:20
	Manganese	-0.00062	0.60	0.12	ug/L	U	08/19/09 10:20
	Nickel	0.0034	0.40	0.092	ug/L	U	08/19/09 10:20
	Silver	0.0047	0.10	0.011	ug/L	U	08/19/09 10:20
	Thallium	-0.0080	0.040	0.0099	ug/L	U	08/19/09 10:20
	Vanadium	0.0083	0.20	0.059	ug/L	U	08/19/09 10:20
	Zinc	0.0070	1.2	0.40	ug/L	U	08/19/09 10:20

* Values outside of QC limits

Sample Information

Sample ID: 9H19009-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 09:32:28
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\9H19009-CCB.014
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
							ug/L
Li	6	122324.427	122324.427				ug/L
B	11	109.002	0.000	0.621658	0.104	16.795	ug/L
Be	9	2.667	0.000	0.012366	0.028	222.565	ug/L
V	51	3084.704	-0.000	-0.007388	0.005	69.254	ug/L
Cr	52	9704.687	0.000	0.014739	0.020	133.424	ug/L
Cr	53	392.348	0.000	0.147208	0.016	10.716	ug/L
Mn	55	496.022	-0.000	-0.001806	0.001	74.723	ug/L
Co	59	125.669	-0.000	-0.005408	0.001	19.895	ug/L
Ni	60	54.334	-0.000	-0.000658	0.006	951.711	ug/L
Ni	62	22.000	0.000	0.019502	0.008	40.472	ug/L
Cu	63	168.337	-0.000	-0.000616	0.004	712.859	ug/L
Cu	65	85.001	-0.000	-0.003467	0.007	202.666	ug/L
Zn	66	188.004	0.000	0.012499	0.010	82.812	ug/L
Zn	68	402.015	-0.000	-0.014215	0.025	175.792	ug/L
							ug/L
Ge	72	310023.544	310023.544				ug/L
As	75	272.810	0.000	0.014354	0.038	265.470	ug/L
Se	77	237.340	0.000	0.285403	0.092	32.105	ug/L
Se	82	0.101	0.000	0.140509	0.109	77.584	ug/L
							ug/L
Rh	103	356325.147	356325.147				ug/L
Ag	107	67.334	0.000	0.006200	0.001	20.929	ug/L
Cd	111	5.801	-0.000	-0.000340	0.001	414.262	ug/L
Cd	114	23.021	0.000	0.000541	0.001	95.471	ug/L
							ug/L
In	115	270807.961	270807.961				ug/L
Sb	121	655.703	0.002	0.104475	0.009	8.658	ug/L
Sb	123	496.269	0.002	0.104640	0.008	7.570	ug/L
Ba	135	24.334	0.000	0.001151	0.003	285.853	ug/L
Ba	137	42.001	-0.000	-0.000533	0.001	265.540	ug/L
							ug/L
Tb	159	341368.749	341368.749				ug/L
Tl	203	107.335	-0.000	-0.000946	0.003	358.030	ug/L
Tl	205	275.008	0.000	0.001184	0.001	48.587	ug/L
Pb	208	378.008	0.000	0.001094	0.000	33.296	ug/L
Bi	209	289738.909	289738.909				ug/L

QC Calculated Values

Analyte	Mass	Int Std % Recovery
Li	6.015	86.553
B	11.009	
Be	9.012	
V	50.944	
Cr	51.941	
Cr	52.941	

Sample Information

Sample ID: 0909625-BLK1
Autosampler Position: 17
Sample Date/Time: Wednesday, August 19, 2009 09:36:54
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\0909625-BLK1.015
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	120423.867	120423.867				ug/L
	B	11	75.001	0.000	0.155435	0.244	157.294	ug/L
	Be	9	1.000	-0.000	-0.009400	0.000	0.867	ug/L
	V	51	3304.172	0.000	0.016049	0.021	131.130	ug/L
	Cr	52	10096.234	0.001	0.058927	0.063	106.337	ug/L
	Cr	53	374.014	0.000	0.122235	0.028	22.971	ug/L
	Mn	55	541.693	0.000	0.002083	0.004	174.248	ug/L
	Co	59	99.002	-0.000	-0.008318	0.001	17.717	ug/L
	Ni	60	62.334	0.000	0.002973	0.003	89.692	ug/L
	Ni	62	23.334	0.000	0.023097	0.011	46.604	ug/L
	Cu	63	273.675	0.000	0.021575	0.005	21.425	ug/L
	Cu	65	146.670	0.000	0.023711	0.005	20.617	ug/L
	Zn	66	674.039	0.002	0.410949	0.029	6.965	ug/L
	Zn	68	724.044	0.001	0.351939	0.031	8.847	ug/L
>	Ge	72	312537.041	312537.041				ug/L
	As	75	187.519	-0.000	-0.041065	0.013	31.659	ug/L
	Se	77	245.673	0.000	0.338334	0.181	53.594	ug/L
	Se	82	-8.076	0.000	0.090362	0.247	273.448	ug/L
>	Rh	103	348268.436	348268.436				ug/L
	Ag	107	43.001	0.000	0.003516	0.000	10.699	ug/L
	Cd	111	7.935	0.000	0.000800	0.002	209.342	ug/L
	Cd	114	12.177	-0.000	-0.001751	0.002	98.409	ug/L
>	In	115	273296.880	273296.880				ug/L
	Sb	121	393.681	0.001	0.060166	0.003	5.488	ug/L
	Sb	123	316.215	0.001	0.064046	0.006	8.916	ug/L
	Ba	135	22.000	-0.000	-0.000191	0.001	300.004	ug/L
	Ba	137	32.667	-0.000	-0.003698	0.001	14.784	ug/L
>	Tb	159	342010.756	342010.756				ug/L
	Tl	203	91.002	-0.000	-0.003594	0.004	109.887	ug/L
	Tl	205	228.006	-0.000	-0.002006	0.001	40.120	ug/L
	Pb	208	402.675	0.000	0.002462	0.001	37.332	ug/L
>	Bi	209	288317.967	288317.967				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	85.209
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

93201

Sample Information

Sample ID: 0908257-15
Autosampler Position: 22
Sample Date/Time: Wednesday, August 19, 2009 10:06:10
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\0908257-15.020
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈>	Li	6	118000.934	118000.934				ug/L
|	B	11	98.002	0.000	0.516274	0.127	24.681	ug/L
L	Be	9	1.667	-0.000	-0.000042	0.008	18574.496	ug/L
⌈	V	51	3550.436	0.001	0.041517	0.015	35.616	ug/L
|	Cr	52	11082.702	0.004	0.181152	0.030	16.506	ug/L
|	Cr	53	428.350	0.001	0.180561	0.026	14.271	ug/L
|	Mn	55	2593.497	0.007	0.189222	0.008	4.472	ug/L
|	Co	59	249.674	0.000	0.007365	0.003	34.638	ug/L
|	Ni	60	116.002	0.000	0.028395	0.008	28.297	ug/L
|	Ni	62	35.334	0.000	0.060456	0.017	27.788	ug/L
|	Cu	63	565.028	0.001	0.083060	0.005	6.135	ug/L
|	Cu	65	289.009	0.001	0.085801	0.006	7.088	ug/L
|	Zn	66	4092.880	0.012	3.190909	0.058	1.817	ug/L
|	Zn	68	3199.749	0.009	3.162680	0.050	1.587	ug/L
|>	Ge	72	315308.278	315308.278				ug/L
|	As	75	106.778	-0.000	-0.092770	0.023	25.075	ug/L
|	Se	77	246.007	0.000	0.323876	0.121	37.213	ug/L
L	Se	82	-19.470	0.000	0.023394	0.046	197.795	ug/L
⌈>	Rh	103	358926.716	358926.716				ug/L
|	Ag	107	45.001	0.000	0.003592	0.000	11.539	ug/L
|	Cd	111	9.405	0.000	0.001440	0.003	186.677	ug/L
L	Cd	114	19.355	-0.000	-0.000284	0.000	133.653	ug/L
⌈>	In	115	273179.067	273179.067				ug/L
|	Sb	121	357.679	0.001	0.054210	0.003	6.366	ug/L
L	Sb	123	297.172	0.001	0.059880	0.005	8.845	ug/L
⌈	Ba	135	239.673	0.001	0.128704	0.014	10.975	ug/L
|	Ba	137	400.349	0.001	0.121688	0.006	4.712	ug/L
L>	Tb	159	335644.609	335644.609				ug/L
⌈	Tl	203	47.334	-0.000	-0.010774	0.001	13.351	ug/L
|	Tl	205	109.335	-0.001	-0.010174	0.001	7.404	ug/L
|	Pb	208	1058.707	0.002	0.037217	0.003	8.130	ug/L
L>	Bi	209	283918.827	283918.827				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈>	Li	6.015	83.494
|	B	11.009	
L	Be	9.012	
⌈	V	50.944	
|	Cr	51.941	
|	Cr	52.941	

Zn 14
Barium 0.61
Chromium 0.91
Cobalt 0.037
6020 Copper 0.42
Mn 0.95

69216

Sample Information

Sample ID: 9H19009-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 10:20:13
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19009.sam
Method File: C:\elandata\Method\DoD_Aqueous_6020a_114.mth
Dataset File: C:\Elandata\DataSet\9H19009\9H19009-CCB.022
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_A.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
>	Li	6	114622.956	114622.956				ug/L
	B	11	100.668	0.000	0.599997	0.121	20.153	ug/L
	Be	9	0.667	-0.000	-0.013326	0.008	61.246	ug/L
	V	51	3208.733	0.000	0.008260	0.011	137.818	ug/L
	Cr	52	9960.041	0.001	0.053159	0.020	37.490	ug/L
	Cr	53	345.679	0.000	0.093803	0.030	32.131	ug/L
	Mn	55	508.023	-0.000	-0.000618	0.003	554.838	ug/L
	Co	59	100.002	-0.000	-0.008119	0.002	19.880	ug/L
	Ni	60	62.668	0.000	0.003441	0.003	101.187	ug/L
	Ni	62	17.334	0.000	0.004714	0.012	249.112	ug/L
	Cu	63	168.004	-0.000	-0.000641	0.001	93.948	ug/L
	Cu	65	96.335	0.000	0.001733	0.002	93.238	ug/L
	Zn	66	181.004	0.000	0.006960	0.013	179.865	ug/L
	Zn	68	389.348	-0.000	-0.027771	0.024	88.173	ug/L
>	Ge	72	309384.592	309384.592				ug/L
	As	75	274.601	0.000	0.016122	0.051	319.332	ug/L
	Se	77	239.340	0.000	0.306256	0.020	6.515	ug/L
	Se	82	23.728	0.000	0.284823	0.219	76.828	ug/L
>	Rh	103	350003.623	350003.623				ug/L
	Ag	107	53.667	0.000	0.004746	0.000	7.818	ug/L
	Cd	111	6.631	0.000	0.000119	0.002	1316.605	ug/L
	Cd	114	19.651	-0.000	-0.000115	0.001	1032.675	ug/L
>	In	115	271499.516	271499.516				ug/L
	Sb	121	545.360	0.002	0.085863	0.004	4.298	ug/L
	Sb	123	412.093	0.001	0.085761	0.006	6.958	ug/L
	Ba	135	26.667	0.000	0.003080	0.001	27.163	ug/L
	Ba	137	42.667	0.000	0.000176	0.002	1106.655	ug/L
>	Tb	159	329892.135	329892.135				ug/L
	Tl	203	61.668	-0.000	-0.008016	0.001	9.361	ug/L
	Tl	205	141.669	-0.000	-0.007562	0.000	5.948	ug/L
	Pb	208	368.674	0.000	0.001613	0.001	49.110	ug/L
>	Bi	209	275224.464	275224.464				ug/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
>	Li	6.015	81.104
	B	11.009	
	Be	9.012	
	V	50.944	
	Cr	51.941	
	Cr	52.941	

93222

ANALYSIS BATCH (SEQUENCE) SUMMARY

USEPA-6020A

Ba, Se

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H19032

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Instrument: 114

Calibration: 9H19010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H19032-CAL1	9h19032-001	08/19/09 10:34
Cal Standard	9H19032-CAL2	9h19032-002	08/19/09 10:36
Cal Standard	9H19032-CAL3	9h19032-003	08/19/09 10:39
Cal Standard	9H19032-CAL4	9h19032-004	08/19/09 10:42
Cal Standard	9H19032-CAL5	9h19032-005	08/19/09 10:44
Cal Standard	9H19032-CAL6	9h19032-006	08/19/09 10:47
Cal Standard	9H19032-CAL7	9h19032-007	08/19/09 10:50
Secondary Cal Check	9H19032-SCV1	9h19032-008	08/19/09 10:52
Calibration Check	9H19032-CCV1	9h19032-008	08/19/09 10:52
Calibration Blank	9H19032-CCB1	9h19032-011	08/19/09 11:02
Interference Check A	9H19032-IFA1	9h19032-012	08/19/09 11:05
Interference Check B	9H19032-IFB1	9h19032-013	08/19/09 11:08
Calibration Check	9H19032-CCV2	9h19032-014	08/19/09 11:10
Calibration Blank	9H19032-CCB2	9h19032-015	08/19/09 11:12
LCS	0909625-BS2	9h19032-017	08/19/09 11:32
LCS Dup	0909625-BSD2	9h19032-018	08/19/09 11:35
EQBK-3	0908257-15	9h19032-021	08/19/09 11:41
EQBK-3	0908257-15	9h19032-021	08/19/09 11:41
Blank	0909625-BLK2	9h19032-022	08/19/09 11:43
Calibration Check	9H19032-CCV3	9h19032-023	08/19/09 11:46
Calibration Blank	9H19032-CCB3	9h19032-024	08/19/09 11:48

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19032

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H19010

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19032-CCB1	Beryllium	-0.010	0.40	0.063	ug/L	U	08/19/09 11:02
	Selenium	-0.084	0.60	0.079	ug/L	J	08/19/09 11:02
9H19032-CCB2	Beryllium	0.0033	0.40	0.063	ug/L	U	08/19/09 11:12
	Selenium	-0.043	0.60	0.079	ug/L	U	08/19/09 11:12
0909625-BLK2	Beryllium, Total	2.0	2.0	0.31	ug/L	U	08/19/09 11:43
	Selenium, Total	3.0	3.0	0.40	ug/L	U	08/19/09 11:43
9H19032-CCB3	Beryllium	0.0081	0.40	0.063	ug/L	U	08/19/09 11:48
	Selenium	-0.097	0.60	0.079	ug/L	J	08/19/09 11:48

* Values outside of QC limits

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19038

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9H19011

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19038-CCB1	Arsenic	0.000043	0.00020	0.000060	mg/L	U	08/19/09 12:40
	Copper	0.0000040	0.00040	0.000086	mg/L	U	08/19/09 12:40
	Lead	0.0000050	0.00040	0.000099	mg/L	U	08/19/09 12:40
	Nickel	0.0000020	0.00020	0.000050	mg/L	U	08/19/09 12:40
	Selenium	-0.00014	0.00040	0.000099	mg/L	J	08/19/09 12:40
	Silver	0.000038	0.00020	0.000022	mg/L	J	08/19/09 12:40
	Thallium	0.0000050	0.00020	0.000012	mg/L	U	08/19/09 12:40
	Vanadium	0.0000020	0.00020	0.000065	mg/L	U	08/19/09 12:40
9H19038-CCB2	Arsenic	-0.000030	0.00020	0.000060	mg/L	U	08/19/09 12:51
	Copper	0.0000010	0.00040	0.000086	mg/L	U	08/19/09 12:51
	Lead	0.0000040	0.00040	0.000099	mg/L	U	08/19/09 12:51
	Nickel	0.0000040	0.00020	0.000050	mg/L	U	08/19/09 12:51
	Selenium	-0.00019	0.00040	0.000099	mg/L	J	08/19/09 12:51
	Silver	0.000030	0.00020	0.000022	mg/L	J	08/19/09 12:51
	Thallium	0.000011	0.00020	0.000012	mg/L	U	08/19/09 12:51
	Vanadium	-0.000020	0.00020	0.000065	mg/L	U	08/19/09 12:51
0909584-BLK1	Arsenic, Total	0.10	0.10	0.030	mg/kg dry wt.	U	08/19/09 12:54
	Copper, Total	0.20	0.20	0.043	mg/kg dry wt.	U	08/19/09 12:54
	Lead, Total	0.20	0.20	0.049	mg/kg dry wt.	U	08/19/09 12:54
	Nickel, Total	0.10	0.10	0.025	mg/kg dry wt.	U	08/19/09 12:54
	Selenium, Total	0.20	0.20	0.049	mg/kg dry wt.	U	08/19/09 12:54
	Silver, Total	0.10	0.10	0.011	mg/kg dry wt.	U	08/19/09 12:54
	Thallium, Total	0.10	0.10	0.0061	mg/kg dry wt.	U	08/19/09 12:54
	Vanadium, Total	0.10	0.10	0.032	mg/kg dry wt.	U	08/19/09 12:54
9H19038-CCB3	Arsenic	0.000039	0.00020	0.000060	mg/L	U	08/19/09 13:26
	Copper	0.0000050	0.00040	0.000086	mg/L	U	08/19/09 13:26
	Lead	0.0000060	0.00040	0.000099	mg/L	U	08/19/09 13:26
	Nickel	0.0	0.00020	0.000050	mg/L	U	08/19/09 13:26
	Selenium	-0.000059	0.00040	0.000099	mg/L	U	08/19/09 13:26
	Silver	0.000030	0.00020	0.000022	mg/L	J	08/19/09 13:26
	Thallium	0.0000040	0.00020	0.000012	mg/L	U	08/19/09 13:26
	Vanadium	-0.000028	0.00020	0.000065	mg/L	U	08/19/09 13:26
9H19038-CCB4	Arsenic	0.000091	0.00020	0.000060	mg/L	J	08/19/09 13:58

N/A

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H19038
Instrument ID: 114
Calibration: 9H19011

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H19038-CCB4	Copper	0.0000030	0.00040	0.000086	mg/L	U	08/19/09 13:58
	Lead	0.0000050	0.00040	0.000099	mg/L	U	08/19/09 13:58
	Nickel	0.0000020	0.00020	0.000050	mg/L	U	08/19/09 13:58
	Selenium	0.000025	0.00040	0.000099	mg/L	U	08/19/09 13:58
	Silver	0.000028	0.00020	0.000022	mg/L	J	08/19/09 13:58
	Thallium	0.0000020	0.00020	0.000012	mg/L	U	08/19/09 13:58
	Vanadium	0.000027	0.00020	0.000065	mg/L	U	08/19/09 13:58
9H19038-CCB5	Arsenic	0.000023	0.00020	0.000060	mg/L	U	08/19/09 14:07
	Copper	0.0000020	0.00040	0.000086	mg/L	U	08/19/09 14:07
	Lead	0.0000040	0.00040	0.000099	mg/L	U	08/19/09 14:07
	Nickel	0.0000030	0.00020	0.000050	mg/L	U	08/19/09 14:07
	Selenium	-0.00014	0.00040	0.000099	mg/L	J	08/19/09 14:07
	Silver	0.000027	0.00020	0.000022	mg/L	J	08/19/09 14:07
	Thallium	0.0000010	0.00020	0.000012	mg/L	U	08/19/09 14:07
	Vanadium	-0.000016	0.00020	0.000065	mg/L	U	08/19/09 14:07

N/A

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY

USEPA-6020A

As, Co, Pd, Ni, Se, Ag, Tl, V

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H19038

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Instrument: 114

Calibration: 9H19011

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H19038-CAL1	9h19038-001	08/19/09 12:13
Cal Standard	9H19038-CAL2	9h19038-002	08/19/09 12:16
Cal Standard	9H19038-CAL3	9h19038-003	08/19/09 12:19
Cal Standard	9H19038-CAL4	9h19038-004	08/19/09 12:22
Cal Standard	9H19038-CAL5	9h19038-005	08/19/09 12:25
Cal Standard	9H19038-CAL6	9h19038-006	08/19/09 12:28
Cal Standard	9H19038-CAL7	9h19038-007	08/19/09 12:31
Cal Standard	9H19038-CAL8	9h19038-008	08/19/09 12:34
Secondary Cal Check	9H19038-SCV1	9h19038-009	08/19/09 12:37
Calibration Check	9H19038-CCV1	9h19038-009	08/19/09 12:37
Calibration Blank	9H19038-CCB1	9h19038-010	08/19/09 12:40
Interference Check A	9H19038-IFA1	9h19038-011	08/19/09 12:42
Interference Check B	9H19038-IFB1	9h19038-012	08/19/09 12:45
Calibration Check	9H19038-CCV2	9h19038-013	08/19/09 12:48
Calibration Blank	9H19038-CCB2	9h19038-014	08/19/09 12:51
Blank	0909584-BLK1	9h19038-015	08/19/09 12:54
LCS	0909584-BS1	9h19038-016	08/19/09 12:57
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SS1	0908257-01	9h19038-017	08/19/09 13:00
30SB1B	0908257-02	9h19038-018	08/19/09 13:03
30SB1B	0908257-02	9h19038-018	08/19/09 13:03
30SB1B	0908257-02	9h19038-018	08/19/09 13:03
30SB1B	0908257-02	9h19038-018	08/19/09 13:03
30SB1B	0908257-02	9h19038-018	08/19/09 13:03
30SB1B	0908257-02	9h19038-018	08/19/09 13:03
30SB1B	0908257-02	9h19038-018	08/19/09 13:03

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19038

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19011

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
30SB1B	0908257-02	9h19038-018	08/19/09 13:03
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
DUP-4	0908257-03	9h19038-019	08/19/09 13:06
30SS2	0908257-04	9h19038-020	08/19/09 13:09
30SS2	0908257-04	9h19038-020	08/19/09 13:09
30SS2	0908257-04	9h19038-020	08/19/09 13:09
30SS2	0908257-04	9h19038-020	08/19/09 13:09
30SS2	0908257-04	9h19038-020	08/19/09 13:09
30SS2	0908257-04	9h19038-020	08/19/09 13:09
30SS2	0908257-04	9h19038-020	08/19/09 13:09
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0908257-05	9h19038-021	08/19/09 13:12
30SS3	0909584-MS1	9h19038-022	08/19/09 13:15
30SS3	0909584-MSD1	9h19038-023	08/19/09 13:18
30SS3	9H19038-SRD1	9h19038-024	08/19/09 13:20
Calibration Check	9H19038-CCV3	9h19038-025	08/19/09 13:23
Calibration Blank	9H19038-CCB3	9h19038-026	08/19/09 13:26
30SS3	0909584-PS1	9h19038-027	08/19/09 13:29
30SB2B	0908257-06	9h19038-028	08/19/09 13:32
30SB2B	0908257-06	9h19038-028	08/19/09 13:32

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H19038

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Instrument: 114

Calibration: 9H19011

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
30SB2B	0908257-06	9h19038-028	08/19/09 13:32
30SB2B	0908257-06	9h19038-028	08/19/09 13:32
30SB2B	0908257-06	9h19038-028	08/19/09 13:32
30SB2B	0908257-06	9h19038-028	08/19/09 13:32
30SB2B	0908257-06	9h19038-028	08/19/09 13:32
30SB2B	0908257-06	9h19038-028	08/19/09 13:32
79SS1	0908257-07	9h19038-029	08/19/09 13:35
79SS1	0908257-07	9h19038-029	08/19/09 13:35
79SS1	0908257-07	9h19038-029	08/19/09 13:35
79SS1	0908257-07	9h19038-029	08/19/09 13:35
79SS1	0908257-07	9h19038-029	08/19/09 13:35
79SS1	0908257-07	9h19038-029	08/19/09 13:35
79SS1	0908257-07	9h19038-029	08/19/09 13:35
79SS1	0908257-07	9h19038-029	08/19/09 13:35
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
30SB3B	0908257-08	9h19038-030	08/19/09 13:38
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
DUP-5	0908257-09	9h19038-031	08/19/09 13:41
79SS2	0908257-10	9h19038-032	08/19/09 13:44
79SS2	0908257-10	9h19038-032	08/19/09 13:44

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9H19038

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Instrument: 114

Calibration: 9H19011

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
79SS2	0908257-10	9h19038-032	08/19/09 13:44
79SS2	0908257-10	9h19038-032	08/19/09 13:44
79SS2	0908257-10	9h19038-032	08/19/09 13:44
79SS2	0908257-10	9h19038-032	08/19/09 13:44
79SS2	0908257-10	9h19038-032	08/19/09 13:44
79SS2	0908257-10	9h19038-032	08/19/09 13:44
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SS3	0908257-12	9h19038-033	08/19/09 13:47
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
79SB2B	0908257-13	9h19038-034	08/19/09 13:50
60SS6	0908257-14	9h19038-035	08/19/09 13:53
60SS6	0908257-14	9h19038-035	08/19/09 13:53
60SS6	0908257-14	9h19038-035	08/19/09 13:53
60SS6	0908257-14	9h19038-035	08/19/09 13:53
60SS6	0908257-14	9h19038-035	08/19/09 13:53
60SS6	0908257-14	9h19038-035	08/19/09 13:53
60SS6	0908257-14	9h19038-035	08/19/09 13:53
60SS6	0908257-14	9h19038-035	08/19/09 13:53
Calibration Check	9H19038-CCV4	9h19038-036	08/19/09 13:55
Calibration Blank	9H19038-CCB4	9h19038-037	08/19/09 13:58

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H19038

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9H19011

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
30SS2	0908257-04	9h19038-038	08/19/09 14:01
Calibration Check	9H19038-CCV5	9h19038-039	08/19/09 14:04
Calibration Blank	9H19038-CCB5	9h19038-040	08/19/09 14:07

Sample Information

Sample ID: 9H19038-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 12:51:44
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\9H19038-CCB.014
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	2304.885	-0.000	-0.000020	0.000	94.663	mg/L
|	Ni	60	59.334	0.000	0.000004	0.000	58.746	mg/L
|	Ni	62	25.000	0.000	0.000009	0.000	236.687	mg/L
|	Cu	63	143.670	0.000	0.000001	0.000	87.437	mg/L
|	Cu	65	79.001	-0.000	-0.000001	0.000	707.656	mg/L
| >	Ge	72	241773.218	241773.218				mg/L
|	As	75	245.668	-0.000	-0.000030	0.000	94.025	mg/L
|	Se	77	179.337	0.000	0.000031	0.000	554.400	mg/L
⌊	Se	82	-3.246	-0.000	-0.000191	0.000	98.178	mg/L
⌈ >	Rh	103	273170.057	273170.057				mg/L
⌊	Ag	107	212.672	0.001	0.000030	0.000	19.391	mg/L
⌈	Tl	203	111.335	0.000	0.000011	0.000	7.695	mg/L
|	Tl	205	242.007	0.000	0.000010	0.000	24.115	mg/L
|	Pb	208	416.676	0.000	0.000004	0.000	28.750	mg/L
⌊ >	Bi	209	236324.616	236324.616				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
| >	Ge	71.922	91.382
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈ >	Rh	102.905	91.521
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊ >	Bi	208.980	98.844

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2432.577	-0.000	0.000002	mg/L
Ni	60	64.001	0.000	0.000007	mg/L
Ni	62	27.000	0.000	0.000017	mg/L
Cu	63	147.003	0.000	0.000002	mg/L
Cu	65	72.001	-0.000	-0.000005	mg/L

82287

Sample Information

Sample ID: 0908257-01
Autosampler Position: 19
Sample Date/Time: Wednesday, August 19, 2009 13:00:27
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-01.017
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	423330.527	1.663	0.066553	0.001	1.566	mg/L
	Ni	60	25387.971	0.100	0.015673	0.001	4.063	mg/L
	Ni	62	4033.179	0.016	0.016233	0.000	1.242	mg/L
	Cu	63	53266.070	0.210	0.014369	0.000	1.743	mg/L
	Cu	65	25548.200	0.101	0.014455	0.000	2.025	mg/L
>	Ge	72	253024.581	253024.581				mg/L
	As	75	7808.847	0.030	0.005762	0.000	3.013	mg/L
	Se	77	346.345	0.001	0.001700	0.000	14.901	mg/L
	Se	82	77.125	0.000	0.000433	0.000	40.235	mg/L
>	Rh	103	273268.850	273268.850				mg/L
	Ag	107	1093.761	0.004	0.000166	0.000	3.263	mg/L
	Tl	203	1910.941	0.008	0.000374	0.000	2.570	mg/L
	Tl	205	4633.215	0.019	0.000381	0.000	0.314	mg/L
	Pb	208	585580.032	2.412	0.036427	0.001	1.388	mg/L
>	Bi	209	242671.736	242671.736				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	95.634
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.554
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.499

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	427194.180	1.639	0.065569	mg/L
Ni	60	24682.513	0.095	0.014992	mg/L
Ni	62	4073.202	0.016	0.016007	mg/L
Cu	63	53488.054	0.206	0.014086	mg/L
Cu	65	25690.373	0.099	0.014190	mg/L

a9293

Sample Information

Sample ID: 0908257-02
Autosampler Position: 20
Sample Date/Time: Wednesday, August 19, 2009 13:03:22
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-02.018
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	404795.946	1.574	0.062974	0.001	1.198	mg/L
	Ni	60	19569.300	0.076	0.011947	0.000	0.528	mg/L
	Ni	62	3664.643	0.014	0.014592	0.000	2.290	mg/L
	Cu	63	38685.197	0.151	0.010319	0.000	0.850	mg/L
	Cu	65	18907.184	0.074	0.010577	0.000	1.955	mg/L
>	Ge	72	255553.117	255553.117				mg/L
	As	75	2770.937	0.010	0.001876	0.000	2.429	mg/L
	Se	77	280.008	0.000	0.000972	0.000	37.868	mg/L
	Se	82	38.672	0.000	0.000131	0.000	188.536	mg/L
>	Rh	103	278423.937	278423.937				mg/L
	Ag	107	394.682	0.001	0.000057	0.000	5.241	mg/L
	Tl	203	931.737	0.004	0.000172	0.000	4.001	mg/L
	Tl	205	2179.354	0.008	0.000169	0.000	1.287	mg/L
	Pb	208	197741.799	0.795	0.012000	0.000	2.695	mg/L
>	Bi	209	248477.304	248477.304				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	96.590
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	93.281
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	103.927

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	398363.950	1.553	0.062118	mg/L
Ni	60	19533.141	0.077	0.012015	mg/L
Ni	62	3752.023	0.015	0.014978	mg/L
Cu	63	38949.293	0.152	0.010414	mg/L
Cu	65	19062.129	0.075	0.010802	mg/L

Sample Information

Sample ID: 0908257-03
Autosampler Position: 21
Sample Date/Time: Wednesday, August 19, 2009 13:06:17
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-03.019
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	453504.677	1.751	0.070042	0.000	0.062	mg/L
	Ni	60	21926.825	0.085	0.013284	0.000	0.858	mg/L
	Ni	62	4122.898	0.016	0.016298	0.000	1.019	mg/L
	Cu	63	48303.272	0.187	0.012792	0.000	1.521	mg/L
	Cu	65	23679.422	0.092	0.013153	0.000	0.542	mg/L
>	Ge	72	257584.501	257584.501				mg/L
	As	75	3086.908	0.011	0.002098	0.000	2.509	mg/L
	Se	77	300.676	0.000	0.001162	0.000	18.188	mg/L
	Se	82	26.361	0.000	0.000035	0.000	676.691	mg/L
>	Rh	103	273548.970	273548.970				mg/L
	Ag	107	424.017	0.001	0.000063	0.000	9.832	mg/L
	Tl	203	1229.118	0.005	0.000233	0.000	3.692	mg/L
	Tl	205	3181.407	0.012	0.000254	0.000	4.215	mg/L
	Pb	208	818726.035	3.327	0.050254	0.002	3.787	mg/L
>	Bi	209	246134.515	246134.515				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	97.358
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.648
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	102.947

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	455299.512	1.750	0.070022	mg/L
Ni	60	22194.650	0.086	0.013390	mg/L
Ni	62	4177.263	0.016	0.016445	mg/L
Cu	63	48579.119	0.187	0.012811	mg/L
Cu	65	23691.461	0.091	0.013104	mg/L

Sample Information

Sample ID: 0908257-04
Autosampler Position: 22
Sample Date/Time: Wednesday, August 19, 2009 13:09:13
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-04.020
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	804570.853	3.102	0.124097	0.001	0.573	mg/L
|	Ni	60	30016.924	0.116	0.018134	0.001	3.118	mg/L
|	Ni	62	4998.132	0.019	0.019704	0.000	1.651	mg/L
|	Cu	63	77630.047	0.300	0.020506	0.000	1.388	mg/L
|	Cu	65	37865.502	0.146	0.020981	0.000	1.289	mg/L
|>	Ge	72	258557.378	258557.378				mg/L
|	As	75	9277.349	0.035	0.006734	0.000	3.311	mg/L
|	Se	77	379.347	0.001	0.001960	0.000	13.605	mg/L
⌊	Se	82	137.922	0.000	0.000889	0.000	42.156	mg/L
⌈>	Rh	103	267022.574	267022.574				mg/L
⌊	Ag	107	775.717	0.003	0.000120	0.000	4.530	mg/L
⌈	Tl	203	2387.423	0.009	0.000460	0.000	0.796	mg/L
|	Tl	205	5658.297	0.022	0.000458	0.000	2.152	mg/L
|	Pb	208	525807.218	2.123	0.032063	0.001	1.962	mg/L
⌊>	Bi	209	247548.573	247548.573				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
|>	Ge	71.922	97.726
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈>	Rh	102.905	89.462
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊>	Bi	208.980	103.539

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	811310.689	3.116	0.124655	mg/L
Ni	60	30302.443	0.117	0.018231	mg/L
Ni	62	4933.753	0.019	0.019373	mg/L
Cu	63	76756.974	0.295	0.020194	mg/L
Cu	65	37521.087	0.144	0.020709	mg/L

Sample Information

Sample ID: 0908257-05
Autosampler Position: 23
Sample Date/Time: Wednesday, August 19, 2009 13:12:08
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-05.021
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	352448.065	1.383	0.055351	0.001	1.369	mg/L
	Ni	60	16711.362	0.066	0.010303	0.000	1.043	mg/L
	Ni	62	2781.236	0.011	0.011167	0.000	3.009	mg/L
	Cu	63	37603.109	0.148	0.010133	0.000	1.415	mg/L
	Cu	65	18574.306	0.073	0.010498	0.000	0.758	mg/L
>	Ge	72	252923.899	252923.899				mg/L
	As	75	8303.181	0.032	0.006141	0.000	0.885	mg/L
	Se	77	330.344	0.001	0.001532	0.000	3.166	mg/L
	Se	82	84.100	0.000	0.000490	0.000	27.269	mg/L
>	Rh	103	272337.062	272337.062				mg/L
	Ag	107	558.694	0.002	0.000084	0.000	5.097	mg/L
	Tl	203	1686.883	0.006	0.000317	0.000	2.957	mg/L
	Tl	205	4146.578	0.016	0.000328	0.000	3.936	mg/L
	Pb	208	811168.645	3.230	0.048787	0.001	2.067	mg/L
>	Bi	209	251091.119	251091.119				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	95.596
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.242
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	105.020

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	346442.377	1.366	0.054649	mg/L
Ni	60	16539.291	0.065	0.010243	mg/L
Ni	62	2782.570	0.011	0.011223	mg/L
Cu	63	37626.216	0.149	0.010185	mg/L
Cu	65	18549.239	0.073	0.010531	mg/L

Sample Information

Sample ID: 9H19038-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 13:26:45
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\9H19038-CCB.026
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2228.973	-0.001	-0.000028	0.000	28.988	mg/L
	Ni	60	51.667	-0.000	-0.000000	0.000	3117.224	mg/L
	Ni	62	25.000	0.000	0.000011	0.000	287.661	mg/L
	Cu	63	155.003	0.000	0.000005	0.000	29.105	mg/L
	Cu	65	84.335	0.000	0.000003	0.000	224.596	mg/L
>	Ge	72	238718.200	238718.200				mg/L
	As	75	326.842	0.000	0.000039	0.000	193.998	mg/L
	Se	77	164.337	-0.000	-0.000113	0.000	230.586	mg/L
	Se	82	12.916	-0.000	-0.000059	0.000	296.359	mg/L
>	Rh	103	268398.343	268398.343				mg/L
	Ag	107	208.339	0.001	0.000030	0.000	25.832	mg/L
	Tl	203	78.668	0.000	0.000004	0.000	20.438	mg/L
	Tl	205	190.671	0.000	0.000005	0.000	36.970	mg/L
	Pb	208	456.011	0.000	0.000006	0.000	49.790	mg/L
>	Bi	209	242034.310	242034.310				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	90.227
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	89.923
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.232

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Mean Intensity	Net Intensity	Concentration	Report Unit
V	51	2220.263	0.001	0.000031	mg/L
Ni	60	31.000	0.000	0.000014	mg/L
Ni	62	20.000	-0.000	0.000011	mg/L
Cu	63	150.003	0.000	0.000003	mg/L
Cu	65	94.002	0.000	0.000009	mg/L

Sample Information

Sample ID: 0908257-06
Autosampler Position: 28
Sample Date/Time: Wednesday, August 19, 2009 13:32:34
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-06.028
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	435722.185	1.704	0.068164	0.000	0.069	mg/L
	Ni	60	22716.968	0.089	0.013947	0.000	2.530	mg/L
	Ni	62	4125.899	0.016	0.016525	0.000	1.024	mg/L
	Cu	63	51349.428	0.201	0.013780	0.000	1.288	mg/L
	Cu	65	25104.294	0.098	0.014132	0.000	2.118	mg/L
>	Ge	72	254260.958	254260.958				mg/L
	As	75	3931.626	0.014	0.002773	0.000	6.609	mg/L
	Se	77	257.007	0.000	0.000746	0.000	9.072	mg/L
	Se	82	27.156	0.000	0.000045	0.000	367.279	mg/L
>	Rh	103	265608.976	265608.976				mg/L
	Ag	107	618.700	0.002	0.000096	0.000	2.768	mg/L
	Tl	203	1199.779	0.005	0.000221	0.000	1.509	mg/L
	Tl	205	2924.628	0.011	0.000227	0.000	5.432	mg/L
	Pb	208	268730.841	1.062	0.016045	0.000	2.949	mg/L
>	Bi	209	252700.029	252700.029				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	96.102
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	88.988
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	105.693

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	439796.746	1.704	0.068161	mg/L
Ni	60	22280.919	0.087	0.013549	mg/L
Ni	62	4133.237	0.016	0.016399	mg/L
Cu	63	51119.783	0.199	0.013589	mg/L
Cu	65	24725.969	0.096	0.013786	mg/L

Sample Information

Sample ID: 0908257-07
Autosampler Position: 29
Sample Date/Time: Wednesday, August 19, 2009 13:35:28
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-07.029
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	440311.287	1.742	0.069716	0.001	1.027	mg/L
|	Ni	60	18066.669	0.072	0.011216	0.000	1.253	mg/L
|	Ni	62	3047.681	0.012	0.012328	0.000	1.981	mg/L
|	Cu	63	47474.062	0.188	0.012889	0.000	1.009	mg/L
|	Cu	65	23402.509	0.093	0.013327	0.000	0.710	mg/L
|>	Ge	72	251250.651	251250.651				mg/L
|	As	75	8870.642	0.034	0.006622	0.000	1.160	mg/L
|	Se	77	315.010	0.001	0.001392	0.000	27.714	mg/L
⌊	Se	82	52.985	0.000	0.000250	0.000	144.450	mg/L
⌈>	Rh	103	268270.080	268270.080				mg/L
⌊	Ag	107	658.370	0.002	0.000101	0.000	7.065	mg/L
⌈	Tl	203	1789.909	0.007	0.000333	0.000	3.596	mg/L
|	Tl	205	4202.278	0.016	0.000328	0.000	3.074	mg/L
|	Pb	208	425049.246	1.671	0.025235	0.000	1.455	mg/L
⌊>	Bi	209	254223.630	254223.630				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
|>	Ge	71.922	94.964
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈>	Rh	102.905	89.880
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊>	Bi	208.980	106.330

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	442235.271	1.747	0.069907	mg/L
Ni	60	18311.625	0.073	0.011350	mg/L
Ni	62	3114.710	0.012	0.012581	mg/L
Cu	63	47609.948	0.189	0.012959	mg/L
Cu	65	23299.170	0.092	0.013248	mg/L

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Sample Information

Sample ID: 0908257-08
Autosampler Position: 30
Sample Date/Time: Wednesday, August 19, 2009 13:38:22
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-08.030
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	531800.727	2.076	0.083081	0.002	1.808	mg/L
	Ni	60	26185.174	0.103	0.016039	0.000	1.331	mg/L
	Ni	62	5004.136	0.020	0.020013	0.001	2.541	mg/L
	Cu	63	59746.438	0.234	0.016000	0.000	1.472	mg/L
	Cu	65	29575.740	0.116	0.016615	0.000	2.224	mg/L
>	Ge	72	254899.846	254899.846				mg/L
	As	75	3815.135	0.014	0.002677	0.000	3.320	mg/L
	Se	77	313.343	0.000	0.001329	0.000	16.696	mg/L
	Se	82	67.552	0.000	0.000356	0.000	65.807	mg/L
>	Rh	103	263704.419	263704.419				mg/L
	Ag	107	487.355	0.002	0.000075	0.000	5.933	mg/L
	Tl	203	1651.207	0.006	0.000310	0.000	4.750	mg/L
	Tl	205	3992.489	0.015	0.000315	0.000	3.136	mg/L
	Pb	208	348062.427	1.382	0.020878	0.001	2.870	mg/L
>	Bi	209	251640.357	251640.357				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	96.343
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	88.350
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	105.250

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	538019.582	2.107	0.084320	mg/L
Ni	60	25673.003	0.102	0.015896	mg/L
Ni	62	4863.704	0.019	0.019511	mg/L
Cu	63	59444.926	0.233	0.015909	mg/L
Cu	65	29621.589	0.116	0.016593	mg/L

Sample Information

Sample ID: 0908257-09
Autosampler Position: 31
Sample Date/Time: Wednesday, August 19, 2009 13:41:17
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-09.031
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	460694.690	1.812	0.072505	0.001	0.763	mg/L
	Ni	60	20955.571	0.083	0.012935	0.000	1.226	mg/L
	Ni	62	3918.447	0.015	0.015780	0.000	2.124	mg/L
	Cu	63	49099.342	0.194	0.013249	0.000	1.529	mg/L
	Cu	65	24231.946	0.096	0.013715	0.000	0.652	mg/L
>	Ge	72	252826.247	252826.247				mg/L
	As	75	3348.019	0.012	0.002342	0.000	1.438	mg/L
	Se	77	259.674	0.000	0.000789	0.000	25.772	mg/L
	Se	82	55.319	0.000	0.000265	0.000	92.398	mg/L
>	Rh	103	265462.918	265462.918				mg/L
	Ag	107	392.015	0.001	0.000059	0.000	5.919	mg/L
	Tl	203	1252.122	0.005	0.000234	0.000	1.713	mg/L
	Tl	205	3071.024	0.012	0.000241	0.000	3.243	mg/L
	Pb	208	277500.603	1.110	0.016759	0.000	1.607	mg/L
>	Bi	209	249786.775	249786.775				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	95.559
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	88.939
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	104.475

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	462676.056	1.809	0.072359	mg/L
Ni	60	20835.552	0.082	0.012779	mg/L
Ni	62	3902.105	0.015	0.015613	mg/L
Cu	63	48545.894	0.190	0.013016	mg/L
Cu	65	24510.225	0.098	0.013786	mg/L

Sample Information

Sample ID: 0908257-10
Autosampler Position: 32
Sample Date/Time: Wednesday, August 19, 2009 13:44:12
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-10.032
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	471841.142	1.848	0.073929	0.001	1.256	mg/L
	Ni	60	21924.817	0.086	0.013475	0.000	2.549	mg/L
	Ni	62	3789.377	0.015	0.015189	0.001	3.506	mg/L
	Cu	63	56793.460	0.223	0.015263	0.000	1.888	mg/L
	Cu	65	28162.023	0.111	0.015876	0.000	2.105	mg/L
>	Ge	72	254024.589	254024.589				mg/L
	As	75	6847.965	0.026	0.005003	0.000	1.231	mg/L
	Se	77	303.010	0.000	0.001228	0.000	30.446	mg/L
	Se	82	42.029	0.000	0.000160	0.000	21.460	mg/L
>	Rh	103	266039.807	266039.807				mg/L
	Ag	107	748.380	0.003	0.000116	0.000	5.350	mg/L
	Tl	203	1987.963	0.008	0.000368	0.000	1.250	mg/L
	Tl	205	4743.623	0.018	0.000369	0.000	2.537	mg/L
	Pb	208	392536.952	1.530	0.023108	0.001	2.532	mg/L
>	Bi	209	256395.533	256395.533				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	96.012
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	89.132
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	107.239

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	427863.470	1.825	0.073035	mg/L
Ni	60	21820.496	0.084	0.013079	mg/L
Ni	62	3791.044	0.014	0.014818	mg/L
Cu	63	56961.791	0.218	0.014931	mg/L
Cu	65	28196.834	0.106	0.015505	mg/L

Sample Information

Sample ID: 0908257-12
Autosampler Position: 33
Sample Date/Time: Wednesday, August 19, 2009 13:47:07
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-12.033
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	331282.339	1.314	0.052570	0.001	1.977	mg/L
	Ni	60	28863.825	0.115	0.018015	0.000	0.959	mg/L
	Ni	62	5202.279	0.021	0.021200	0.000	1.129	mg/L
	Cu	63	64802.330	0.258	0.017682	0.000	1.840	mg/L
	Cu	65	31730.304	0.126	0.018162	0.000	0.418	mg/L
>	Ge	72	250213.535	250213.535				mg/L
	As	75	4526.468	0.017	0.003282	0.000	1.453	mg/L
	Se	77	300.009	0.000	0.001247	0.000	17.029	mg/L
	Se	82	84.816	0.000	0.000503	0.000	12.303	mg/L
>	Rh	103	270621.211	270621.211				mg/L
	Ag	107	535.025	0.002	0.000081	0.000	8.673	mg/L
	Tl	203	1409.820	0.005	0.000263	0.000	3.936	mg/L
	Tl	205	3294.459	0.013	0.000258	0.000	2.579	mg/L
	Pb	208	489472.851	1.949	0.029438	0.000	1.396	mg/L
>	Bi	209	250982.672	250982.672				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.572
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	90.667
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	104.975

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	335747.567	1.329	0.053171	mg/L
Ni	60	29063.297	0.116	0.018100	mg/L
Ni	62	5145.904	0.020	0.020924	mg/L
Cu	63	63581.360	0.253	0.017310	mg/L
Cu	65	31668.363	0.126	0.018067	mg/L

Sample Information

Sample ID: 0908257-13
Autosampler Position: 34
Sample Date/Time: Wednesday, August 19, 2009 13:50:03
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-13.034
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
⌈	V	51	195068.534	0.774	0.030984	0.001	2.575	mg/L
|	Ni	60	12594.887	0.050	0.007890	0.000	2.708	mg/L
|	Ni	62	2327.403	0.009	0.009492	0.000	4.897	mg/L
|	Cu	63	23604.174	0.094	0.006454	0.000	1.473	mg/L
|	Cu	65	11806.201	0.047	0.006768	0.000	1.633	mg/L
| >	Ge	72	248772.765	248772.765				mg/L
|	As	75	2668.779	0.010	0.001854	0.000	0.056	mg/L
|	Se	77	245.340	0.000	0.000681	0.000	11.606	mg/L
⌊	Se	82	2.112	-0.000	-0.000149	0.000	117.650	mg/L
⌈ >	Rh	103	270850.623	270850.623				mg/L
⌊	Ag	107	251.674	0.001	0.000036	0.000	4.669	mg/L
⌈	Tl	203	585.363	0.002	0.000101	0.000	1.621	mg/L
|	Tl	205	1333.138	0.005	0.000097	0.000	1.255	mg/L
|	Pb	208	136327.477	0.537	0.008106	0.000	3.143	mg/L
⌊ >	Bi	209	253448.334	253448.334				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
⌈	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
| >	Ge	71.922	94.027
|	As	74.922	
|	Se	76.920	
⌊	Se	81.917	
⌈ >	Rh	102.905	90.744
⌊	Ag	106.905	
⌈	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
⌊ >	Bi	208.980	106.006

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	195162.675	0.787	0.030700	mg/L
Ni	60	12580.194	0.050	0.007805	mg/L
Ni	62	2238.373	0.009	0.009005	mg/L
Cu	63	23584.106	0.093	0.006368	mg/L
Cu	65	11951.109	0.047	0.006788	mg/L

0908257

Sample Information

Sample ID: 0908257-14
Autosampler Position: 35
Sample Date/Time: Wednesday, August 19, 2009 13:53:00
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\0908257-14.035
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
[	V	51	468349.019	1.862	0.074488	0.000	0.667	mg/L
|	Ni	60	46620.128	0.186	0.029116	0.000	1.056	mg/L
|	Ni	62	5924.515	0.024	0.024156	0.000	0.371	mg/L
|	Cu	63	86137.122	0.344	0.023517	0.000	1.553	mg/L
|	Cu	65	42620.542	0.170	0.024411	0.000	0.446	mg/L
|								mg/L
|>	Ge	72	250230.491	250230.491				mg/L
|	As	75	24813.380	0.098	0.019010	0.000	1.102	mg/L
|	Se	77	332.011	0.001	0.001588	0.000	9.191	mg/L
|	Se	82	94.780	0.000	0.000582	0.000	34.723	mg/L
[								mg/L
[>	Rh	103	253874.311	253874.311				mg/L
[	Ag	107	1063.423	0.004	0.000174	0.000	4.173	mg/L
[	Tl	203	1658.209	0.007	0.000343	0.000	3.486	mg/L
|	Tl	205	3914.445	0.017	0.000341	0.000	1.139	mg/L
|	Pb	208	1100241.558	4.813	0.072698	0.001	1.733	mg/L
[>	Bi	209	228557.921	228557.921				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
[	V	50.944	
|	Ni	59.933	
|	Ni	61.928	
|	Cu	62.930	
|	Cu	64.928	
|>	Ge	71.922	94.578
|	As	74.922	
|	Se	76.920	
[	Se	81.917	
[>	Rh	102.905	85.057
[	Ag	106.905	
[	Tl	202.972	
|	Tl	204.975	
|	Pb	207.977	
[>	Bi	208.980	95.596

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	467007.900	1.876	0.075061	mg/L
Ni	60	46623.130	0.188	0.029426	mg/L
Ni	62	5908.488	0.024	0.024180	mg/L
Cu	63	86179.624	0.347	0.023775	mg/L
Cu	65	42230.894	0.170	0.024443	mg/L

Sample Information

Sample ID: 9H19038-CCB
Autosampler Position: 1
Sample Date/Time: Wednesday, August 19, 2009 13:58:49
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9H19038.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9H19038\9H19038-CCB.037
Tuning File: C:\Elandata\Tuning\19AUG2009_6020A_C.tun
Optimization File: C:\Elandata\Optimize\19AUG2009_6020A.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2559.063	0.001	0.000027	0.000	57.684	mg/L
	Ni	60	55.334	0.000	0.000002	0.000	331.273	mg/L
	Ni	62	26.334	0.000	0.000017	0.000	271.225	mg/L
	Cu	63	147.670	0.000	0.000003	0.000	48.248	mg/L
	Cu	65	80.668	0.000	0.000001	0.000	149.207	mg/L
>	Ge	72	239463.283	239463.283				mg/L
	As	75	393.179	0.000	0.000091	0.000	10.259	mg/L
	Se	77	168.670	-0.000	-0.000070	0.000	90.038	mg/L
	Se	82	23.471	0.000	0.000025	0.000	484.846	mg/L
>	Rh	103	270632.493	270632.493				mg/L
	Ag	107	196.671	0.001	0.000028	0.000	26.286	mg/L
	Tl	203	67.334	0.000	0.000002	0.000	14.795	mg/L
	Tl	205	146.670	0.000	0.000001	0.000	103.978	mg/L
	Pb	208	444.343	0.000	0.000005	0.000	59.412	mg/L
>	Bi	209	240869.116	240869.116				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	90.509
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	90.671
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.745

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2566.755	0.001	0.000042	mg/L
Ni	60	61.001	0.000	0.000007	mg/L
Ni	62	37.000	0.000	0.000067	mg/L
Cu	63	145.003	0.000	0.000003	mg/L
Cu	65	79.001	0.000	0.000001	mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5143 g / 250 mL

Laboratory ID: 0909584-MS1

QC Batch: 0909584

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Arsenic, Total	19.4	3.06	19.4	84	80 - 120	mg/kg dry wt.
Copper, Total	19.4	5.05	23.4	95	80 - 120	mg/kg dry wt.
Lead, Total	19.4	24.3	32.7	43 *	80 - 120	mg/kg dry wt.
Nickel, Total	19.4	5.14	24.0	97	80 - 120	mg/kg dry wt.
Selenium, Total	19.4	0.244	17.3	88	80 - 120	mg/kg dry wt.
Silver, Total	19.4	0.0419	18.8	97	75 - 120	mg/kg dry wt.
Thallium, Total	19.4	0.158	19.4	99	80 - 120	mg/kg dry wt.
Vanadium, Total	19.4	27.6	42.9	79 *	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5028 g / 250 mL

Laboratory ID: 0909584-MSD1

QC Batch: 0909584

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Arsenic, Total	19.9	20.5	87	5	20	80 - 120	mg/kg dry wt.
Copper, Total	19.9	23.9	95	2	20	80 - 120	mg/kg dry wt.
Lead, Total	19.9	34.2	49 *	4	20	80 - 120	mg/kg dry wt.
Nickel, Total	19.9	23.8	94	0.7	20	80 - 120	mg/kg dry wt.
Selenium, Total	19.9	17.8	88	3	20	80 - 120	mg/kg dry wt.
Silver, Total	19.9	19.2	96	2	20	75 - 120	mg/kg dry wt.
Thallium, Total	19.9	19.8	99	2	20	80 - 120	mg/kg dry wt.
Vanadium, Total	19.9	48.8	107	13	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5037 g / 250 mL

Laboratory ID: 0909666-MS1

QC Batch: 0909666

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Antimony, Total	19.9	0.188	19.3	96	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5074 g / 250 mL

Laboratory ID: 0909666-MSD1

QC Batch: 0909666

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Antimony, Total	19.7	19.0	96	2	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 91.11
Laboratory ID: 0909584-PS1
Lab Source ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.020056 g / 10 mL
QC Batch: 0909584
Sequence: 9H19038

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Arsenic, Total	75 - 125	0.0247	0.00614	0.0200	93	mg/L
Copper, Total	75 - 125	0.0285	0.0101	0.0200	92	mg/L
Lead, Total	75 - 125	0.0680	0.0488	0.0200	96	mg/L
Nickel, Total	75 - 125	0.0289	0.0103	0.0200	93	mg/L
Selenium, Total	75 - 125	0.0181	0.000490	0.0200	88	mg/L
Silver, Total	75 - 125	0.0186	0.0000840	0.0200	93	mg/L
Thallium, Total	75 - 125	0.0200	0.000317	0.0200	98	mg/L
Vanadium, Total	75 - 125	0.0731	0.0554	0.0200	89	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 91.11
Laboratory ID: 0909666-PS1
Lab Source ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.010104 g / 5 mL
QC Batch: 0909666
Sequence: 9H18065

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Antimony, Total	75 - 125	0.0203	0.000380	0.0200	100	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 91.11
Laboratory ID: 9H19038-SRD1
QC Batch: 9H19038
Lab Source ID: 0908257-05
Sequence: 9H19038

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Arsenic, Total	0.00614		0.00640		4.0		mg/L	10
Copper, Total	0.0101		0.0108		7.0		mg/L	10
Lead, Total	0.0488		0.0500		2.0		mg/L	10
Nickel, Total	0.0103		0.0107		4.0		mg/L	10
Selenium, Total	0.000490		-0.000805	U	264.0 #		mg/L	10
Silver, Total	0.0000840	J	0.000270	J	221.0 #		mg/L	10
Thallium, Total	0.000317		0.000485	J	53.0 #		mg/L	10
Vanadium, Total	0.0554		0.0558		1.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION

USEPA-6020A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 91.11

Laboratory ID: 9H18065-SRD3

Lab Source ID: 0908257-05

SDG: SS0809C

Project: RFAAP SSP at Six Sites

QC Batch: 9H18065

Sequence: 9H18065

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Antimony, Total	0.000380	J	0.000550	J	45.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SAMPLE ID SUMMARY

USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C

Client: URS Corporation
Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H20016

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9H20005

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H20016-CAL1	9H20016-002	08/20/09 08:15
Cal Standard	9H20016-CAL2	9H20016-003	08/20/09 08:19
Cal Standard	9H20016-CAL3	9H20016-004	08/20/09 08:22
Cal Standard	9H20016-CAL4	9H20016-005	08/20/09 08:25
Cal Standard	9H20016-CAL5	9H20016-006	08/20/09 08:29
Secondary Cal Check	9H20016-SCV1	9H20016-007	08/20/09 08:32
Calibration Check	9H20016-CCV1	9H20016-007	08/20/09 08:32
Calibration Blank	9H20016-CCB1	9H20016-008	08/20/09 08:36
Interference Check A	9H20016-IFA1	9H20016-009	08/20/09 08:39
Interference Check A	9H20016-IFA2	9H20016-010	08/20/09 08:43
Interference Check B	9H20016-IFB1	9H20016-011	08/20/09 08:46
Interference Check B	9H20016-IFB2	9H20016-012	08/20/09 08:50
Calibration Check	9H20016-CCV2	9H20016-013	08/20/09 08:53
Calibration Blank	9H20016-CCB2	9H20016-014	08/20/09 08:56
Blank	0909623-BLK1	9H20016-015	08/20/09 09:00
LCS	0909623-BS1	9H20016-016	08/20/09 09:03
LCS Dup	0909623-BSD1	9H20016-017	08/20/09 09:07
EQBK-3	0908257-15	9H20016-020	08/20/09 09:17
EQBK-3	0908257-15	9H20016-020	08/20/09 09:17
EQBK-3	0908257-15	9H20016-020	08/20/09 09:17
EQBK-3	0908257-15	9H20016-020	08/20/09 09:17
EQBK-3	0908257-15	9H20016-020	08/20/09 09:17
EQBK-3	0908257-15	9H20016-020	08/20/09 09:17
Calibration Check	9H20016-CCV3	9H20016-021	08/20/09 09:20
Calibration Blank	9H20016-CCB3	9H20016-022	08/20/09 09:23

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H20016
Instrument ID: 101
Calibration: 9H20005

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H20016-CCB1	Aluminum	-26	50	24	ug/L	J	08/20/09 08:36
	Calcium	-0.036	0.50	0.058	mg/L	U	08/20/09 08:36
	Iron	0.86	25	8.0	ug/L	U	08/20/09 08:36
	Magnesium	0.0022	0.50	0.044	mg/L	U	08/20/09 08:36
	Potassium	-0.0099	0.50	0.098	mg/L	U	08/20/09 08:36
	Sodium	-0.014	0.50	0.082	mg/L	U	08/20/09 08:36
9H20016-CCB2	Aluminum	-24	50	24	ug/L	J	08/20/09 08:56
	Calcium	-0.032	0.50	0.058	mg/L	U	08/20/09 08:56
	Iron	2.5	25	8.0	ug/L	U	08/20/09 08:56
	Magnesium	0.020	0.50	0.044	mg/L	U	08/20/09 08:56
	Potassium	-0.031	0.50	0.098	mg/L	U	08/20/09 08:56
	Sodium	-0.021	0.50	0.082	mg/L	U	08/20/09 08:56
0909623-BLK1	Aluminum, Total	50	50	24	ug/L	U	08/20/09 09:00
	Calcium, Total	500	500	58	ug/L	U	08/20/09 09:00
	Iron, Total	25	25	8.0	ug/L	U	08/20/09 09:00
	Magnesium, Total	500	500	44	ug/L	U	08/20/09 09:00
	Potassium, Total	500	500	98	ug/L	U	08/20/09 09:00
	Sodium, Total	500	500	82	ug/L	U	08/20/09 09:00
9H20016-CCB3	Aluminum	-31	50	24	ug/L	J	08/20/09 09:23
	Calcium	-0.037	0.50	0.058	mg/L	U	08/20/09 09:23
	Iron	1.6	25	8.0	ug/L	U	08/20/09 09:23
	Magnesium	0.0052	0.50	0.044	mg/L	U	08/20/09 09:23
	Potassium	-0.050	0.50	0.098	mg/L	U	08/20/09 09:23
	Sodium	-0.0088	0.50	0.082	mg/L	U	08/20/09 09:23

* Values outside of QC limits

1 Fe 238.204	539.3	544.9	17.4651 µg/L	17.4651 µg/L	
1 K 766.514	1217.3	1230.0	-0.0732183 mg/L	-0.0732183 mg/L	
1 Li 670.781	-189.7	-191.7	-2.25185 µg/L	-2.25185 µg/L	
1 Mg 279.074	-129.1	-130.5	-0.0103233 mg/L	-0.0103233 mg/L	
1 Mn 257.610	-1.5	-1.5	-0.0304873 µg/L	-0.0304873 µg/L	
1 Mo 202.031	4.5	4.6	-1.40386 µg/L	-1.40386 µg/L	
1 Na 589.594	5844.6	5905.7	0.258091 mg/L	0.258091 mg/L	
1 Ni 231.603	-143.8	-145.3	-9.40998 µg/L	-9.40998 µg/L	
1 Pb 220.353	1.6	1.6	29.5830 µg/L	29.5830 µg/L	
1 Sb 206.831	-24.4	-24.7	-5.44942 µg/L	-5.44942 µg/L	
1 Se 196.026	70.6	71.4	53.2483 µg/L	53.2483 µg/L	
1 Si 251.611	6683.5	6753.4	944.186 µg/L	944.186 µg/L	
1 Sn 189.933	139.4	140.8	28.1484 µg/L	28.1484 µg/L	
1 Sr 407.771	1223.7	1236.5	-0.169440 µg/L	-0.169440 µg/L	
1 Ti 334.941	1742.2	1760.4	2.10415 µg/L	2.10415 µg/L	
1 Tl 190.800	22.8	23.1	11.1098 µg/L	11.1098 µg/L	
1 V 292.402	-403.4	-407.7	2.15448 µg/L	2.15448 µg/L	
1 Zn 206.200	25.7	26.0	7.82741 µg/L	7.82741 µg/L	
2 Sc 357.253	500761.7	500761.7	98.9 µg/L		
2 Y 360.064	312246.9	312246.9	97.6 µg/L		
2 Ag 328.068	-460.6	-465.6	-0.270161 µg/L	-0.270161 µg/L	
2 Al 396.140	166.6	168.4	-30.5748 µg/L	-30.5748 µg/L	
2 As 188.979	5.9	6.0	21.4650 µg/L	21.4650 µg/L	
2 B 249.773	106.8	108.0	-15.5854 µg/L	-15.5854 µg/L	
2 Ba 455.403	7951.6	8037.9	0.539709 µg/L	0.539709 µg/L	
2 Be 234.861	-254.3	-257.1	-0.0584004 µg/L	-0.0584004 µg/L	
2 Ca 315.887	910.5	920.4	0.105592 mg/L	0.105592 mg/L	
2 Cd 214.438	83.4	84.3	0.748927 µg/L	0.748927 µg/L	
2 Ce 413.765	883.9	893.5	15.3100 µg/L	0.0153100 mg/L	
2 Co 228.616	-6.5	-6.5	-2.79248 µg/L	-2.79248 µg/L	
2 Cr 205.560	33.6	34.0	4.34565 µg/L	4.34565 µg/L	
2 Cu 327.394	75.6	76.4	-3.06025 µg/L	-3.06025 µg/L	
2 Fe 238.204	558.1	564.2	18.9023 µg/L	18.9023 µg/L	
2 K 766.514	1229.9	1243.3	-0.0701864 mg/L	-0.0701864 mg/L	
2 Li 670.781	-300.2	-303.4	-2.85207 µg/L	-2.85207 µg/L	
2 Mg 279.074	-102.9	-104.0	0.0058675 mg/L	0.0058675 mg/L	
2 Mn 257.610	2.2	2.3	0.0065295 µg/L	0.0065295 µg/L	
2 Mo 202.031	18.6	18.8	10.5215 µg/L	10.5215 µg/L	
2 Na 589.594	5914.1	5978.3	0.261946 mg/L	0.261946 mg/L	
2 Ni 231.603	-120.7	-122.0	-0.642898 µg/L	-0.642898 µg/L	
2 Pb 220.353	-10.7	-10.8	2.27712 µg/L	2.27712 µg/L	
2 Sb 206.831	-15.6	-15.7	23.6112 µg/L	23.6112 µg/L	
2 Se 196.026	61.1	61.7	9.38382 µg/L	9.38382 µg/L	
2 Si 251.611	6743.6	6816.8	954.253 µg/L	954.253 µg/L	
2 Sn 189.933	137.2	138.7	22.3004 µg/L	22.3004 µg/L	
2 Sr 407.771	1201.4	1214.4	-0.182032 µg/L	-0.182032 µg/L	
2 Ti 334.941	1695.3	1713.7	1.70428 µg/L	1.70428 µg/L	
2 Tl 190.800	21.6	21.8	5.46400 µg/L	5.46400 µg/L	
2 V 292.402	-508.7	-514.2	-3.12017 µg/L	-3.12017 µg/L	
2 Zn 206.200	17.0	17.2	5.22797 µg/L	5.22797 µg/L	

Mean Data ----------

ID: 0908257-15 Seq. No.: 20 Sample No.: 6 A/S Pos: 22
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 8/20/09 9:16:35 AM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	500858.8	98.9	0.03	µg/L				0.03%
Y 360.064	312129.1	97.6	0.05	µg/L				0.05%
Ag 328.068	-471.5	-0.454508	0.2607052	µg/L	-0.454508	0.2607052	µg/L	57.36%
Al 396.140	126.3	-35.1796	6.51227	µg/L	-35.1796	6.51227	µg/L	18.51%
As 188.979	5.9	21.0875	0.53389	µg/L	21.0875	0.53389	µg/L	2.53%
B 249.773	106.3	-15.7121	0.17909	µg/L	-15.7121	0.17909	µg/L	1.14%
Ba 455.403	8033.5	0.534332	0.0076036	µg/L	0.534332	0.0076036	µg/L	1.42%
Be 234.861	-254.8	-0.0398109	0.02628950	µg/L	-0.0398109	0.02628950	µg/L	66.04%
Ca 315.887	932.2	0.106474	0.0012479	mg/L	0.106474	0.0012479	mg/L	1.17%
Cd 214.438	86.5	0.966103	0.3071338	µg/L	0.966103	0.3071338	µg/L	31.79%
Ce 413.765	927.8	19.2331	5.54815	µg/L	0.0192331	0.00554815	mg/L	28.85%
Co 228.616	-3.3	-2.11919	0.952173	µg/L	-2.11919	0.952173	µg/L	44.93%
Cr 205.560	29.6	1.81228	3.582723	µg/L	1.81228	3.582723	µg/L	197.69%

Cu 327.394	113.4	-1.00976	2.899833 µg/L	-1.00976	2.899833 µg/L	287.18%
Fe 238.204	554.5	18.1837	1.01626 µg/L	18.1837	1.01626 µg/L	5.59%
K 766.514	1236.6	-0.0717023	0.00214384 mg/L	-0.0717023	0.00214384 mg/L	2.99%
Li 670.781	-247.5	-2.55196	0.424415 µg/L	-2.55196	0.424415 µg/L	16.63%
Mg 279.074	-117.3	-0.0022279	0.01144866 mg/L	-0.0022279	0.01144866 mg/L	513.87%
Mn 257.610	0.4	-0.0119789	0.02617480 µg/L	-0.0119789	0.02617480 µg/L	218.51%
Mo 202.031	11.7	4.55881	8.432487 µg/L	4.55881	8.432487 µg/L	184.97%
Na 589.594	5942.0	0.260019	0.0027262 mg/L	0.260019	0.0027262 mg/L	1.05%
Ni 231.603	-133.7	-5.02644	6.199262 µg/L	-5.02644	6.199262 µg/L	123.33%
Pb 220.353	-4.6	15.9300	19.30815 µg/L	15.9300	19.30815 µg/L	121.21%
Sb 206.831	-20.2	9.08088	20.548946 µg/L	9.08088	20.548946 µg/L	226.29%
Se 196.026	66.6	31.3160	31.01686 µg/L	31.3160	31.01686 µg/L	99.04%
Si 251.611	6785.1	949.220	7.1182 µg/L	949.220	7.1182 µg/L	0.75%
Sn 189.933	139.7	25.2244	4.13520 µg/L	25.2244	4.13520 µg/L	16.39%
Sr 407.771	1225.5	-0.175736	0.0089042 µg/L	-0.175736	0.0089042 µg/L	5.07%
Ti 334.941	1737.0	1.90421	0.282750 µg/L	1.90421	0.282750 µg/L	14.85%
Tl 190.800	22.4	8.28692	3.992209 µg/L	8.28692	3.992209 µg/L	48.17%
V 292.402	-460.9	-0.482846	3.7297434 µg/L	-0.482846	3.7297434 µg/L	772.45%
Zn 206.200	21.6	6.52769	1.838082 µg/L	6.52769	1.838082 µg/L	28.16%

Replicate Data

ID: 9H20016-CCV Date: 8/20/09 9:20:00 AM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	517911.4	517911.4	102.3	µg/L		
1	Y 360.064	321724.8	321724.8	100.6	µg/L		
1	Ag 328.068	15658.3	15304.1	488.794	µg/L		
1	Al 396.140	23300.8	22773.8	2438.68	µg/L		
1	As 188.979	697.9	682.1	2507.00	µg/L		
1	B 249.773	7182.0	7019.5	487.138	µg/L		
1	Ba 455.403	426054.6	416417.4	490.880	µg/L		
1	Be 234.861	5865.4	5732.8	49.8832	µg/L		
1	Ca 315.887	68715.6	67161.3	5.04337	mg/L		
1	Cd 214.438	5375.0	5253.4	511.260	µg/L		
1	Ce 413.765	5194.0	5076.5	493.567	µg/L		
1	Co 228.616	2504.5	2447.8	506.765	µg/L		
1	Cr 205.560	925.4	904.5	510.696	µg/L		
1	Cu 327.394	9243.9	9034.8	493.768	µg/L		
1	Fe 238.204	7273.6	7109.1	507.787	µg/L		
1	K 766.514	23382.0	22853.1	4.88799	mg/L		
1	Li 670.781	93375.1	91263.0	488.963	µg/L		
1	Mg 279.074	8389.8	8200.0	5.09000	mg/L		
1	Mn 257.610	52649.2	51458.3	503.692	µg/L		
1	Mo 202.031	616.2	602.3	498.561	µg/L		
1	Na 589.594	95898.3	93729.1	4.92415	mg/L		
1	Ni 231.603	1256.9	1228.4	506.366	µg/L		
1	Pb 220.353	223.5	218.5	504.860	µg/L		
1	Sb 206.831	758.2	741.1	2491.21	µg/L		
1	Se 196.026	645.1	630.5	2599.74	µg/L		
1	Si 251.611	16815.7	16435.3	2482.03	µg/L		
1	Sn 189.933	1103.1	1078.1	2558.30	µg/L		
1	Sr 407.771	890339.3	870200.1	495.397	µg/L		
1	Ti 334.941	61158.4	59775.0	498.339	µg/L		
1	Tl 190.800	611.5	597.7	2552.28	µg/L		
1	V 292.402	9858.3	9635.3	499.303	µg/L		
1	Zn 206.200	1799.9	1759.1	519.454	µg/L		
2	Sc 357.253	516650.8	516650.8	102.1	µg/L		
2	Y 360.064	321122.4	321122.4	100.4	µg/L		
2	Ag 328.068	15851.3	15530.5	495.814	µg/L		
2	Al 396.140	23514.0	23038.1	2467.56	µg/L		
2	As 188.979	719.8	705.2	2591.81	µg/L		
2	B 249.773	7308.7	7160.8	497.414	µg/L		
2	Ba 455.403	428967.8	420287.6	495.527	µg/L		
2	Be 234.861	5897.6	5778.2	50.2622	µg/L		
2	Ca 315.887	69147.4	67748.2	5.08713	mg/L		
2	Cd 214.438	5451.8	5341.5	519.957	µg/L		
2	Ce 413.765	5347.9	5239.7	512.220	µg/L		
2	Co 228.616	2489.5	2439.1	504.949	µg/L		
2	Cr 205.560	921.3	902.7	509.639	µg/L		

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Sequence: 9H25006
Instrument ID: 311
Calibration: 9H25010

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H25006-CCB1	Aluminum	0.0050	0.10	0.018	mg/L	U	08/25/09 11:03
	Barium	-0.0011	0.010	0.0028	mg/L	U	08/25/09 11:03
	Beryllium	-0.00012	0.010	0.00035	mg/L	U	08/25/09 11:03
	Cadmium	-0.0028	0.020	0.0024	mg/L	J	08/25/09 11:03
	Calcium	0.027	0.50	0.087	mg/L	U	08/25/09 11:03
	Chromium	-0.0023	0.050	0.0074	mg/L	U	08/25/09 11:03
	Cobalt	0.000046	0.020	0.0044	mg/L	U	08/25/09 11:03
	Iron	-0.0031	0.10	0.0047	mg/L	U	08/25/09 11:03
	Magnesium	-0.044	0.50	0.044	mg/L	U	08/25/09 11:03
	Manganese	-0.0015	0.010	0.0021	mg/L	U	08/25/09 11:03
	Potassium	-0.039	0.50	0.068	mg/L	U	08/25/09 11:03
	Sodium	-0.038	1.0	0.054	mg/L	U	08/25/09 11:03
	Zinc	-0.0021	0.050	0.0079	mg/L	U	08/25/09 11:03
9H25006-CCB2	Aluminum	0.0098	0.10	0.018	mg/L	U	08/25/09 11:28
	Barium	-0.0013	0.010	0.0028	mg/L	U	08/25/09 11:28
	Beryllium	-0.00014	0.010	0.00035	mg/L	U	08/25/09 11:28
	Cadmium	-0.0027	0.020	0.0024	mg/L	J	08/25/09 11:28
	Calcium	0.044	0.50	0.087	mg/L	U	08/25/09 11:28
	Chromium	-0.0023	0.050	0.0074	mg/L	U	08/25/09 11:28
	Cobalt	0.0012	0.020	0.0044	mg/L	U	08/25/09 11:28
	Iron	-0.0020	0.10	0.0047	mg/L	U	08/25/09 11:28
	Magnesium	-0.034	0.50	0.044	mg/L	U	08/25/09 11:28
	Manganese	-0.0013	0.010	0.0021	mg/L	U	08/25/09 11:28
	Potassium	-0.035	0.50	0.068	mg/L	U	08/25/09 11:28
	Sodium	-0.029	1.0	0.054	mg/L	U	08/25/09 11:28
	Zinc	-0.0022	0.050	0.0079	mg/L	U	08/25/09 11:28
0909583-BLK1	Aluminum, Total	10	10	1.8	mg/kg dry wt.	U	08/25/09 11:32
	Barium, Total	1.0	1.0	0.28	mg/kg dry wt.	U	08/25/09 11:32
	Beryllium, Total	1.0	1.0	0.035	mg/kg dry wt.	U	08/25/09 11:32
	Cadmium, Total	2.0	2.0	0.24	mg/kg dry wt.	U	08/25/09 11:32
	Calcium, Total	50	50	8.7	mg/kg dry wt.	U	08/25/09 11:32
	Chromium, Total	5.0	5.0	0.74	mg/kg dry wt.	U	08/25/09 11:32
	Cobalt, Total	2.0	2.0	0.44	mg/kg dry wt.	U	08/25/09 11:32

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument ID: 311
Calibration: 9H25010

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
0909583-BLK1	Iron, Total	10	10	0.47	mg/kg dry wt.	U	08/25/09 11:32
	Magnesium, Total	50	50	4.4	mg/kg dry wt.	U	08/25/09 11:32
	Manganese, Total	1.0	1.0	0.21	mg/kg dry wt.	U	08/25/09 11:32
	Potassium, Total	50	50	6.8	mg/kg dry wt.	U	08/25/09 11:32
	Sodium, Total	100	100	5.4	mg/kg dry wt.	U	08/25/09 11:32
	Zinc, Total	1.2	5.0	0.79	mg/kg dry wt.	J	08/25/09 11:32
9H25006-CCB3	Aluminum	0.014	0.10	0.018	mg/L	U	08/25/09 12:14
	Barium	-0.0013	0.010	0.0028	mg/L	U	08/25/09 12:14
	Beryllium	-0.00016	0.010	0.00035	mg/L	U	08/25/09 12:14
	Cadmium	-0.0025	0.020	0.0024	mg/L	J	08/25/09 12:14
	Calcium	0.041	0.50	0.087	mg/L	U	08/25/09 12:14
	Chromium	-0.0026	0.050	0.0074	mg/L	U	08/25/09 12:14
	Cobalt	0.00018	0.020	0.0044	mg/L	U	08/25/09 12:14
	Iron	0.0018	0.10	0.0047	mg/L	U	08/25/09 12:14
	Magnesium	-0.051	0.50	0.044	mg/L	J	08/25/09 12:14
	Manganese	-0.0021	0.010	0.0021	mg/L	J	08/25/09 12:14
	Potassium	-0.034	0.50	0.068	mg/L	U	08/25/09 12:14
	Sodium	-0.036	1.0	0.054	mg/L	U	08/25/09 12:14
	Zinc	-0.0025	0.050	0.0079	mg/L	U	08/25/09 12:14
9H25006-CCB4	Aluminum	0.017	0.10	0.018	mg/L	U	08/25/09 12:55
	Barium	-0.0013	0.010	0.0028	mg/L	U	08/25/09 12:55
	Beryllium	-0.000088	0.010	0.00035	mg/L	U	08/25/09 12:55
	Cadmium	-0.0028	0.020	0.0024	mg/L	J	08/25/09 12:55
	Calcium	0.040	0.50	0.087	mg/L	U	08/25/09 12:55
	Chromium	-0.0029	0.050	0.0074	mg/L	U	08/25/09 12:55
	Cobalt	0.00079	0.020	0.0044	mg/L	U	08/25/09 12:55
	Iron	0.0048	0.10	0.0047	mg/L	J	08/25/09 12:55
	Magnesium	-0.026	0.50	0.044	mg/L	U	08/25/09 12:55
	Manganese	-0.0019	0.010	0.0021	mg/L	U	08/25/09 12:55
	Potassium	-0.028	0.50	0.068	mg/L	U	08/25/09 12:55
	Sodium	-0.040	1.0	0.054	mg/L	U	08/25/09 12:55
	Zinc	-0.0024	0.050	0.0079	mg/L	U	08/25/09 12:55
9H25006-CCB5	Aluminum	0.0023	0.10	0.018	mg/L	U	08/25/09 13:28

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument ID: 311
Calibration: 9H25010

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9H25006-CCB5	Barium	-0.0012	0.010	0.0028	mg/L	U	08/25/09 13:28
	Beryllium	-0.000088	0.010	0.00035	mg/L	U	08/25/09 13:28
	Cadmium	-0.0032	0.020	0.0024	mg/L	J	08/25/09 13:28
	Calcium	0.036	0.50	0.087	mg/L	U	08/25/09 13:28
	Chromium	-0.0023	0.050	0.0074	mg/L	U	08/25/09 13:28
	Cobalt	-0.0000010	0.020	0.0044	mg/L	U	08/25/09 13:28
	Iron	0.00094	0.10	0.0047	mg/L	U	08/25/09 13:28
	Magnesium	-0.034	0.50	0.044	mg/L	U	08/25/09 13:28
	Manganese	-0.0020	0.010	0.0021	mg/L	U	08/25/09 13:28
	Potassium	0.022	0.50	0.068	mg/L	U	08/25/09 13:28
	Sodium	-0.038	1.0	0.054	mg/L	U	08/25/09 13:28
	Zinc	-0.0030	0.050	0.0079	mg/L	U	08/25/09 13:28

N/A

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9H25010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9H25006-CAL1	9H25006-017	08/25/09 10:39
Cal Standard	9H25006-CAL2	9H25006-018	08/25/09 10:43
Cal Standard	9H25006-CAL3	9H25006-019	08/25/09 10:47
Cal Standard	9H25006-CAL4	9H25006-020	08/25/09 10:51
Cal Standard	9H25006-CAL5	9H25006-021	08/25/09 10:55
Secondary Cal Check	9H25006-SCV1	9H25006-022	08/25/09 10:59
Calibration Check	9H25006-CCV1	9H25006-022	08/25/09 10:59
Calibration Blank	9H25006-CCB1	9H25006-023	08/25/09 11:03
Interference Check A	9H25006-IFA1	9H25006-024	08/25/09 11:07
Interference Check A	9H25006-IFA2	9H25006-025	08/25/09 11:11
Interference Check B	9H25006-IFB1	9H25006-026	08/25/09 11:16
Interference Check B	9H25006-IFB2	9H25006-027	08/25/09 11:20
Calibration Check	9H25006-CCV2	9H25006-028	08/25/09 11:24
Calibration Blank	9H25006-CCB2	9H25006-029	08/25/09 11:28
Blank	0909583-BLK1	9H25006-030	08/25/09 11:32
LCS	0909583-BS1	9H25006-031	08/25/09 11:36
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SS1	0908257-01	9H25006-032	08/25/09 11:40
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9H25010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
30SB1B	0908257-02	9H25006-033	08/25/09 11:44
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
DUP-4	0908257-03	9H25006-034	08/25/09 11:48
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9H25010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS2	0908257-04	9H25006-035	08/25/09 11:52
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0908257-05	9H25006-036	08/25/09 11:55
30SS3	0909583-MS1	9H25006-037	08/25/09 11:59
30SS3	0909583-MSD1	9H25006-038	08/25/09 12:03
30SS3	9H25006-SRD1	9H25006-039	08/25/09 12:06
Calibration Check	9H25006-CCV3	9H25006-040	08/25/09 12:10
Calibration Blank	9H25006-CCB3	9H25006-041	08/25/09 12:14
30SS3	0909583-PS1	9H25006-042	08/25/09 12:18
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9H25010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
30SB2B	0908257-06	9H25006-043	08/25/09 12:22
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
79SS1	0908257-07	9H25006-044	08/25/09 12:25
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
30SB3B	0908257-08	9H25006-045	08/25/09 12:29
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9H25010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
DUP-5	0908257-09	9H25006-046	08/25/09 12:32
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS2	0908257-10	9H25006-047	08/25/09 12:36
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40
79SS3	0908257-12	9H25006-048	08/25/09 12:40

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9H25010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
79SS3	0908257-12	9H25006-048	08/25/09 12:40	
79SS3	0908257-12	9H25006-048	08/25/09 12:40	
79SS3	0908257-12	9H25006-048	08/25/09 12:40	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
79SB2B	0908257-13	9H25006-049	08/25/09 12:43	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
60SS6	0908257-14	9H25006-050	08/25/09 12:47	
Calibration Blank	9H25006-CCB4	9H25006-052	08/25/09 12:55	
Calibration Check	9H25006-CCV4	9H25006-053	08/25/09 13:04	
30SS3	0908257-05	9H25006-054	08/25/09 13:08	Al
30SS3	0908257-05	9H25006-054	08/25/09 13:08	Fe
30SS3	9H25006-SRD2	9H25006-055	08/25/09 13:12	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9H25006

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9H25010

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
30SS3	0909583-PS2	9H25006-056	08/25/09 13:16
60SS6	0908257-14	9H25006-057	08/25/09 13:20
60SS6	0908257-14	9H25006-057	08/25/09 13:20
Calibration Check	9H25006-CCV5	9H25006-058	08/25/09 13:24
Calibration Blank	9H25006-CCB5	9H25006-059	08/25/09 13:28

Ca
Mg

1	Ce 413.764†	618.1	-16.2	-0.0036695 mg/L	-0.0036695 mg/L	11:30:22
1	Co 228.616†	-80.8	9.9	0.0009629 mg/L	0.0009629 mg/L	11:30:42
1	Cr 205.557†	-25.4	0.7	-0.0025234 mg/L	-0.0025234 mg/L	11:30:42
1	Cu 327.397†	-1163.9	58.4	-0.0005747 mg/L	-0.0005747 mg/L	11:30:22
1	Mn 257.610†	359.9	12.3	-0.0012827 mg/L	-0.0012827 mg/L	11:30:42
1	Mo 202.031†	125.3	13.7	-0.0019180 mg/L	-0.0019180 mg/L	11:30:42
1	Ni 231.604†	435.9	-3.5	-0.0012452 mg/L	-0.0012452 mg/L	11:30:42
1	Pb 220.353†	23.4	4.6	-0.0008291 mg/L	-0.0008291 mg/L	11:30:42
1	Sb 217.584†	-83.3	7.8	-0.0100587 mg/L	-0.0100587 mg/L	11:30:42
1	Se 196.026†	-54.2	2.8	-0.0116628 mg/L	-0.0116628 mg/L	11:30:42
1	Si 251.611†	18855.6	3441.0	0.137068 mg/L	0.137068 mg/L	11:30:22
1	Sn 189.927†	3.8	8.1	-0.0086076 mg/L	-0.0086076 mg/L	11:30:42
1	Tl 190.801†	-39.3	-3.6	-0.0106199 mg/L	-0.0106199 mg/L	11:30:42
1	V 292.395†	-2099.9	77.0	-0.0013938 mg/L	-0.0013938 mg/L	11:30:42
1	Zn 206.200†	-102.8	16.1	-0.0017924 mg/L	-0.0017924 mg/L	11:30:42
2	Y 360.076	236510.0	236510.0	101.429 %		11:29:56
2	Al 396.153†	760.9	-42.3	0.0057049 mg/L	0.0057049 mg/L	11:29:56
2	Ba 455.398†	-946.3	-2.2	-0.0014300 mg/L	-0.0014300 mg/L	11:29:56
2	Ca 315.887†	599.0	-13.3	0.0433067 mg/L	0.0433067 mg/L	11:30:16
2	Fe 238.204†	74.4	-2.6	-0.0013903 mg/L	-0.0013903 mg/L	11:30:16
2	K 766.490	433.5	-2.7	-0.0222733 mg/L	-0.0222733 mg/L	11:29:56
2	Li 670.784†	1142.8	-27.4	-0.0006706 mg/L	-0.0006706 mg/L	11:29:56
2	Mg 279.071†	44.5	2.1	-0.0272525 mg/L	-0.0272525 mg/L	11:30:16
2	Na 589.592†	1181.2	11.3	-0.0259357 mg/L	-0.0259357 mg/L	11:29:56
2	Sr 407.771†	708.9	30.3	-0.0015325 mg/L	-0.0015325 mg/L	11:29:56
2	Ti 334.940†	61.4	28.7	-0.0008870 mg/L	-0.0008870 mg/L	11:30:16
2	Sc 357.234	249731.6	249731.6	103.349 %		11:30:47
2	Ag 328.068†	810.0	-55.7	-0.0013888 mg/L	-0.0013888 mg/L	11:30:47
2	As 188.979†	-41.9	-2.2	-0.0125256 mg/L	-0.0125256 mg/L	11:31:07
2	B 249.677†	954.0	104.6	-0.0042455 mg/L	-0.0042455 mg/L	11:31:07
2	Be 234.861†	-982.0	39.6	-0.0001376 mg/L	-0.0001376 mg/L	11:31:07
2	Cd 214.437†	277.6	-18.2	-0.0029104 mg/L	-0.0029104 mg/L	11:31:07
2	Ce 413.764†	604.3	-34.8	-0.0041505 mg/L	-0.0041505 mg/L	11:30:47
2	Co 228.616†	-78.3	13.1	0.0013878 mg/L	0.0013878 mg/L	11:31:07
2	Cr 205.557†	-20.5	5.7	-0.0021411 mg/L	-0.0021411 mg/L	11:31:07
2	Cu 327.397†	-1184.8	48.3	-0.0008027 mg/L	-0.0008027 mg/L	11:30:47
2	Mn 257.610†	347.9	-2.4	-0.0013859 mg/L	-0.0013859 mg/L	11:31:07
2	Mo 202.031†	118.9	6.4	-0.0026871 mg/L	-0.0026871 mg/L	11:31:07
2	Ni 231.604†	447.5	3.9	-0.0007297 mg/L	-0.0007297 mg/L	11:31:07
2	Pb 220.353†	23.5	4.5	-0.0008758 mg/L	-0.0008758 mg/L	11:31:07
2	Sb 217.584†	-79.0	12.7	-0.0070947 mg/L	-0.0070947 mg/L	11:31:07
2	Se 196.026†	-48.6	8.7	-0.0011714 mg/L	-0.0011714 mg/L	11:31:07
2	Si 251.611†	18549.5	2982.1	0.106771 mg/L	0.106771 mg/L	11:30:47
2	Sn 189.927†	-2.0	2.5	-0.0109984 mg/L	-0.0109984 mg/L	11:31:07
2	Tl 190.801†	-33.8	2.1	-0.0043092 mg/L	-0.0043092 mg/L	11:31:07
2	V 292.395†	-2066.3	127.6	-0.0004472 mg/L	-0.0004472 mg/L	11:31:07
2	Zn 206.200†	-117.5	2.8	-0.0026729 mg/L	-0.0026729 mg/L	11:31:07

Mean Data: 9H25006-CCB

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	248627.2	102.892	%	0.6464				0.63%
Y 360.076	237356.8	101.792	%	0.5136				0.50%
Ag 328.068†	-44.5	-0.0012254	mg/L	0.00023115	-0.0012254	mg/L	0.00023115	18.86%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153†	-27.2	0.0097731	mg/L	0.00575335	0.0097731	mg/L	0.00575335	58.87%
QC value within limits for Al 396.153 Recovery = Not calculated								
As 188.979†	1.8	-0.0080711	mg/L	0.00629958	-0.0080711	mg/L	0.00629958	78.05%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	113.1	-0.0038500	mg/L	0.00055929	-0.0038500	mg/L	0.00055929	14.53%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 455.398†	55.6	-0.0012698	mg/L	0.00022661	-0.0012698	mg/L	0.00022661	17.85%
QC value within limits for Ba 455.398 Recovery = Not calculated								
Be 234.861†	38.9	-0.0001405	mg/L	0.00000419	-0.0001405	mg/L	0.00000419	2.98%
QC value within limits for Be 234.861 Recovery = Not calculated								
Ca 315.887†	-11.9	0.0440186	mg/L	0.00100675	0.0440186	mg/L	0.00100675	2.29%
QC value within limits for Ca 315.887 Recovery = Not calculated								
Cd 214.437†	-10.6	-0.0027251	mg/L	0.00026207	-0.0027251	mg/L	0.00026207	9.62%
QC value within limits for Cd 214.437 Recovery = Not calculated								
Ce 413.764†	-25.5	-0.0039100	mg/L	0.00034011	-0.0039100	mg/L	0.00034011	8.70%

-0.0136 L/UL

1	Cd 214.437†	292.8	-12.1	-0.0027549 mg/L	-0.0027549 mg/L	11:34:42
1	Ce 413.764†	598.6	-57.9	-0.0047456 mg/L	-0.0047456 mg/L	11:34:22
1	Co 228.616†	-93.0	1.6	-0.0001630 mg/L	-0.0001630 mg/L	11:34:42
1	Cr 205.557†	-25.6	1.5	-0.0024625 mg/L	-0.0024625 mg/L	11:34:42
1	Cu 327.397†	-1114.6	148.9	0.0014693 mg/L	0.0014693 mg/L	11:34:22
1	Mn 257.610†	275.7	-80.4	-0.0019318 mg/L	-0.0019318 mg/L	11:34:42
1	Mo 202.031†	117.8	1.9	-0.0031629 mg/L	-0.0031629 mg/L	11:34:42
1	Ni 231.604†	443.0	-13.4	-0.0019317 mg/L	-0.0019317 mg/L	11:34:42
1	Pb 220.353†	22.7	3.2	-0.0015097 mg/L	-0.0015097 mg/L	11:34:42
1	Sb 217.584†	-86.5	8.0	-0.0099481 mg/L	-0.0099481 mg/L	11:34:42
1	Se 196.026†	-63.7	-4.0	-0.0239517 mg/L	-0.0239517 mg/L	11:34:42
1	Si 251.611†	16324.0	349.0	-0.0669294 mg/L	-0.0669294 mg/L	11:34:22
1	Sn 189.927†	9.4	13.3	-0.0064070 mg/L	-0.0064070 mg/L	11:34:42
1	Tl 190.801†	-31.9	4.8	-0.0013510 mg/L	-0.0013510 mg/L	11:34:42
1	V 292.395†	-2112.3	145.2	-0.0001187 mg/L	-0.0001187 mg/L	11:34:42
1	Zn 206.200†	124.0	232.8	0.0125127 mg/L	0.0125127 mg/L	11:34:42
2	Y 360.076	245982.4	245982.4	105.492 %		11:33:56
2	Al 396.153†	385.1	-427.4	-0.0984800 mg/L	-0.0984800 mg/L	11:33:56
2	Ba 455.398†	-945.8	34.3	-0.0013292 mg/L	-0.0013292 mg/L	11:33:56
2	Ca 315.887†	642.0	4.7	0.0526117 mg/L	0.0526117 mg/L	11:34:16
2	Fe 238.204†	78.2	-1.8	-0.0008786 mg/L	-0.0008786 mg/L	11:34:16
2	K 766.490	486.6	50.5	0.0514237 mg/L	0.0514237 mg/L	11:33:56
2	Li 670.784†	1098.5	-112.8	-0.0028138 mg/L	-0.0028138 mg/L	11:33:56
2	Mg 279.071†	36.0	-7.6	-0.0495338 mg/L	-0.0495338 mg/L	11:34:16
2	Na 589.592†	1156.2	-57.2	-0.0353918 mg/L	-0.0353918 mg/L	11:33:56
2	Sr 407.771†	-483.1	-1126.5	-0.0026912 mg/L	-0.0026912 mg/L	11:33:56
2	Ti 334.940†	60.9	25.8	-0.0010412 mg/L	-0.0010412 mg/L	11:34:16
2	Sc 357.234	256956.5	256956.5	106.339 %		11:34:47
2	Ag 328.068†	880.7	-11.2	-0.0007411 mg/L	-0.0007411 mg/L	11:34:47
2	As 188.979†	-42.6	-1.8	-0.0119808 mg/L	-0.0119808 mg/L	11:35:07
2	B 249.677†	600.8	-253.5	-0.0209117 mg/L	-0.0209117 mg/L	11:35:07
2	Be 234.861†	-999.0	50.3	-0.0000909 mg/L	-0.0000909 mg/L	11:35:07
2	Cd 214.437†	284.3	-19.5	-0.0029367 mg/L	-0.0029367 mg/L	11:35:07
2	Ce 413.764†	584.5	-69.9	-0.0050561 mg/L	-0.0050561 mg/L	11:34:47
2	Co 228.616†	-93.1	1.3	-0.0002027 mg/L	-0.0002027 mg/L	11:35:07
2	Cr 205.557†	-7.0	18.9	-0.0011238 mg/L	-0.0011238 mg/L	11:35:07
2	Cu 327.397†	-1157.0	106.6	0.0005164 mg/L	0.0005164 mg/L	11:34:47
2	Mn 257.610†	261.4	-93.3	-0.0020218 mg/L	-0.0020218 mg/L	11:35:07
2	Mo 202.031†	112.6	-2.7	-0.0036535 mg/L	-0.0036535 mg/L	11:35:07
2	Ni 231.604†	441.7	-13.7	-0.0019513 mg/L	-0.0019513 mg/L	11:35:07
2	Pb 220.353†	27.0	7.2	0.0002902 mg/L	0.0002902 mg/L	11:35:07
2	Sb 217.584†	-75.2	18.5	-0.0036072 mg/L	-0.0036072 mg/L	11:35:07
2	Se 196.026†	-64.4	-4.8	-0.0254562 mg/L	-0.0254562 mg/L	11:35:07
2	Si 251.611†	16037.0	114.7	-0.0824223 mg/L	-0.0824223 mg/L	11:34:47
2	Sn 189.927†	10.3	14.1	-0.0060385 mg/L	-0.0060385 mg/L	11:35:07
2	Tl 190.801†	-39.6	-2.4	-0.0093292 mg/L	-0.0093292 mg/L	11:35:07
2	V 292.395†	-2121.4	132.0	-0.0003715 mg/L	-0.0003715 mg/L	11:35:07
2	Zn 206.200†	119.6	229.0	0.0122618 mg/L	0.0122618 mg/L	11:35:07

Mean Data: 0909583-blk1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	257254.6	106.462	%	0.1745				0.16%
Y 360.076	245170.3	105.143	%	0.4925				0.47%
Ag 328.068†	29.6	-0.0001431	mg/L	0.00084559	-0.0001431	mg/L	0.00084559	590.71%
Al 396.153†	-438.4	-0.101463	mg/L	0.0042180	-0.101463	mg/L	0.0042180	4.16%
As 188.979†	-4.3	-0.0148093	mg/L	0.00400011	-0.0148093	mg/L	0.00400011	27.01%
B 249.677†	-253.1	-0.0208909	mg/L	0.00002946	-0.0208909	mg/L	0.00002946	0.14%
Ba 455.398†	33.5	-0.0013312	mg/L	0.00000274	-0.0013312	mg/L	0.00000274	0.21%
Be 234.861†	53.3	-0.0000782	mg/L	0.00001798	-0.0000782	mg/L	0.00001798	23.00%
Ca 315.887†	1.3	0.0508246	mg/L	0.00252722	0.0508246	mg/L	0.00252722	4.97%
Cd 214.437†	-15.8	-0.0028458	mg/L	0.00012859	-0.0028458	mg/L	0.00012859	4.52%
Ce 413.764†	-63.9	-0.0049009	mg/L	0.00021959	-0.0049009	mg/L	0.00021959	4.48%
Co 228.616†	1.4	-0.0001828	mg/L	0.00002812	-0.0001828	mg/L	0.00002812	15.38%
Cr 205.557†	10.2	-0.0017932	mg/L	0.00094661	-0.0017932	mg/L	0.00094661	52.79%
Cu 327.397†	127.8	0.0009928	mg/L	0.00067374	0.0009928	mg/L	0.00067374	67.86%
Fe 238.204†	-0.8	-0.0002612	mg/L	0.00087314	-0.0002612	mg/L	0.00087314	334.29%
K 766.490	14.2	0.0010467	mg/L	0.07124384	0.0010467	mg/L	0.07124384	>999.9%
Li 670.784†	-113.8	-0.0028382	mg/L	0.00003444	-0.0028382	mg/L	0.00003444	1.21%
Mg 279.071†	-7.1	-0.0483550	mg/L	0.00166702	-0.0483550	mg/L	0.00166702	3.45%

Mn 257.610†	-86.8	-0.0019768 mg/L	0.00006366	-0.0019768 mg/L	0.00006366	3.22%
Mo 202.031†	-0.4	-0.0034082 mg/L	0.00034688	-0.0034082 mg/L	0.00034688	10.18%
Na 589.592†	-70.0	-0.0371544 mg/L	0.00249266	-0.0371544 mg/L	0.00249266	6.71%
Ni 231.604†	-13.5	-0.0019415 mg/L	0.00001385	-0.0019415 mg/L	0.00001385	0.71%
Pb 220.353†	5.2	-0.0006098 mg/L	0.00127270	-0.0006098 mg/L	0.00127270	208.72%
Sb 217.584†	13.3	-0.0067777 mg/L	0.00448371	-0.0067777 mg/L	0.00448371	66.15%
Se 196.026†	-4.4	-0.0247039 mg/L	0.00106388	-0.0247039 mg/L	0.00106388	4.31%
Si 251.611†	231.8	-0.0746759 mg/L	0.01095510	-0.0746759 mg/L	0.01095510	14.67%
Sn 189.927†	13.7	-0.0062228 mg/L	0.00026056	-0.0062228 mg/L	0.00026056	4.19%
Sr 407.771†	-1160.2	-0.0027250 mg/L	0.00004777	-0.0027250 mg/L	0.00004777	1.75%
Ti 334.940†	13.0	-0.0017393 mg/L	0.00098726	-0.0017393 mg/L	0.00098726	56.76%
Tl 190.801†	1.2	-0.0053401 mg/L	0.00564139	-0.0053401 mg/L	0.00564139	105.64%
V 292.395†	138.6	-0.0002451 mg/L	0.00017869	-0.0002451 mg/L	0.00017869	72.90%
Zn 206.200†	230.9	0.0123872 mg/L	0.00017746	0.0123872 mg/L	0.00017746	1.43%

Sequence No.: 15
Sample ID: 0909583-bs1
Analyst:
Initial Sample Wt:
Dilution:

0.1049

Autosampler Location: 18
Date Collected: 8/25/2009 11:36:26 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0909583-bs1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	246351.5	246351.5	105.650	%			11:37:31
1	Al 396.153†	5502.9	4416.2	1.21023	mg/L	1.21023	mg/L	11:37:31
1	Ba 455.398†	96022.5	91818.3	0.253087	mg/L	0.253087	mg/L	11:37:31
1	Ca 315.887†	26714.4	24681.9	12.7739	mg/L	12.7739	mg/L	11:37:31
1	Fe 238.204†	509.1	405.9	0.265261	mg/L	0.265261	mg/L	11:37:51
1	K 766.490	9673.1	9236.9	12.7886	mg/L	12.7886	mg/L	11:37:31
1	Li 670.784†	11845.2	10057.6	0.252340	mg/L	0.252340	mg/L	11:37:31
1	Mg 279.071†	6086.9	5719.7	13.0410	mg/L	13.0410	mg/L	11:37:51
1	Na 589.592†	99796.5	93306.5	12.8494	mg/L	12.8494	mg/L	11:37:31
1	Sr 407.771†	270267.3	255145.7	0.254035	mg/L	0.254035	mg/L	11:37:31
1	Ti 334.940†	5117.4	4811.8	0.259504	mg/L	0.259504	mg/L	11:37:51
1	Sc 357.234	252354.0	252354.0	104.434	%			11:38:23
1	Ag 328.068†	18469.4	16845.8	0.246117	mg/L	0.246117	mg/L	11:38:23
1	As 188.979†	1153.3	1142.6	1.24571	mg/L	1.24571	mg/L	11:38:43
1	B 249.677†	6105.9	5028.1	0.224008	mg/L	0.224008	mg/L	11:38:43
1	Be 234.861†	5366.2	6128.2	0.0260525	mg/L	0.0260525	mg/L	11:38:43
1	Cd 214.437†	11174.2	10413.0	0.251950	mg/L	0.251950	mg/L	11:38:43
1	Ce 413.764†	593.9	-50.8	-0.0042740	mg/L	-0.0042740	mg/L	11:38:23
1	Co 228.616†	1808.4	1820.5	0.244320	mg/L	0.244320	mg/L	11:38:43
1	Cr 205.557†	3521.9	3397.9	0.259281	mg/L	0.259281	mg/L	11:38:43
1	Cu 327.397†	11182.1	11902.0	0.267801	mg/L	0.267801	mg/L	11:38:23
1	Mn 257.610†	38784.2	36798.5	0.256296	mg/L	0.256296	mg/L	11:38:23
1	Mo 202.031†	2680.9	2458.5	0.256386	mg/L	0.256386	mg/L	11:38:43
1	Ni 231.604†	4201.6	3594.2	0.248811	mg/L	0.248811	mg/L	11:38:43
1	Pb 220.353†	619.8	575.3	0.254317	mg/L	0.254317	mg/L	11:38:43
1	Sb 217.584†	2115.2	2114.5	1.27244	mg/L	1.27244	mg/L	11:38:43
1	Se 196.026†	688.7	715.1	1.26682	mg/L	1.26682	mg/L	11:38:43
1	Si 251.611†	29615.7	13391.9	0.784424	mg/L	0.784424	mg/L	11:38:23
1	Sn 189.927†	3391.1	3251.6	1.36869	mg/L	1.36869	mg/L	11:38:43
1	Tl 190.801†	1171.5	1156.5	1.26872	mg/L	1.26872	mg/L	11:38:43
1	V 292.395†	11909.4	13530.7	0.254019	mg/L	0.254019	mg/L	11:38:23
1	Zn 206.200†	4272.5	4207.6	0.274400	mg/L	0.274400	mg/L	11:38:43
2	Y 360.076	246384.1	246384.1	105.664	%			11:37:56
2	Al 396.153†	5494.0	4407.0	1.20787	mg/L	1.20787	mg/L	11:37:56
2	Ba 455.398†	96166.7	91942.7	0.253432	mg/L	0.253432	mg/L	11:37:56
2	Ca 315.887†	26677.8	24643.9	12.7542	mg/L	12.7542	mg/L	11:37:56
2	Fe 238.204†	515.1	411.5	0.268954	mg/L	0.268954	mg/L	11:38:16
2	K 766.490	9620.5	9184.3	12.7157	mg/L	12.7157	mg/L	11:37:56
2	Li 670.784†	11826.1	10038.1	0.251851	mg/L	0.251851	mg/L	11:37:56
2	Mg 279.071†	6114.2	5744.7	13.0981	mg/L	13.0981	mg/L	11:38:16
2	Na 589.592†	99536.7	93048.1	12.8138	mg/L	12.8138	mg/L	11:37:56
2	Sr 407.771†	270724.8	255544.8	0.254435	mg/L	0.254435	mg/L	11:37:56
2	Ti 334.940†	5130.1	4823.2	0.260125	mg/L	0.260125	mg/L	11:38:16
2	Sc 357.234	255883.3	255883.3	105.895	%			11:38:48
2	Ag 328.068†	18407.8	16543.7	0.241695	mg/L	0.241695	mg/L	11:38:48

2	As 188.979†	1157.6	1131.5	1.23343 mg/L	1.23343 mg/L	11:39:08
2	B 249.677†	6072.2	4915.7	0.218783 mg/L	0.218783 mg/L	11:39:08
2	Be 234.861†	5326.7	6019.9	0.0255837 mg/L	0.0255837 mg/L	11:39:08
2	Cd 214.437†	11102.6	10197.8	0.246691 mg/L	0.246691 mg/L	11:39:08
2	Ce 413.764†	620.6	-33.5	-0.0038315 mg/L	-0.0038315 mg/L	11:38:48
2	Co 228.616†	1806.3	1794.6	0.240826 mg/L	0.240826 mg/L	11:39:08
2	Cr 205.557†	3507.7	3338.0	0.254663 mg/L	0.254663 mg/L	11:39:08
2	Cu 327.397†	11094.8	11671.9	0.262604 mg/L	0.262604 mg/L	11:38:48
2	Mn 257.610†	38629.3	36140.0	0.251685 mg/L	0.251685 mg/L	11:38:48
2	Mo 202.031†	2682.1	2424.2	0.252755 mg/L	0.252755 mg/L	11:39:08
2	Ni 231.604†	4190.8	3528.5	0.244245 mg/L	0.244245 mg/L	11:39:08
2	Pb 220.353†	609.2	557.2	0.246219 mg/L	0.246219 mg/L	11:39:08
2	Sb 217.584†	2099.5	2071.8	1.24655 mg/L	1.24655 mg/L	11:39:08
2	Se 196.026†	687.8	705.2	1.24892 mg/L	1.24892 mg/L	11:39:08
2	Si 251.611†	29522.4	12912.7	0.752824 mg/L	0.752824 mg/L	11:38:48
2	Sn 189.927†	3383.8	3199.9	1.34674 mg/L	1.34674 mg/L	11:39:08
2	Tl 190.801†	1169.3	1139.0	1.24943 mg/L	1.24943 mg/L	11:39:08
2	V 292.395†	11814.2	13283.5	0.249330 mg/L	0.249330 mg/L	11:38:48
2	Zn 206.200†	4253.4	4133.2	0.269490 mg/L	0.269490 mg/L	11:39:08

Mean Data: 0909583-bs1

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	254118.6	105.164	%	1.0328				0.98%
Y 360.076	246367.8	105.657	%	0.0099				0.01%
Ag 328.068†	16694.7	0.243906	mg/L	0.0031274	0.243906	mg/L	0.0031274	1.28%
Al 396.153†	4411.6	1.20905	mg/L	0.001673	1.20905	mg/L	0.001673	0.14%
As 188.979†	1137.1	1.23957	mg/L	0.008686	1.23957	mg/L	0.008686	0.70%
B 249.677†	4971.9	0.221396	mg/L	0.0036942	0.221396	mg/L	0.0036942	1.67%
Ba 455.398†	91880.5	0.253259	mg/L	0.0002439	0.253259	mg/L	0.0002439	0.10%
Be 234.861†	6074.1	0.0258181	mg/L	0.00033150	0.0258181	mg/L	0.00033150	1.28%
Ca 315.887†	24662.9	12.7641	mg/L	0.01389	12.7641	mg/L	0.01389	0.11%
Cd 214.437†	10305.4	0.249320	mg/L	0.0037185	0.249320	mg/L	0.0037185	1.49%
Ce 413.764†	-42.1	-0.0040528	mg/L	0.00031293	-0.0040528	mg/L	0.00031293	7.72%
Co 228.616†	1807.5	0.242573	mg/L	0.0024708	0.242573	mg/L	0.0024708	1.02%
Cr 205.557†	3367.9	0.256972	mg/L	0.0032655	0.256972	mg/L	0.0032655	1.27%
Cu 327.397†	11787.0	0.265202	mg/L	0.0036744	0.265202	mg/L	0.0036744	1.39%
Fe 238.204†	408.7	0.267108	mg/L	0.0026113	0.267108	mg/L	0.0026113	0.98%
K 766.490	9210.6	12.7522	mg/L	0.05161	12.7522	mg/L	0.05161	0.40%
Li 670.784†	10047.9	0.252095	mg/L	0.0003464	0.252095	mg/L	0.0003464	0.14%
Mg 279.071†	5732.2	13.0695	mg/L	0.04036	13.0695	mg/L	0.04036	0.31%
Mn 257.610†	36469.2	0.253991	mg/L	0.0032601	0.253991	mg/L	0.0032601	1.28%
Mo 202.031†	2441.3	0.254571	mg/L	0.0025672	0.254571	mg/L	0.0025672	1.01%
Na 589.592†	93177.3	12.8316	mg/L	0.02521	12.8316	mg/L	0.02521	0.20%
Ni 231.604†	3561.3	0.246528	mg/L	0.0032288	0.246528	mg/L	0.0032288	1.31%
Pb 220.353†	566.2	0.250268	mg/L	0.0057266	0.250268	mg/L	0.0057266	2.29%
Sb 217.584†	2093.2	1.25950	mg/L	0.018307	1.25950	mg/L	0.018307	1.45%
Se 196.026†	710.2	1.25787	mg/L	0.012655	1.25787	mg/L	0.012655	1.01%
Si 251.611†	13152.3	0.768624	mg/L	0.0223445	0.768624	mg/L	0.0223445	2.91%
Sn 189.927†	3225.7	1.35772	mg/L	0.015524	1.35772	mg/L	0.015524	1.14%
Sr 407.771†	255345.2	0.254235	mg/L	0.0002826	0.254235	mg/L	0.0002826	0.11%
Ti 334.940†	4817.5	0.259814	mg/L	0.0004388	0.259814	mg/L	0.0004388	0.17%
Tl 190.801†	1147.7	1.25907	mg/L	0.013640	1.25907	mg/L	0.013640	1.08%
V 292.395†	13407.1	0.251674	mg/L	0.0033161	0.251674	mg/L	0.0033161	1.32%
Zn 206.200†	4170.4	0.271945	mg/L	0.0034713	0.271945	mg/L	0.0034713	1.28%

Sequence No.: 16
Sample ID: 0908257-01
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 19
Date Collected: 8/25/2009 11:40:21 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-01

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Y 360.076	247916.1	247916.1	106.321	%			11:41:27
1	Al 396.153†	684964.3	643450.3	174.130	mg/L	174.130	mg/L	11:41:27
1	Ba 455.398†	469994.3	442983.6	1.22663	mg/L	1.22663	mg/L	11:41:27

1	Ca 315.887†	23506.5	21505.1	11.2261 mg/L	11.2261 mg/L	11:41:32
1	Fe 238.204†	322488.0	303239.9	198.070 mg/L	198.070 mg/L	11:41:27
1	K 766.490	5503.1	5066.9	7.00679 mg/L	7.00679 mg/L	11:41:32
1	Li 670.784†	5290.6	3821.9	0.0958999 mg/L	0.0958999 mg/L	11:41:32
1	Mg 279.071†	4286.8	3990.2	9.20512 mg/L	9.20512 mg/L	11:41:32
1	Na 589.592†	2516.9	1214.0	0.140051 mg/L	0.140051 mg/L	11:41:32
1	Sr 407.771†	120459.1	112629.2	0.111115 mg/L	0.111115 mg/L	11:41:27
1	Ti 334.940†	47789.1	44916.1	2.44036 mg/L	2.44036 mg/L	11:41:32
1	Sc 357.234	260962.1	260962.1	107.996 %		11:41:54
1	Ag 328.068†	-6030.2	-6423.2	-0.0742557 mg/L	-0.0742557 mg/L	11:42:14
1	As 188.979†	32.7	68.6	0.0452267 mg/L	0.0452267 mg/L	11:42:14
1	B 249.677†	846.8	-34.4	-0.0125910 mg/L	-0.0125910 mg/L	11:41:54
1	Be 234.861†	19185.6	18754.8	0.0042872 mg/L	0.0042872 mg/L	11:41:49
1	Cd 214.437†	1709.5	1296.1	0.0118434 mg/L	0.0118434 mg/L	11:42:14
1	Ce 413.764†	28571.8	25836.8	0.682425 mg/L	0.682425 mg/L	11:41:54
1	Co 228.616†	597.4	642.0	0.0744981 mg/L	0.0744981 mg/L	11:42:14
1	Cr 205.557†	2999.5	2802.9	0.221106 mg/L	0.221106 mg/L	11:42:14
1	Cu 327.397†	2930.2	3907.9	0.0899940 mg/L	0.0899940 mg/L	11:42:14
1	Mn 257.610†	1888053.7	1747916.3	12.2459 mg/L	12.2459 mg/L	11:41:49
1	Mo 202.031†	128.7	10.6	-0.0022492 mg/L	-0.0022492 mg/L	11:42:14
1	Ni 231.604†	1931.9	1359.8	0.0932517 mg/L	0.0932517 mg/L	11:42:14
1	Pb 220.353†	437.0	386.4	0.199200 mg/L	0.199200 mg/L	11:42:14
1	Sb 217.584†	-1854.7	-1628.2	-0.428683 mg/L	-0.428683 mg/L	11:42:14
1	Se 196.026†	-158.3	-90.9	-0.0859062 mg/L	-0.0859062 mg/L	11:42:14
1	Si 251.611†	260199.7	225967.2	14.7990 mg/L	14.7990 mg/L	11:41:54
1	Sn 189.927†	-2.6	2.1	-0.0111675 mg/L	-0.0111675 mg/L	11:42:14
1	Tl 190.801†	-67.7	-27.9	-0.0152053 mg/L	-0.0152053 mg/L	11:42:14
1	V 292.395†	22405.8	22873.8	0.394927 mg/L	0.394927 mg/L	11:41:54
1	Zn 206.200†	5279.4	5005.0	0.327254 mg/L	0.327254 mg/L	11:42:14
2	Y 360.076	246413.0	246413.0	105.676 %		11:41:37
2	Al 396.153†	678805.5	641552.2	173.617 mg/L	173.617 mg/L	11:41:37
2	Ba 455.398†	464247.7	440242.3	1.21903 mg/L	1.21903 mg/L	11:41:37
2	Ca 315.887†	23543.3	21674.8	11.3140 mg/L	11.3140 mg/L	11:41:42
2	Fe 238.204†	320243.6	302966.4	197.892 mg/L	197.892 mg/L	11:41:37
2	K 766.490	5427.6	4991.5	6.90224 mg/L	6.90224 mg/L	11:41:42
2	Li 670.784†	5210.3	3776.3	0.0947551 mg/L	0.0947551 mg/L	11:41:42
2	Mg 279.071†	4315.5	4042.0	9.32448 mg/L	9.32448 mg/L	11:41:42
2	Na 589.592†	2497.6	1210.2	0.139530 mg/L	0.139530 mg/L	11:41:42
2	Sr 407.771†	119066.9	112002.9	0.110489 mg/L	0.110489 mg/L	11:41:37
2	Ti 334.940†	47791.4	45192.4	2.45539 mg/L	2.45539 mg/L	11:41:42
2	Sc 357.234	259290.7	259290.7	107.305 %		11:42:25
2	Ag 328.068†	-6016.1	-6446.0	-0.0746219 mg/L	-0.0746219 mg/L	11:42:45
2	As 188.979†	38.7	74.4	0.0516191 mg/L	0.0516191 mg/L	11:42:45
2	B 249.677†	862.7	-14.5	-0.0116752 mg/L	-0.0116752 mg/L	11:42:25
2	Be 234.861†	19214.0	18895.8	0.0049674 mg/L	0.0049674 mg/L	11:42:20
2	Cd 214.437†	1706.7	1303.7	0.0120661 mg/L	0.0120661 mg/L	11:42:45
2	Ce 413.764†	28191.1	25652.5	0.677656 mg/L	0.677656 mg/L	11:42:25
2	Co 228.616†	590.7	639.3	0.0740901 mg/L	0.0740901 mg/L	11:42:45
2	Cr 205.557†	2987.4	2809.5	0.221606 mg/L	0.221606 mg/L	11:42:45
2	Cu 327.397†	2917.2	3913.3	0.0901402 mg/L	0.0901402 mg/L	11:42:45
2	Mn 257.610†	1894029.9	1764755.2	12.3638 mg/L	12.3638 mg/L	11:42:20
2	Mo 202.031†	136.0	18.2	-0.0014470 mg/L	-0.0014470 mg/L	11:42:45
2	Ni 231.604†	1901.4	1342.9	0.0920780 mg/L	0.0920780 mg/L	11:42:45
2	Pb 220.353†	434.1	386.4	0.199099 mg/L	0.199099 mg/L	11:42:45
2	Sb 217.584†	-1845.2	-1630.4	-0.430603 mg/L	-0.430603 mg/L	11:42:45
2	Se 196.026†	-161.8	-95.1	-0.0934894 mg/L	-0.0934894 mg/L	11:42:45
2	Si 251.611†	258112.5	225575.2	14.7727 mg/L	14.7727 mg/L	11:42:25
2	Sn 189.927†	-8.2	-3.2	-0.0133986 mg/L	-0.0133986 mg/L	11:42:45
2	Tl 190.801†	-62.3	-23.3	-0.0099830 mg/L	-0.0099830 mg/L	11:42:45
2	V 292.395†	22208.2	22823.3	0.393999 mg/L	0.393999 mg/L	11:42:25
2	Zn 206.200†	5249.3	5008.4	0.327476 mg/L	0.327476 mg/L	11:42:45

Mean Data: 0908257-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 357.234	260126.4	107.651	%	0.4891				0.45%
Y 360.076	247164.5	105.999	%	0.4558				0.43%
Ag 328.068†	-6434.6	-0.0744388	mg/L	0.00025896	-0.0744388	mg/L	0.00025896	0.35%
Al 396.153†	642501.2	173.873	mg/L	0.3631	173.873	mg/L	0.3631	0.21%
As 188.979†	71.5	0.0484229	mg/L	0.00452013	0.0484229	mg/L	0.00452013	9.33%

OA 82805

B 249.677†	-24.4	-0.0121331 mg/L	0.00064758	-0.0121331 mg/L	0.00064758	5.34%
Ba 455.398†	441613.0	1.22283 mg/L	0.005374	1.22283 mg/L	0.005374	0.44%
Be 234.861†	18825.3	0.0046273 mg/L	0.00048102	0.0046273 mg/L	0.00048102	10.40%
Ca 315.887†	21590.0	11.2700 mg/L	0.06216	11.2700 mg/L	0.06216	0.55%
Cd 214.437†	1299.9	0.0119547 mg/L	0.00015749	0.0119547 mg/L	0.00015749	1.32%
Ce 413.764†	25744.6	0.680040 mg/L	0.0033718	0.680040 mg/L	0.0033718	0.50%
Co 228.616†	640.6	0.0742941 mg/L	0.00028849	0.0742941 mg/L	0.00028849	0.39%
Cr 205.557†	2806.2	0.221356 mg/L	0.0003534	0.221356 mg/L	0.0003534	0.16%
Cu 327.397†	3910.6	0.0900671 mg/L	0.00010335	0.0900671 mg/L	0.00010335	0.11%
Fe 238.204†	303103.1	197.981 mg/L	0.1263	197.981 mg/L	0.1263	0.06%
K 766.490	5029.2	6.95452 mg/L	0.073931	6.95452 mg/L	0.073931	1.06%
Li 670.784†	3799.1	0.0953275 mg/L	0.00080949	0.0953275 mg/L	0.00080949	0.85%
Mg 279.071†	4016.1	9.26480 mg/L	0.084400	9.26480 mg/L	0.084400	0.91%
Mn 257.610†	1756335.8	12.3048 mg/L	0.08336	12.3048 mg/L	0.08336	0.68%
Mo 202.031†	14.4	-0.0018481 mg/L	0.00056724	-0.0018481 mg/L	0.00056724	30.69%
Na 589.592†	1212.1	0.139790 mg/L	0.0003686	0.139790 mg/L	0.0003686	0.26%
Ni 231.604†	1351.4	0.0926648 mg/L	0.00082993	0.0926648 mg/L	0.00082993	0.90%
Pb 220.353†	386.4	0.199149 mg/L	0.0000714	0.199149 mg/L	0.0000714	0.04%
Sb 217.584†	-1629.3	-0.429643 mg/L	0.0013572	-0.429643 mg/L	0.0013572	0.32%
Se 196.026†	-93.0	-0.0896978 mg/L	0.00536214	-0.0896978 mg/L	0.00536214	5.98%
Si 251.611†	225771.2	14.7858 mg/L	0.01860	14.7858 mg/L	0.01860	0.13%
Sn 189.927†	-0.6	-0.0122830 mg/L	0.00157763	-0.0122830 mg/L	0.00157763	12.84%
Sr 407.771†	112316.1	0.110802 mg/L	0.0004429	0.110802 mg/L	0.0004429	0.40%
Ti 334.940†	45054.3	2.44788 mg/L	0.010629	2.44788 mg/L	0.010629	0.43%
Tl 190.801†	-25.6	-0.0125941 mg/L	0.00369274	-0.0125941 mg/L	0.00369274	29.32%
V 292.395†	22848.6	0.394463 mg/L	0.0006560	0.394463 mg/L	0.0006560	0.17%
Zn 206.200†	5006.7	0.327365 mg/L	0.0001570	0.327365 mg/L	0.0001570	0.05%

Sequence No.: 17
Sample ID: 0908257-02
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 20
Date Collected: 8/25/2009 11:44:05 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-02

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	247813.3	247813.3	106.277	%			11:45:10
1	Al 396.153†	557908.9	524166.1	141.849	mg/L	141.849	mg/L	11:45:10
1	Ba 455.398†	151588.1	143566.0	0.396611	mg/L	0.396611	mg/L	11:45:10
1	Ca 315.887†	693.4	48.6	0.132306	mg/L	0.132306	mg/L	11:45:30
1	Fe 238.204†	336375.3	316432.9	206.689	mg/L	206.689	mg/L	11:45:10
1	K 766.490	7630.1	7194.0	9.95606	mg/L	9.95606	mg/L	11:45:30
1	Li 670.784†	5224.7	3762.1	0.0943980	mg/L	0.0943980	mg/L	11:45:30
1	Mg 279.071†	4727.1	4406.2	10.0701	mg/L	10.0701	mg/L	11:45:30
1	Na 589.592†	1942.5	674.5	0.0656002	mg/L	0.0656002	mg/L	11:45:30
1	Sr 407.771†	12711.6	11292.3	0.0096641	mg/L	0.0096641	mg/L	11:45:30
1	Ti 334.940†	74166.2	69754.0	3.79078	mg/L	3.79078	mg/L	11:45:10
1	Sc 357.234	265748.1	265748.1	109.977	%			11:46:02
1	Ag 328.068†	-6536.2	-6782.7	-0.0796711	mg/L	-0.0796711	mg/L	11:46:22
1	As 188.979†	6.0	43.8	0.0148197	mg/L	0.0148197	mg/L	11:46:22
1	B 249.677†	682.8	-197.6	-0.0211522	mg/L	-0.0211522	mg/L	11:46:02
1	Be 234.861†	19789.7	18984.2	0.0022222	mg/L	0.0022222	mg/L	11:46:02
1	Cd 214.437†	1659.4	1222.1	0.0115450	mg/L	0.0115450	mg/L	11:46:22
1	Ce 413.764†	16727.4	14590.4	0.393253	mg/L	0.393253	mg/L	11:46:02
1	Co 228.616†	793.9	810.7	0.0930987	mg/L	0.0930987	mg/L	11:46:22
1	Cr 205.557†	1470.3	1362.4	0.110331	mg/L	0.110331	mg/L	11:46:22
1	Cu 327.397†	1618.1	2666.0	0.0632441	mg/L	0.0632441	mg/L	11:46:22
1	Mn 257.610†	476635.2	433056.1	3.03995	mg/L	3.03995	mg/L	11:46:02
1	Mo 202.031†	98.1	-19.4	-0.0054129	mg/L	-0.0054129	mg/L	11:46:22
1	Ni 231.604†	1475.6	912.7	0.0622632	mg/L	0.0622632	mg/L	11:46:22
1	Pb 220.353†	188.5	153.3	0.0905434	mg/L	0.0905434	mg/L	11:46:22
1	Sb 217.584†	-1895.1	-1634.0	-0.418461	mg/L	-0.418461	mg/L	11:46:22
1	Se 196.026†	-186.3	-113.7	-0.124344	mg/L	-0.124344	mg/L	11:46:22
1	Si 251.611†	223804.1	188534.4	12.2955	mg/L	12.2955	mg/L	11:46:02
1	Sn 189.927†	-4.7	0.2	-0.0119746	mg/L	-0.0119746	mg/L	11:46:22
1	Tl 190.801†	-76.0	-34.4	-0.0153709	mg/L	-0.0153709	mg/L	11:46:22
1	V 292.395†	20975.2	21199.3	0.360956	mg/L	0.360956	mg/L	11:46:02
1	Zn 206.200†	4669.5	4362.4	0.284840	mg/L	0.284840	mg/L	11:46:22

2	Y 360.076	248629.2	248629.2	106.627 %			11:45:35
2	Al 396.153†	557183.4	521762.9	141.198 mg/L	141.198	mg/L	11:45:35
2	Ba 455.398†	151432.3	142951.9	0.394908 mg/L	0.394908	mg/L	11:45:35
2	Ca 315.887†	688.8	42.1	0.128985 mg/L	0.128985	mg/L	11:45:55
2	Fe 238.204†	337758.1	316691.0	206.858 mg/L	206.858	mg/L	11:45:35
2	K 766.490	7560.9	7124.8	9.86011 mg/L	9.86011	mg/L	11:45:55
2	Li 670.784†	5245.2	3765.1	0.0944737 mg/L	0.0944737	mg/L	11:45:55
2	Mg 279.071†	4720.4	4385.3	10.0222 mg/L	10.0222	mg/L	11:45:55
2	Na 589.592†	1929.5	656.3	0.0630870 mg/L	0.0630870	mg/L	11:45:55
2	Sr 407.771†	12644.1	11189.8	0.0095615 mg/L	0.0095615	mg/L	11:45:55
2	Ti 334.940†	74499.2	69837.3	3.79531 mg/L	3.79531	mg/L	11:45:35
2	Sc 357.234	266594.3	266594.3	110.327 %			11:46:27
2	Ag 328.068†	-6476.6	-6709.8	-0.0785901 mg/L	-0.0785901	mg/L	11:46:48
2	As 188.979†	16.5	53.3	0.0252849 mg/L	0.0252849	mg/L	11:46:48
2	B 249.677†	692.6	-190.7	-0.0208377 mg/L	-0.0208377	mg/L	11:46:27
2	Be 234.861†	19831.2	18964.6	0.0020781 mg/L	0.0020781	mg/L	11:46:27
2	Cd 214.437†	1649.9	1208.6	0.0112446 mg/L	0.0112446	mg/L	11:46:48
2	Ce 413.764†	16766.5	14577.5	0.392937 mg/L	0.392937	mg/L	11:46:27
2	Co 228.616†	811.1	824.0	0.0948819 mg/L	0.0948819	mg/L	11:46:48
2	Cr 205.557†	1489.1	1375.2	0.111326 mg/L	0.111326	mg/L	11:46:48
2	Cu 327.397†	1623.6	2666.4	0.0632555 mg/L	0.0632555	mg/L	11:46:48
2	Mn 257.610†	477203.4	432195.3	3.03393 mg/L	3.03393	mg/L	11:46:27
2	Mo 202.031†	89.1	-27.8	-0.0063059 mg/L	-0.0063059	mg/L	11:46:48
2	Ni 231.604†	1472.8	905.9	0.0617878 mg/L	0.0617878	mg/L	11:46:48
2	Pb 220.353†	179.4	144.4	0.0864916 mg/L	0.0864916	mg/L	11:46:48
2	Sb 217.584†	-1898.5	-1631.6	-0.416693 mg/L	-0.416693	mg/L	11:46:48
2	Se 196.026†	-160.5	-89.7	-0.0812483 mg/L	-0.0812483	mg/L	11:46:48
2	Si 251.611†	223133.6	187280.6	12.2127 mg/L	12.2127	mg/L	11:46:27
2	Sn 189.927†	11.0	14.4	-0.0059286 mg/L	-0.0059286	mg/L	11:46:48
2	Tl 190.801†	-97.3	-53.4	-0.0363290 mg/L	-0.0363290	mg/L	11:46:48
2	V 292.395†	20864.0	21038.0	0.357876 mg/L	0.357876	mg/L	11:46:27
2	Zn 206.200†	4640.0	4322.2	0.282186 mg/L	0.282186	mg/L	11:46:48

Mean Data: 0908257-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	266171.2	110.152	%	0.2476				0.22%
Y 360.076	248221.3	106.452	%	0.2474				0.23%
Ag 328.068†	-6746.3	-0.0791306	mg/L	0.00076442	-0.0791306	mg/L	0.00076442	0.97%
Al 396.153†	522964.5	141.524	mg/L	0.4598	141.524	mg/L	0.4598	0.32%
As 188.979†	48.5	0.0200523	mg/L	0.00740001	0.0200523	mg/L	0.00740001	36.90%
B 249.677†	-194.2	-0.0209950	mg/L	0.00022238	-0.0209950	mg/L	0.00022238	1.06%
Ba 455.398†	143259.0	0.395759	mg/L	0.0012038	0.395759	mg/L	0.0012038	0.30%
Be 234.861†	18974.4	0.0021501	mg/L	0.00010190	0.0021501	mg/L	0.00010190	4.74%
Ca 315.887†	45.4	0.130646	mg/L	0.0023483	0.130646	mg/L	0.0023483	1.80%
Cd 214.437†	1215.4	0.0113948	mg/L	0.00021238	0.0113948	mg/L	0.00021238	1.86%
Ce 413.764†	14583.9	0.393095	mg/L	0.0002235	0.393095	mg/L	0.0002235	0.06%
Co 228.616†	817.3	0.0939903	mg/L	0.00126095	0.0939903	mg/L	0.00126095	1.34%
Cr 205.557†	1368.8	0.110829	mg/L	0.0007037	0.110829	mg/L	0.0007037	0.63%
Cu 327.397†	2666.2	0.0632498	mg/L	0.00000811	0.0632498	mg/L	0.00000811	0.01%
Fe 238.204†	316562.0	206.773	mg/L	0.1192	206.773	mg/L	0.1192	0.06%
K 766.490	7159.4	9.90808	mg/L	0.067847	9.90808	mg/L	0.067847	0.68%
Li 670.784†	3763.6	0.0944359	mg/L	0.00005354	0.0944359	mg/L	0.00005354	0.06%
Mg 279.071†	4395.8	10.0461	mg/L	0.03386	10.0461	mg/L	0.03386	0.34%
Mn 257.610†	432625.7	3.03694	mg/L	0.004256	3.03694	mg/L	0.004256	0.14%
Mo 202.031†	-23.6	-0.0058594	mg/L	0.00063145	-0.0058594	mg/L	0.00063145	10.78%
Na 589.592†	665.4	0.0643436	mg/L	0.00177711	0.0643436	mg/L	0.00177711	2.76%
Ni 231.604†	909.3	0.0620255	mg/L	0.00033621	0.0620255	mg/L	0.00033621	0.54%
Pb 220.353†	148.8	0.0885175	mg/L	0.00286503	0.0885175	mg/L	0.00286503	3.24%
Sb 217.584†	-1632.8	-0.417577	mg/L	0.0012502	-0.417577	mg/L	0.0012502	0.30%
Se 196.026†	-101.7	-0.102796	mg/L	0.0304731	-0.102796	mg/L	0.0304731	29.64%
Si 251.611†	187907.5	12.2541	mg/L	0.05855	12.2541	mg/L	0.05855	0.48%
Sn 189.927†	7.3	-0.0089516	mg/L	0.00427510	-0.0089516	mg/L	0.00427510	47.76%
Sr 407.771†	11241.0	0.0096128	mg/L	0.00007258	0.0096128	mg/L	0.00007258	0.76%
Ti 334.940†	69795.7	3.79305	mg/L	0.003200	3.79305	mg/L	0.003200	0.08%
Tl 190.801†	-43.9	-0.0258500	mg/L	0.01481961	-0.0258500	mg/L	0.01481961	57.33%
V 292.395†	21118.7	0.359416	mg/L	0.0021778	0.359416	mg/L	0.0021778	0.61%
Zn 206.200†	4342.3	0.283513	mg/L	0.0018771	0.283513	mg/L	0.0018771	0.66%

Sequence No.: 18
Sample ID: 0908257-03
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 21
Date Collected: 8/25/2009 11:48:02 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-03

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	244054.7	244054.7	104.665	%			11:49:10
1	Al 396.153†	621604.9	593107.9	160.503	mg/L	160.503	mg/L	11:49:10
1	Ba 455.398†	155563.3	149560.8	0.413241	mg/L	0.413241	mg/L	11:49:10
1	Ca 315.887†	758.2	120.5	0.170487	mg/L	0.170487	mg/L	11:49:30
1	Fe 238.204†	344693.6	329254.9	215.064	mg/L	215.064	mg/L	11:49:10
1	K 766.490	7894.3	7458.2	10.3224	mg/L	10.3224	mg/L	11:49:30
1	Li 670.784†	5635.1	4229.9	0.106134	mg/L	0.106134	mg/L	11:49:30
1	Mg 279.071†	4859.0	4600.7	10.5135	mg/L	10.5135	mg/L	11:49:30
1	Na 589.592†	1977.6	736.3	0.0741180	mg/L	0.0741180	mg/L	11:49:30
1	Sr 407.771†	13746.0	12464.8	0.0108249	mg/L	0.0108249	mg/L	11:49:30
1	Ti 334.940†	81442.7	77781.0	4.22729	mg/L	4.22729	mg/L	11:49:10
1	Sc 357.234	260312.6	260312.6	107.728	%			11:50:02
1	Ag 328.068†	-6657.5	-7019.4	-0.0822012	mg/L	-0.0822012	mg/L	11:50:22
1	As 188.979†	17.4	54.4	0.0237131	mg/L	0.0237131	mg/L	11:50:22
1	B 249.677†	785.3	-89.6	-0.0164258	mg/L	-0.0164258	mg/L	11:50:02
1	Be 234.861†	20118.4	19665.0	0.0018571	mg/L	0.0018571	mg/L	11:50:02
1	Cd 214.437†	1719.4	1309.3	0.0123365	mg/L	0.0123365	mg/L	11:50:22
1	Ce 413.764†	18935.1	16957.3	0.455110	mg/L	0.455110	mg/L	11:50:02
1	Co 228.616†	822.5	852.3	0.0972599	mg/L	0.0972599	mg/L	11:50:22
1	Cr 205.557†	1514.8	1431.7	0.115990	mg/L	0.115990	mg/L	11:50:22
1	Cu 327.397†	1867.6	2928.3	0.0697173	mg/L	0.0697173	mg/L	11:50:22
1	Mn 257.610†	439087.9	407251.7	2.85965	mg/L	2.85965	mg/L	11:50:02
1	Mo 202.031†	92.3	-22.9	-0.0057845	mg/L	-0.0057845	mg/L	11:50:22
1	Ni 231.604†	1552.7	1012.2	0.0691602	mg/L	0.0691602	mg/L	11:50:22
1	Pb 220.353†	199.6	167.2	0.100004	mg/L	0.100004	mg/L	11:50:22
1	Sb 217.584†	-1950.7	-1721.6	-0.445088	mg/L	-0.445088	mg/L	11:50:22
1	Se 196.026†	-173.6	-105.5	-0.105442	mg/L	-0.105442	mg/L	11:50:22
1	Si 251.611†	238997.5	206887.1	13.4969	mg/L	13.4969	mg/L	11:50:02
1	Sn 189.927†	-1.2	3.3	-0.0106291	mg/L	-0.0106291	mg/L	11:50:22
1	Tl 190.801†	-97.0	-55.3	-0.0349769	mg/L	-0.0349769	mg/L	11:50:22
1	V 292.395†	21562.8	22143.0	0.377059	mg/L	0.377059	mg/L	11:50:02
1	Zn 206.200†	4890.1	4655.8	0.304202	mg/L	0.304202	mg/L	11:50:22
2	Y 360.076	244276.0	244276.0	104.760	%			11:49:35
2	Al 396.153†	621080.0	592068.8	160.222	mg/L	160.222	mg/L	11:49:35
2	Ba 455.398†	155426.9	149295.9	0.412507	mg/L	0.412507	mg/L	11:49:35
2	Ca 315.887†	765.3	126.7	0.173823	mg/L	0.173823	mg/L	11:49:55
2	Fe 238.204†	346136.9	330334.3	215.769	mg/L	215.769	mg/L	11:49:35
2	K 766.490	7893.7	7457.6	10.3215	mg/L	10.3215	mg/L	11:49:55
2	Li 670.784†	5649.5	4238.7	0.106357	mg/L	0.106357	mg/L	11:49:55
2	Mg 279.071†	4858.4	4596.0	10.5028	mg/L	10.5028	mg/L	11:49:55
2	Na 589.592†	2016.4	771.6	0.0789937	mg/L	0.0789937	mg/L	11:49:55
2	Sr 407.771†	13830.7	12533.7	0.0108939	mg/L	0.0108939	mg/L	11:49:55
2	Ti 334.940†	81616.6	77876.4	4.23248	mg/L	4.23248	mg/L	11:49:35
2	Sc 357.234	261777.2	261777.2	108.334	%			11:50:27
2	Ag 328.068†	-6669.7	-6996.1	-0.0817944	mg/L	-0.0817944	mg/L	11:50:47
2	As 188.979†	22.9	59.5	0.0292267	mg/L	0.0292267	mg/L	11:50:47
2	B 249.677†	714.1	-159.4	-0.0196760	mg/L	-0.0196760	mg/L	11:50:27
2	Be 234.861†	20165.5	19604.0	0.0013277	mg/L	0.0013277	mg/L	11:50:27
2	Cd 214.437†	1724.9	1305.4	0.0122300	mg/L	0.0122300	mg/L	11:50:47
2	Ce 413.764†	19047.3	16962.6	0.455316	mg/L	0.455316	mg/L	11:50:27
2	Co 228.616†	820.5	846.2	0.0964067	mg/L	0.0964067	mg/L	11:50:47
2	Cr 205.557†	1506.4	1416.0	0.114810	mg/L	0.114810	mg/L	11:50:47
2	Cu 327.397†	1867.5	2918.5	0.0695047	mg/L	0.0695047	mg/L	11:50:47
2	Mn 257.610†	441979.6	407640.6	2.86240	mg/L	2.86240	mg/L	11:50:27
2	Mo 202.031†	108.4	-8.5	-0.0042671	mg/L	-0.0042671	mg/L	11:50:47
2	Ni 231.604†	1568.1	1018.4	0.0695920	mg/L	0.0695920	mg/L	11:50:47
2	Pb 220.353†	212.7	178.2	0.104885	mg/L	0.104885	mg/L	11:50:47
2	Sb 217.584†	-1942.6	-1704.0	-0.432589	mg/L	-0.432589	mg/L	11:50:47
2	Se 196.026†	-175.9	-106.7	-0.107309	mg/L	-0.107309	mg/L	11:50:47
2	Si 251.611†	240374.0	206916.5	13.4988	mg/L	13.4988	mg/L	11:50:27
2	Sn 189.927†	7.6	11.4	-0.0071960	mg/L	-0.0071960	mg/L	11:50:47

2	Tl 190.801†	-91.7	-49.9	-0.0289726 mg/L	-0.0289726 mg/L	11:50:47
2	V 292.395†	21712.4	22169.1	0.377447 mg/L	0.377447 mg/L	11:50:27
2	Zn 206.200†	4903.1	4642.5	0.303322 mg/L	0.303322 mg/L	11:50:47

Mean Data: 0908257-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	261044.9	108.031	%	0.4286				0.40%
Y 360.076	244165.4	104.712	%	0.0671				0.06%
Ag 328.068†	-7007.7	-0.0819978	mg/L	0.00028768	-0.0819978	mg/L	0.00028768	0.35%
Al 396.153†	592588.3	160.363	mg/L	0.1988	160.363	mg/L	0.1988	0.12%
As 188.979†	57.0	0.0264699	mg/L	0.00389871	0.0264699	mg/L	0.00389871	14.73%
B 249.677†	-124.5	-0.0180509	mg/L	0.00229829	-0.0180509	mg/L	0.00229829	12.73%
Ba 455.398†	149428.3	0.412874	mg/L	0.0005192	0.412874	mg/L	0.0005192	0.13%
Be 234.861†	19634.5	0.0015924	mg/L	0.00037440	0.0015924	mg/L	0.00037440	23.51%
Ca 315.887†	123.6	0.172155	mg/L	0.0023585	0.172155	mg/L	0.0023585	1.37%
Cd 214.437†	1307.3	0.0122832	mg/L	0.00007535	0.0122832	mg/L	0.00007535	0.61%
Ce 413.764†	16959.9	0.455213	mg/L	0.0001456	0.455213	mg/L	0.0001456	0.03%
Co 228.616†	849.3	0.0968333	mg/L	0.00060330	0.0968333	mg/L	0.00060330	0.62%
Cr 205.557†	1423.8	0.115400	mg/L	0.0008340	0.115400	mg/L	0.0008340	0.72%
Cu 327.397†	2923.4	0.0696110	mg/L	0.00015032	0.0696110	mg/L	0.00015032	0.22%
Fe 238.204†	329794.6	215.416	mg/L	0.4986	215.416	mg/L	0.4986	0.23%
K 766.490	7457.9	10.3219	mg/L	0.00058	10.3219	mg/L	0.00058	0.01%
Li 670.784†	4234.3	0.106245	mg/L	0.0001578	0.106245	mg/L	0.0001578	0.15%
Mg 279.071†	4598.4	10.5082	mg/L	0.00762	10.5082	mg/L	0.00762	0.07%
Mn 257.610†	407446.1	2.86103	mg/L	0.001948	2.86103	mg/L	0.001948	0.07%
Mo 202.031†	-15.7	-0.0050258	mg/L	0.00107295	-0.0050258	mg/L	0.00107295	21.35%
Na 589.592†	753.9	0.0765559	mg/L	0.00344766	0.0765559	mg/L	0.00344766	4.50%
Ni 231.604†	1015.3	0.0693761	mg/L	0.00030533	0.0693761	mg/L	0.00030533	0.44%
Pb 220.353†	172.7	0.102444	mg/L	0.0034514	0.102444	mg/L	0.0034514	3.37%
Sb 217.584†	-1712.8	-0.438839	mg/L	0.0088379	-0.438839	mg/L	0.0088379	2.01%
Se 196.026†	-106.1	-0.106375	mg/L	0.0013204	-0.106375	mg/L	0.0013204	1.24%
Si 251.611†	206901.8	13.4978	mg/L	0.00138	13.4978	mg/L	0.00138	0.01%
Sn 189.927†	7.4	-0.0089126	mg/L	0.00242754	-0.0089126	mg/L	0.00242754	27.24%
Sr 407.771†	12499.3	0.0108594	mg/L	0.00004877	0.0108594	mg/L	0.00004877	0.45%
Ti 334.940†	77828.7	4.22989	mg/L	0.003671	4.22989	mg/L	0.003671	0.09%
Tl 190.801†	-52.6	-0.0319747	mg/L	0.00424571	-0.0319747	mg/L	0.00424571	13.28%
V 292.395†	22156.1	0.377253	mg/L	0.0002750	0.377253	mg/L	0.0002750	0.07%
Zn 206.200†	4649.1	0.303762	mg/L	0.0006223	0.303762	mg/L	0.0006223	0.20%

Sequence No.: 19
Sample ID: 0908257-04
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 22
Date Collected: 8/25/2009 11:52:02 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-04

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	246597.9	246597.9	105.755	%			11:53:08
1	Al 396.153†	1220596.7	1153376.1	312.107	mg/L	312.107	mg/L	11:53:08
1	Ba 455.398†	309504.3	293591.1	0.812471	mg/L	0.812471	mg/L	11:53:08
1	Ca 315.887†	9793.9	8657.0	4.59731	mg/L	4.59731	mg/L	11:53:13
1	Fe 238.204†	566054.1	535172.0	349.564	mg/L	349.564	mg/L	11:53:08
1	K 766.490	7919.5	7483.4	10.3573	mg/L	10.3573	mg/L	11:53:13
1	Li 670.784†	8927.7	7287.8	0.182850	mg/L	0.182850	mg/L	11:53:13
1	Mg 279.071†	5704.7	5352.6	12.2231	mg/L	12.2231	mg/L	11:53:13
1	Na 589.592†	2634.7	1338.1	0.157174	mg/L	0.157174	mg/L	11:53:13
1	Sr 407.771†	42619.0	39631.0	0.0380472	mg/L	0.0380472	mg/L	11:53:13
1	Ti 334.940†	58616.3	55394.3	3.00998	mg/L	3.00998	mg/L	11:53:13
1	Sc 357.234	266439.1	266439.1	110.263	%			11:53:31
1	Ag 328.068†	-11398.9	-11177.4	-0.130493	mg/L	-0.130493	mg/L	11:53:31
1	As 188.979†	50.6	84.2	0.0623246	mg/L	0.0623246	mg/L	11:53:51
1	B 249.677†	833.0	-63.0	-0.0142097	mg/L	-0.0142097	mg/L	11:53:31
1	Be 234.861†	33454.1	31330.1	0.0001383	mg/L	0.0001383	mg/L	11:53:31
1	Cd 214.437†	2793.3	2246.5	0.0214800	mg/L	0.0214800	mg/L	11:53:51
1	Ce 413.764†	17877.5	15594.0	0.433161	mg/L	0.433161	mg/L	11:53:31
1	Co 228.616†	385.9	438.8	0.0418841	mg/L	0.0418841	mg/L	11:53:51

1	Cr 205.557†	3677.7	3360.9	0.269873 mg/L	0.269873 mg/L	11:53:51
1	Cu 327.397†	4611.2	5376.7	0.123818 mg/L	0.123818 mg/L	11:53:51
1	Mn 257.610†	356722.0	323180.1	2.27698 mg/L	2.27698 mg/L	11:53:31
1	Mo 202.031†	106.1	-12.4	-0.0046743 mg/L	-0.0046743 mg/L	11:53:51
1	Ni 231.604†	2065.0	1443.7	0.0991385 mg/L	0.0991385 mg/L	11:53:51
1	Pb 220.353†	429.1	371.0	0.215468 mg/L	0.215468 mg/L	11:53:51
1	Sb 217.584†	-3141.2	-2759.7	-0.679212 mg/L	-0.679212 mg/L	11:53:51
1	Se 196.026†	-244.7	-166.3	-0.153129 mg/L	-0.153129 mg/L	11:53:51
1	Si 251.611†	378174.6	328008.6	21.5498 mg/L	21.5498 mg/L	11:53:31
1	Sn 189.927†	1.7	5.9	-0.0095195 mg/L	-0.0095195 mg/L	11:53:51
1	Tl 190.801†	-92.7	-49.3	-0.0361804 mg/L	-0.0361804 mg/L	11:53:51
1	V 292.395†	39732.8	38161.5	0.658713 mg/L	0.658713 mg/L	11:53:31
1	Zn 206.200†	7371.6	6802.0	0.445736 mg/L	0.445736 mg/L	11:53:51
2	Y 360.076	244994.8	244994.8	105.068 %		11:53:19
2	Al 396.153†	1215798.1	1156360.7	312.914 mg/L	312.914 mg/L	11:53:19
2	Ba 455.398†	307946.5	294023.3	0.813668 mg/L	0.813668 mg/L	11:53:19
2	Ca 315.887†	9791.6	8715.4	4.62771 mg/L	4.62771 mg/L	11:53:24
2	Fe 238.204†	564283.0	536988.5	350.750 mg/L	350.750 mg/L	11:53:19
2	K 766.490	7866.7	7430.5	10.2840 mg/L	10.2840 mg/L	11:53:24
2	Li 670.784†	8892.0	7309.0	0.183384 mg/L	0.183384 mg/L	11:53:24
2	Mg 279.071†	5704.5	5387.6	12.3032 mg/L	12.3032 mg/L	11:53:24
2	Na 589.592†	2644.2	1363.4	0.160674 mg/L	0.160674 mg/L	11:53:24
2	Sr 407.771†	42371.7	39659.3	0.0380758 mg/L	0.0380758 mg/L	11:53:24
2	Ti 334.940†	58511.1	55656.9	3.02426 mg/L	3.02426 mg/L	11:53:24
2	Sc 357.234	263042.7	263042.7	108.857 %		11:53:56
2	Ag 328.068†	-11360.2	-11275.3	-0.131820 mg/L	-0.131820 mg/L	11:53:56
2	As 188.979†	24.2	60.5	0.0361722 mg/L	0.0361722 mg/L	11:54:16
2	B 249.677†	806.3	-77.9	-0.0149099 mg/L	-0.0149099 mg/L	11:53:56
2	Be 234.861†	32989.6	31295.1	-0.0004688 mg/L	-0.0004688 mg/L	11:53:56
2	Cd 214.437†	2797.6	2283.2	0.0222846 mg/L	0.0222846 mg/L	11:54:16
2	Ce 413.764†	17591.5	15540.6	0.431900 mg/L	0.431900 mg/L	11:53:56
2	Co 228.616†	379.7	437.6	0.0416490 mg/L	0.0416490 mg/L	11:54:16
2	Cr 205.557†	3674.7	3401.2	0.273028 mg/L	0.273028 mg/L	11:54:16
2	Cu 327.397†	4617.6	5436.5	0.125189 mg/L	0.125189 mg/L	11:54:16
2	Mn 257.610†	352541.2	323516.7	2.27938 mg/L	2.27938 mg/L	11:53:56
2	Mo 202.031†	89.4	-26.4	-0.0061604 mg/L	-0.0061604 mg/L	11:54:16
2	Ni 231.604†	2040.2	1445.1	0.0992306 mg/L	0.0992306 mg/L	11:54:16
2	Pb 220.353†	428.4	375.4	0.217565 mg/L	0.217565 mg/L	11:54:16
2	Sb 217.584†	-3165.5	-2818.8	-0.711670 mg/L	-0.711670 mg/L	11:54:16
2	Se 196.026†	-234.2	-159.4	-0.140367 mg/L	-0.140367 mg/L	11:54:16
2	Si 251.611†	373805.1	328423.1	21.5770 mg/L	21.5770 mg/L	11:53:56
2	Sn 189.927†	14.8	18.0	-0.0043958 mg/L	-0.0043958 mg/L	11:54:16
2	Tl 190.801†	-105.1	-61.8	-0.0498876 mg/L	-0.0498876 mg/L	11:54:16
2	V 292.395†	39260.7	38193.1	0.659096 mg/L	0.659096 mg/L	11:53:56
2	Zn 206.200†	7401.9	6916.1	0.453270 mg/L	0.453270 mg/L	11:54:16

Mean Data: 0908257-04

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	264740.9	109.560	%	0.9939				0.91%
Y 360.076	245796.4	105.412	%	0.4861				0.46%
Ag 328.068†	-11226.3	-0.131156	mg/L	0.0009388	-0.131156	mg/L	0.0009388	0.72%
Al 396.153†	1154868.4	312.510	mg/L	0.5711	312.510	mg/L	0.5711	0.18%
As 188.979†	72.4	0.0492484	mg/L	0.01849257	0.0492484	mg/L	0.01849257	37.55%
B 249.677†	-70.4	-0.0145598	mg/L	0.00049516	-0.0145598	mg/L	0.00049516	3.40%
Ba 455.398†	293807.2	0.813070	mg/L	0.0008471	0.813070	mg/L	0.0008471	0.10%
Be 234.861†	31312.6	-0.0001653	mg/L	0.00042929	-0.0001653	mg/L	0.00042929	259.77%
Ca 315.887†	8686.2	4.61251	mg/L	0.021494	4.61251	mg/L	0.021494	0.47%
Cd 214.437†	2264.9	0.0218823	mg/L	0.00056894	0.0218823	mg/L	0.00056894	2.60%
Ce 413.764†	15567.3	0.432531	mg/L	0.0008915	0.432531	mg/L	0.0008915	0.21%
Co 228.616†	438.2	0.0417666	mg/L	0.00016624	0.0417666	mg/L	0.00016624	0.40%
Cr 205.557†	3381.0	0.271451	mg/L	0.0022310	0.271451	mg/L	0.0022310	0.82%
Cu 327.397†	5406.6	0.124503	mg/L	0.0009699	0.124503	mg/L	0.0009699	0.78%
Fe 238.204†	536080.3	350.157	mg/L	0.8390	350.157	mg/L	0.8390	0.24%
K 766.490	7457.0	10.3207	mg/L	0.05183	10.3207	mg/L	0.05183	0.50%
Li 670.784†	7298.4	0.183117	mg/L	0.0003770	0.183117	mg/L	0.0003770	0.21%
Mg 279.071†	5370.1	12.2631	mg/L	0.05660	12.2631	mg/L	0.05660	0.46%
Mn 257.610†	323348.4	2.27818	mg/L	0.001704	2.27818	mg/L	0.001704	0.07%
Mo 202.031†	-19.4	-0.0054173	mg/L	0.00105082	-0.0054173	mg/L	0.00105082	19.40%
Na 589.592†	1350.8	0.158924	mg/L	0.0024751	0.158924	mg/L	0.0024751	1.56%

Ni 231.604†	1444.4	0.0991846 mg/L	0.00006513	0.0991846 mg/L	0.00006513	0.07%
Pb 220.353†	373.2	0.216516 mg/L	0.0014828	0.216516 mg/L	0.0014828	0.68%
Sb 217.584†	-2789.2	-0.695441 mg/L	0.0229507	-0.695441 mg/L	0.0229507	3.30%
Se 196.026†	-162.8	-0.146748 mg/L	0.0090243	-0.146748 mg/L	0.0090243	6.15%
Si 251.611†	328215.8	21.5634 mg/L	0.01926	21.5634 mg/L	0.01926	0.09%
Sn 189.927†	12.0	-0.0069577 mg/L	0.00362303	-0.0069577 mg/L	0.00362303	52.07%
Sr 407.771†	39645.1	0.0380615 mg/L	0.00002026	0.0380615 mg/L	0.00002026	0.05%
Ti 334.940†	55525.6	3.01712 mg/L	0.010096	3.01712 mg/L	0.010096	0.33%
Tl 190.801†	-55.5	-0.0430340 mg/L	0.00969240	-0.0430340 mg/L	0.00969240	22.52%
V 292.395†	38177.3	0.658905 mg/L	0.0002709	0.658905 mg/L	0.0002709	0.04%
Zn 206.200†	6859.1	0.449503 mg/L	0.0053273	0.449503 mg/L	0.0053273	1.19%

Sequence No.: 20
Sample ID: 0908257-05
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 23
Date Collected: 8/25/2009 11:55:36 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-05

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	245321.6	245321.6	105.208	%			11:56:42
1	Al 396.153†	427504.5	405549.1	109.755	mg/L	109.755	mg/L	11:56:42
1	Ba 455.398†	289473.9	276074.8	0.763941	mg/L	0.763941	mg/L	11:56:42
1	Ca 315.887†	13961.8	12666.8	6.62127	mg/L	6.62127	mg/L	11:57:02
1	Fe 238.204†	188468.7	179063.0	116.960	mg/L	116.960	mg/L	11:56:42
1	K 766.490	4198.1	3762.0	5.19745	mg/L	5.19745	mg/L	11:57:02
1	Li 670.784†	4034.8	2680.9	0.0672750	mg/L	0.0672750	mg/L	11:57:02
1	Mg 279.071†	2754.1	2576.1	5.89686	mg/L	5.89686	mg/L	11:57:02
1	Na 589.592†	2048.3	793.7	0.0820454	mg/L	0.0820454	mg/L	11:57:02
1	Sr 407.771†	53776.5	50445.9	0.0488574	mg/L	0.0488574	mg/L	11:56:42
1	Ti 334.940†	34170.9	32447.5	1.76218	mg/L	1.76218	mg/L	11:57:02
1	Sc 357.234	256781.7	256781.7	106.266	%			11:57:34
1	Ag 328.068†	-3211.4	-3861.4	-0.0447661	mg/L	-0.0447661	mg/L	11:57:34
1	As 188.979†	13.1	50.7	0.0305397	mg/L	0.0305397	mg/L	11:57:54
1	B 249.677†	865.2	-4.3	-0.0107209	mg/L	-0.0107209	mg/L	11:57:34
1	Be 234.861†	11010.9	11351.4	0.0035530	mg/L	0.0035530	mg/L	11:57:34
1	Cd 214.437†	1155.7	800.7	0.0064956	mg/L	0.0064956	mg/L	11:57:54
1	Ce 413.764†	21562.6	19671.6	0.515494	mg/L	0.515494	mg/L	11:57:34
1	Co 228.616†	526.4	584.2	0.0705886	mg/L	0.0705886	mg/L	11:57:54
1	Cr 205.557†	2960.9	2811.8	0.218711	mg/L	0.218711	mg/L	11:57:54
1	Cu 327.397†	1223.9	2346.4	0.0536156	mg/L	0.0536156	mg/L	11:57:34
1	Mn 257.610†	641241.9	603089.5	4.22649	mg/L	4.22649	mg/L	11:57:34
1	Mo 202.031†	153.9	36.2	0.0004568	mg/L	0.0004568	mg/L	11:57:54
1	Ni 231.604†	1180.0	681.3	0.0462040	mg/L	0.0462040	mg/L	11:57:54
1	Pb 220.353†	361.8	322.3	0.159715	mg/L	0.159715	mg/L	11:57:54
1	Sb 217.584†	-1114.6	-959.7	-0.256811	mg/L	-0.256811	mg/L	11:57:54
1	Se 196.026†	-120.2	-57.4	-0.0637194	mg/L	-0.0637194	mg/L	11:57:54
1	Si 251.611†	188691.1	162597.8	10.6179	mg/L	10.6179	mg/L	11:57:34
1	Sn 189.927†	0.6	5.0	-0.0099353	mg/L	-0.0099353	mg/L	11:57:54
1	Tl 190.801†	-72.6	-33.5	-0.0274803	mg/L	-0.0274803	mg/L	11:57:54
1	V 292.395†	13588.8	14914.4	0.258297	mg/L	0.258297	mg/L	11:57:34
1	Zn 206.200†	3809.5	3701.4	0.241263	mg/L	0.241263	mg/L	11:57:54
2	Y 360.076	246474.4	246474.4	105.703	%			11:57:08
2	Al 396.153†	429397.1	405439.0	109.726	mg/L	109.726	mg/L	11:57:08
2	Ba 455.398†	290790.1	276033.0	0.763825	mg/L	0.763825	mg/L	11:57:08
2	Ca 315.887†	14045.9	12684.3	6.63037	mg/L	6.63037	mg/L	11:57:28
2	Fe 238.204†	189902.7	179581.7	117.299	mg/L	117.299	mg/L	11:57:08
2	K 766.490	4204.2	3768.1	5.20595	mg/L	5.20595	mg/L	11:57:28
2	Li 670.784†	4037.3	2665.4	0.0668841	mg/L	0.0668841	mg/L	11:57:28
2	Mg 279.071†	2756.1	2565.7	5.87331	mg/L	5.87331	mg/L	11:57:28
2	Na 589.592†	2043.7	780.2	0.0801834	mg/L	0.0801834	mg/L	11:57:28
2	Sr 407.771†	53971.8	50391.5	0.0488029	mg/L	0.0488029	mg/L	11:57:08
2	Ti 334.940†	34427.4	32538.2	1.76712	mg/L	1.76712	mg/L	11:57:28
2	Sc 357.234	254772.7	254772.7	105.435	%			11:57:59
2	Ag 328.068†	-3178.9	-3854.5	-0.0446325	mg/L	-0.0446325	mg/L	11:57:59
2	As 188.979†	28.5	65.3	0.0466889	mg/L	0.0466889	mg/L	11:58:19
2	B 249.677†	806.3	-53.8	-0.0130301	mg/L	-0.0130301	mg/L	11:57:59
2	Be 234.861†	10945.6	11371.2	0.0035099	mg/L	0.0035099	mg/L	11:57:59

2	Cd 214.437†	1150.6	804.5	0.0065746 mg/L	0.0065746 mg/L	11:58:19
2	Ce 413.764†	21404.3	19681.4	0.515780 mg/L	0.515780 mg/L	11:57:59
2	Co 228.616†	529.9	591.4	0.0715366 mg/L	0.0715366 mg/L	11:58:19
2	Cr 205.557†	2957.7	2830.7	0.220184 mg/L	0.220184 mg/L	11:58:19
2	Cu 327.397†	1271.3	2400.4	0.0548419 mg/L	0.0548419 mg/L	11:57:59
2	Mn 257.610†	636657.7	603499.9	4.22938 mg/L	4.22938 mg/L	11:57:59
2	Mo 202.031†	145.0	28.9	-0.0003112 mg/L	-0.0003112 mg/L	11:58:19
2	Ni 231.604†	1174.4	684.8	0.0464457 mg/L	0.0464457 mg/L	11:58:19
2	Pb 220.353†	363.8	326.8	0.161759 mg/L	0.161759 mg/L	11:58:19
2	Sb 217.584†	-1118.0	-971.2	-0.262867 mg/L	-0.262867 mg/L	11:58:19
2	Se 196.026†	-119.5	-57.7	-0.0640357 mg/L	-0.0640357 mg/L	11:58:19
2	Si 251.611†	187212.3	162595.4	10.6177 mg/L	10.6177 mg/L	11:57:59
2	Sn 189.927†	2.1	6.4	-0.0093150 mg/L	-0.0093150 mg/L	11:58:19
2	Tl 190.801†	-67.9	-29.7	-0.0231629 mg/L	-0.0231629 mg/L	11:58:19
2	V 292.395†	13409.1	14844.9	0.256921 mg/L	0.256921 mg/L	11:57:59
2	Zn 206.200†	3805.7	3726.0	0.242890 mg/L	0.242890 mg/L	11:58:19

Mean Data: 0908257-05

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	255777.2	105.851	%	0.5879				0.56%
Y 360.076	245898.0	105.455	%	0.3496				0.33%
Ag 328.068†	-3858.0	-0.0446993	mg/L	0.00009446	-0.0446993	mg/L	0.00009446	0.21%
Al 396.153†	405494.1	109.740	mg/L	0.0211	109.740	mg/L	0.0211	0.02%
As 188.979†	58.0	0.0386143	mg/L	0.01141917	0.0386143	mg/L	0.01141917	29.57%
B 249.677†	-29.0	-0.0118755	mg/L	0.00163282	-0.0118755	mg/L	0.00163282	13.75%
Ba 455.398†	276053.9	0.763883	mg/L	0.0000819	0.763883	mg/L	0.0000819	0.01%
Be 234.861†	11361.3	0.0035315	mg/L	0.00003045	0.0035315	mg/L	0.00003045	0.86%
Ca 315.887†	12675.5	6.62582	mg/L	0.006435	6.62582	mg/L	0.006435	0.10%
Cd 214.437†	802.6	0.0065351	mg/L	0.00005589	0.0065351	mg/L	0.00005589	0.86%
Ce 413.764†	19676.5	0.515637	mg/L	0.0002022	0.515637	mg/L	0.0002022	0.04%
Co 228.616†	587.8	0.0710626	mg/L	0.00067036	0.0710626	mg/L	0.00067036	0.94%
Cr 205.557†	2821.3	0.219448	mg/L	0.0010415	0.219448	mg/L	0.0010415	0.47%
Cu 327.397†	2373.4	0.0542288	mg/L	0.00086712	0.0542288	mg/L	0.00086712	1.60%
Fe 238.204†	179322.3	117.130	mg/L	0.2396	117.130	mg/L	0.2396	0.20%
K 766.490	3765.0	5.20170	mg/L	0.006012	5.20170	mg/L	0.006012	0.12%
Li 670.784†	2673.2	0.0670795	mg/L	0.00027641	0.0670795	mg/L	0.00027641	0.41%
Mg 279.071†	2570.9	5.88509	mg/L	0.016655	5.88509	mg/L	0.016655	0.28%
Mn 257.610†	603294.7	4.22794	mg/L	0.002042	4.22794	mg/L	0.002042	0.05%
Mo 202.031†	32.6	0.0000728	mg/L	0.00054310	0.0000728	mg/L	0.00054310	745.82%
Na 589.592†	787.0	0.0811144	mg/L	0.00131669	0.0811144	mg/L	0.00131669	1.62%
Ni 231.604†	683.1	0.0463248	mg/L	0.00017091	0.0463248	mg/L	0.00017091	0.37%
Pb 220.353†	324.6	0.160737	mg/L	0.0014453	0.160737	mg/L	0.0014453	0.90%
Sb 217.584†	-965.5	-0.259839	mg/L	0.0042824	-0.259839	mg/L	0.0042824	1.65%
Se 196.026†	-57.5	-0.0638776	mg/L	0.00022363	-0.0638776	mg/L	0.00022363	0.35%
Si 251.611†	162596.6	10.6178	mg/L	0.00015	10.6178	mg/L	0.00015	0.00%
Sn 189.927†	5.7	-0.0096252	mg/L	0.00043861	-0.0096252	mg/L	0.00043861	4.56%
Sr 407.771†	50418.7	0.0488301	mg/L	0.00003852	0.0488301	mg/L	0.00003852	0.08%
Ti 334.940†	32492.8	1.76465	mg/L	0.003489	1.76465	mg/L	0.003489	0.20%
Tl 190.801†	-31.6	-0.0253216	mg/L	0.00305292	-0.0253216	mg/L	0.00305292	12.06%
V 292.395†	14879.6	0.257609	mg/L	0.0009729	0.257609	mg/L	0.0009729	0.38%
Zn 206.200†	3713.7	0.242077	mg/L	0.0011505	0.242077	mg/L	0.0011505	0.48%

Sequence No.: 21
Sample ID: 0909583-ms1
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 24
Date Collected: 8/25/2009 11:59:34 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0909583-ms1

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	244758.9	244758.9	104.967	%			12:00:41
1	Al 396.153†	611367.5	581646.2	157.405	mg/L	157.405	mg/L	12:00:41
1	Ba 455.398†	440070.4	420177.9	1.16339	mg/L	1.16339	mg/L	12:00:41
1	Ca 315.887†	41611.8	39038.9	20.2216	mg/L	20.2216	mg/L	12:00:46
1	Fe 238.204†	205858.5	196041.7	128.049	mg/L	128.049	mg/L	12:00:41
1	K 766.490	15067.9	14631.7	20.2686	mg/L	20.2686	mg/L	12:00:46

QC value within limits for Cu 327.397 Recovery = 105.17%

Fe 238.204†	835.0	0.545417 mg/L	0.0084989	0.545417 mg/L	0.0084989	1.56%

QC value within limits for Fe 238.204 Recovery = 109.08%

K 766.490	3624.8	5.00731 mg/L	0.012691	5.00731 mg/L	0.012691	0.25%

QC value within limits for K 766.490 Recovery = 100.15%

Li 670.784†	21313.6	0.534728 mg/L	0.0024201	0.534728 mg/L	0.0024201	0.45%

QC value within limits for Li 670.784 Recovery = 106.95%

Mg 279.071†	2331.7	5.30916 mg/L	0.056442	5.30916 mg/L	0.056442	1.06%

QC value within limits for Mg 279.071 Recovery = 106.18%

Mn 257.610†	74689.7	0.521613 mg/L	0.0004801	0.521613 mg/L	0.0004801	0.09%

QC value within limits for Mn 257.610 Recovery = 104.32%

Mo 202.031†	5012.5	0.526221 mg/L	0.0035982	0.526221 mg/L	0.0035982	0.68%

QC value within limits for Mo 202.031 Recovery = 105.24%

Na 589.592†	38713.7	5.31527 mg/L	0.010998	5.31527 mg/L	0.010998	0.21%

QC value within limits for Na 589.592 Recovery = 106.31%

Ni 231.604†	7598.8	0.527035 mg/L	0.0021246	0.527035 mg/L	0.0021246	0.40%

QC value within limits for Ni 231.604 Recovery = 105.41%

Pb 220.353†	1195.5	0.531246 mg/L	0.0062938	0.531246 mg/L	0.0062938	1.18%

QC value within limits for Pb 220.353 Recovery = 106.25%

Sb 217.584†	4348.1	2.62689 mg/L	0.017096	2.62689 mg/L	0.017096	0.65%

QC value within limits for Sb 217.584 Recovery = 105.08%

Se 196.026†	1455.6	2.59850 mg/L	0.022480	2.59850 mg/L	0.022480	0.87%

QC value within limits for Se 196.026 Recovery = 103.94%

Si 251.611†	51337.1	3.27864 mg/L	0.077204	3.27864 mg/L	0.077204	2.35%

QC value greater than the upper limit for Si 251.611 Recovery = 131.15%

Sn 189.927†	6208.5	2.62431 mg/L	0.024509	2.62431 mg/L	0.024509	0.93%

QC value within limits for Sn 189.927 Recovery = 104.97%

Sr 407.771†	533088.2	0.532350 mg/L	0.0022084	0.532350 mg/L	0.0022084	0.41%

QC value within limits for Sr 407.771 Recovery = 106.47%

Ti 334.940†	9780.2	0.529405 mg/L	0.0042584	0.529405 mg/L	0.0042584	0.80%

QC value within limits for Ti 334.940 Recovery = 105.88%

Tl 190.801†	2380.7	2.62273 mg/L	0.024578	2.62273 mg/L	0.024578	0.94%

QC value within limits for Tl 190.801 Recovery = 104.91%

V 292.395†	28173.3	0.531857 mg/L	0.0036350	0.531857 mg/L	0.0036350	0.68%

QC value within limits for V 292.395 Recovery = 106.37%

Zn 206.200†	7978.5	0.523434 mg/L	0.0042186	0.523434 mg/L	0.0042186	0.81%

QC value within limits for Zn 206.200 Recovery = 104.69%

QC Failed. Continue with analysis.

Sequence No.: 25
Sample ID: 9H25006-CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 8/25/2009 12:14:39 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 9H25006-CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	237017.3	237017.3	101.647	%			12:15:43
1	Al 396.153†	785.0	-20.2	0.0116522	mg/L	0.0116522	mg/L	12:15:43
1	Ba 455.398†	-912.9	32.7	-0.0013330	mg/L	-0.0013330	mg/L	12:15:43
1	Ca 315.887†	590.0	-23.5	0.0380819	mg/L	0.0380819	mg/L	12:16:03
1	Fe 238.204†	82.4	5.2	0.0036542	mg/L	0.0036542	mg/L	12:16:03
1	K 766.490	413.8	-22.3	-0.0495568	mg/L	-0.0495568	mg/L	12:15:43
1	Li 670.784†	1121.2	-51.1	-0.0012661	mg/L	-0.0012661	mg/L	12:15:43
1	Mg 279.071†	36.8	-5.5	-0.0447423	mg/L	-0.0447423	mg/L	12:16:03
1	Na 589.592†	1079.2	-91.5	-0.0401205	mg/L	-0.0401205	mg/L	12:15:43
1	Sr 407.771†	773.6	92.5	-0.0014705	mg/L	-0.0014705	mg/L	12:15:43
1	Ti 334.940†	37.8	5.3	-0.0021605	mg/L	-0.0021605	mg/L	12:16:03
1	Sc 357.234	245462.3	245462.3	101.582	%			12:16:35
1	Ag 328.068†	794.0	-57.8	-0.0014164	mg/L	-0.0014164	mg/L	12:16:35
1	As 188.979†	-34.6	4.2	-0.0053912	mg/L	-0.0053912	mg/L	12:16:55
1	B 249.677†	916.2	83.4	-0.0052273	mg/L	-0.0052273	mg/L	12:16:55
1	Be 234.861†	-970.1	34.8	-0.0001602	mg/L	-0.0001602	mg/L	12:16:55
1	Cd 214.437†	296.4	5.0	-0.0023449	mg/L	-0.0023449	mg/L	12:16:55
1	Ce 413.764†	642.0	12.5	-0.0029307	mg/L	-0.0029307	mg/L	12:16:35
1	Co 228.616†	-85.5	4.6	0.0002479	mg/L	0.0002479	mg/L	12:16:55
1	Cr 205.557†	-21.7	4.1	-0.0022610	mg/L	-0.0022610	mg/L	12:16:55
1	Cu 327.397†	-1181.4	31.6	-0.0011800	mg/L	-0.0011800	mg/L	12:16:35

1	Mn 257.610†	235.4	-107.3	-0.0021198 mg/L	-0.0021198 mg/L	12:16:55
1	Mo 202.031†	120.1	9.6	-0.0023530 mg/L	-0.0023530 mg/L	12:16:55
1	Ni 231.604†	452.7	16.6	0.0001505 mg/L	0.0001505 mg/L	12:16:55
1	Pb 220.353†	13.7	-4.7	-0.0049945 mg/L	-0.0049945 mg/L	12:16:55
1	Sb 217.584†	-80.1	10.4	-0.0085028 mg/L	-0.0085028 mg/L	12:16:55
1	Se 196.026†	-54.8	1.8	-0.0135275 mg/L	-0.0135275 mg/L	12:16:55
1	Si 251.611†	15214.9	11.5	-0.0892103 mg/L	-0.0892103 mg/L	12:16:35
1	Sn 189.927†	4.7	9.1	-0.0081873 mg/L	-0.0081873 mg/L	12:16:55
1	Tl 190.801†	-36.0	-0.6	-0.0073293 mg/L	-0.0073293 mg/L	12:16:55
1	V 292.395†	-2054.7	104.3	-0.0008846 mg/L	-0.0008846 mg/L	12:16:55
1	Zn 206.200†	-112.8	5.4	-0.0024958 mg/L	-0.0024958 mg/L	12:16:55
2	Y 360.076	235491.4	235491.4	100.992 %		12:16:09
2	Al 396.153†	793.6	-6.7	0.0153624 mg/L	0.0153624 mg/L	12:16:09
2	Ba 455.398†	-846.5	92.6	-0.0011673 mg/L	-0.0011673 mg/L	12:16:09
2	Ca 315.887†	596.2	-13.5	0.0432051 mg/L	0.0432051 mg/L	12:16:29
2	Fe 238.204†	76.1	-0.6	-0.0001012 mg/L	-0.0001012 mg/L	12:16:29
2	K 766.490	436.8	0.7	-0.0176784 mg/L	-0.0176784 mg/L	12:16:09
2	Li 670.784†	1188.4	22.6	0.0005835 mg/L	0.0005835 mg/L	12:16:09
2	Mg 279.071†	31.4	-10.6	-0.0564834 mg/L	-0.0564834 mg/L	12:16:29
2	Na 589.592†	1139.4	-25.0	-0.0309409 mg/L	-0.0309409 mg/L	12:16:09
2	Sr 407.771†	676.5	1.3	-0.0015615 mg/L	-0.0015615 mg/L	12:16:09
2	Ti 334.940†	43.7	11.4	-0.0018251 mg/L	-0.0018251 mg/L	12:16:29
2	Sc 357.234	247532.7	247532.7	102.439 %		12:17:00
2	Ag 328.068†	809.7	-49.0	-0.0012925 mg/L	-0.0012925 mg/L	12:17:00
2	As 188.979†	-47.5	-8.0	-0.0188587 mg/L	-0.0188587 mg/L	12:17:20
2	B 249.677†	912.8	72.5	-0.0057329 mg/L	-0.0057329 mg/L	12:17:20
2	Be 234.861†	-977.6	35.4	-0.0001561 mg/L	-0.0001561 mg/L	12:17:20
2	Cd 214.437†	289.2	-4.5	-0.0025771 mg/L	-0.0025771 mg/L	12:17:20
2	Ce 413.764†	589.1	-44.5	-0.0044004 mg/L	-0.0044004 mg/L	12:17:00
2	Co 228.616†	-87.3	3.6	0.0001134 mg/L	0.0001134 mg/L	12:17:20
2	Cr 205.557†	-31.0	-4.7	-0.0029434 mg/L	-0.0029434 mg/L	12:17:20
2	Cu 327.397†	-1193.5	29.6	-0.0012243 mg/L	-0.0012243 mg/L	12:17:00
2	Mn 257.610†	231.7	-112.9	-0.0021592 mg/L	-0.0021592 mg/L	12:17:20
2	Mo 202.031†	108.7	-2.5	-0.0036274 mg/L	-0.0036274 mg/L	12:17:20
2	Ni 231.604†	433.9	-5.5	-0.0013823 mg/L	-0.0013823 mg/L	12:17:20
2	Pb 220.353†	20.1	1.4	-0.0022571 mg/L	-0.0022571 mg/L	12:17:20
2	Sb 217.584†	-84.5	6.7	-0.0107643 mg/L	-0.0107643 mg/L	12:17:20
2	Se 196.026†	-49.7	7.2	-0.0037831 mg/L	-0.0037831 mg/L	12:17:20
2	Si 251.611†	14970.3	-352.5	-0.113232 mg/L	-0.113232 mg/L	12:17:00
2	Sn 189.927†	1.8	6.2	-0.0094164 mg/L	-0.0094164 mg/L	12:17:20
2	Tl 190.801†	-36.6	-1.0	-0.0077135 mg/L	-0.0077135 mg/L	12:17:20
2	V 292.395†	-2069.2	107.0	-0.0008421 mg/L	-0.0008421 mg/L	12:17:20
2	Zn 206.200†	-114.7	4.6	-0.0025528 mg/L	-0.0025528 mg/L	12:17:20

Mean Data: 9H25006-CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 357.234	246497.5	102.010	%	0.6059				0.59%
Y 360.076	236254.3	101.320	%	0.4627				0.46%
Ag 328.068†	-53.4	-0.0013545	mg/L	0.00008764	-0.0013545	mg/L	0.00008764	6.47%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153†	-13.5	0.0135073	mg/L	0.00262345	0.0135073	mg/L	0.00262345	19.42%
QC value within limits for Al 396.153 Recovery = Not calculated								
As 188.979†	-1.9	-0.0121249	mg/L	0.00952301	-0.0121249	mg/L	0.00952301	78.54%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	78.0	-0.0054801	mg/L	0.00035757	-0.0054801	mg/L	0.00035757	6.52%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 455.398†	62.7	-0.0012502	mg/L	0.00011716	-0.0012502	mg/L	0.00011716	9.37%
QC value within limits for Ba 455.398 Recovery = Not calculated								
Be 234.861†	35.1	-0.0001582	mg/L	0.00000286	-0.0001582	mg/L	0.00000286	1.81%
QC value within limits for Be 234.861 Recovery = Not calculated								
Ca 315.887† ~ 0.0136	-18.5	0.0406435	mg/L	0.00362263	0.0406435	mg/L	0.00362263	8.91%
QC value within limits for Ca 315.887 Recovery = Not calculated								
Cd 214.437† ~ 0.00230	0.3	-0.0024610	mg/L	0.00016416	-0.0024610	mg/L	0.00016416	6.67%
QC value within limits for Cd 214.437 Recovery = Not calculated								
Ce 413.764†	-16.0	-0.0036655	mg/L	0.00103926	-0.0036655	mg/L	0.00103926	28.35%
Co 228.616†	4.1	0.0001807	mg/L	0.00009509	0.0001807	mg/L	0.00009509	52.63%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 205.557†	-0.3	-0.0026022	mg/L	0.00048255	-0.0026022	mg/L	0.00048255	18.54%
QC value within limits for Cr 205.557 Recovery = Not calculated								

Cu 327.397†		30.6	-0.0012022 mg/L	0.00003135	-0.0012022 mg/L	0.00003135	2.61%
QC value within limits for Cu 327.397 Recovery = Not calculated							
Fe 238.204†		2.3	0.0017765 mg/L	0.00265550	0.0017765 mg/L	0.00265550	149.48%
QC value within limits for Fe 238.204 Recovery = Not calculated							
K 766.490		-10.8	-0.0336176 mg/L	0.02254143	-0.0336176 mg/L	0.02254143	67.05%
QC value within limits for K 766.490 Recovery = Not calculated							
Li 670.784†		-14.2	-0.0003413 mg/L	0.00130790	-0.0003413 mg/L	0.00130790	383.20%
QC value within limits for Li 670.784 Recovery = Not calculated							
Mg 279.071†	-0.25306	-8.1	-0.0506129 mg/L	0.00830221	-0.0506129 mg/L	0.00830221	16.40%
QC value within limits for Mg 279.071 Recovery = Not calculated							
Mn 257.610†	-0.010675	110.1	-0.0021395 mg/L	0.00002784	-0.0021395 mg/L	0.00002784	1.30%
QC value within limits for Mn 257.610 Recovery = Not calculated							
Mo 202.031†		3.6	-0.0029902 mg/L	0.00090110	-0.0029902 mg/L	0.00090110	30.14%
QC value within limits for Mo 202.031 Recovery = Not calculated							
Na 589.592†		-58.3	-0.0355307 mg/L	0.00649096	-0.0355307 mg/L	0.00649096	18.27%
QC value within limits for Na 589.592 Recovery = Not calculated							
Ni 231.604†		5.6	-0.0006159 mg/L	0.00108386	-0.0006159 mg/L	0.00108386	175.99%
QC value within limits for Ni 231.604 Recovery = Not calculated							
Pb 220.353†		-1.6	-0.0036258 mg/L	0.00193566	-0.0036258 mg/L	0.00193566	53.39%
QC value within limits for Pb 220.353 Recovery = Not calculated							
Sb 217.584†		8.5	-0.0096335 mg/L	0.00159915	-0.0096335 mg/L	0.00159915	16.60%
QC value within limits for Sb 217.584 Recovery = Not calculated							
Se 196.026†		4.5	-0.0086553 mg/L	0.00689030	-0.0086553 mg/L	0.00689030	79.61%
QC value within limits for Se 196.026 Recovery = Not calculated							
Si 251.611†		-170.5	-0.101221 mg/L	0.0169857	-0.101221 mg/L	0.0169857	16.78%
QC value less than the lower limit for Si 251.611 Recovery = Not calculated							
Sn 189.927†		7.6	-0.0088018 mg/L	0.00086913	-0.0088018 mg/L	0.00086913	9.87%
QC value within limits for Sn 189.927 Recovery = Not calculated							
Sr 407.771†		46.9	-0.0015160 mg/L	0.00006433	-0.0015160 mg/L	0.00006433	4.24%
QC value within limits for Sr 407.771 Recovery = Not calculated							
Ti 334.940†		8.3	-0.0019928 mg/L	0.00023719	-0.0019928 mg/L	0.00023719	11.90%
QC value within limits for Ti 334.940 Recovery = Not calculated							
Tl 190.801†		-0.8	-0.0075214 mg/L	0.00027167	-0.0075214 mg/L	0.00027167	3.61%
QC value within limits for Tl 190.801 Recovery = Not calculated							
V 292.395†		105.6	-0.0008634 mg/L	0.00003008	-0.0008634 mg/L	0.00003008	3.48%
QC value within limits for V 292.395 Recovery = Not calculated							
Zn 206.200†		5.0	-0.0025243 mg/L	0.00004034	-0.0025243 mg/L	0.00004034	1.60%
QC value within limits for Zn 206.200 Recovery = Not calculated							

QC Failed. Continue with analysis.

Sequence No.: 26
Sample ID: 0909583-ps1
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 27
Date Collected: 8/25/2009 12:18:38 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0909583-ps1

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Y 360.076	244948.8	244948.8	105.048	%			12:19:43
1	Al 396.153†	428050.7	406687.4	110.062	mg/L	110.062	mg/L	12:19:43
1	Ba 455.398†	382612.6	365156.2	1.01086	mg/L	1.01086	mg/L	12:19:43
1	Ca 315.887†	40715.8	38155.3	19.7601	mg/L	19.7601	mg/L	12:19:48
1	Fe 238.204†	185920.0	176909.3	115.553	mg/L	115.553	mg/L	12:19:43
1	K 766.490	13554.1	13117.9	18.1697	mg/L	18.1697	mg/L	12:19:48
1	Li 670.784†	15091.6	13212.2	0.331482	mg/L	0.331482	mg/L	12:19:48
1	Mg 279.071†	8808.9	8343.9	19.0795	mg/L	19.0795	mg/L	12:19:48
1	Na 589.592†	102000.7	95945.6	13.2137	mg/L	13.2137	mg/L	12:19:43
1	Sr 407.771†	327332.8	310933.6	0.309808	mg/L	0.309808	mg/L	12:19:43
1	Ti 334.940†	39320.7	37399.2	2.03175	mg/L	2.03175	mg/L	12:19:48
1	Sc 357.234	254106.9	254106.9	105.159	%			12:20:05
1	Ag 328.068†	14959.6	13386.2	0.207632	mg/L	0.207632	mg/L	12:20:25
1	As 188.979†	1203.4	1182.7	1.27463	mg/L	1.27463	mg/L	12:20:25
1	B 249.677†	6609.9	5467.1	0.243034	mg/L	0.243034	mg/L	12:20:25
1	Be 234.861†	17243.0	17386.8	0.0301553	mg/L	0.0301553	mg/L	12:20:05
1	Cd 214.437†	12017.1	11140.7	0.259246	mg/L	0.259246	mg/L	12:20:25
1	Ce 413.764†	21043.6	19391.6	0.508406	mg/L	0.508406	mg/L	12:20:05
1	Co 228.616†	2418.3	2388.5	0.313119	mg/L	0.313119	mg/L	12:20:25
1	Cr 205.557†	6477.8	6185.4	0.478632	mg/L	0.478632	mg/L	12:20:25

Pb 220.353†	883.8	0.410616 mg/L	0.0016553	0.410616 mg/L	0.0016553	0.40%
Sb 217.584†	1201.8	1.05464 mg/L	0.001032	1.05464 mg/L	0.001032	0.10%
Se 196.026†	677.0	1.25369 mg/L	0.003779	1.25369 mg/L	0.003779	0.30%
Si 251.611†	181541.2	11.8582 mg/L	0.00712	11.8582 mg/L	0.00712	0.06%
Sn 189.927†	3346.7	1.40909 mg/L	0.003148	1.40909 mg/L	0.003148	0.22%
Sr 407.771†	311015.5	0.309890 mg/L	0.0001155	0.309890 mg/L	0.0001155	0.04%
Ti 334.940†	37296.7	2.02618 mg/L	0.007886	2.02618 mg/L	0.007886	0.39%
Tl 190.801†	1132.4	1.25829 mg/L	0.000461	1.25829 mg/L	0.000461	0.04%
V 292.395†	28433.6	0.515233 mg/L	0.0010980	0.515233 mg/L	0.0010980	0.21%
Zn 206.200†	7530.0	0.493500 mg/L	0.0000818	0.493500 mg/L	0.0000818	0.02%

Sequence No.: 27
Sample ID: 0908257-06
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 28
Date Collected: 8/25/2009 12:22:10 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-06

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Units	Sample Conc.	Units	Analysis Time
1	Y 360.076	245379.6	245379.6	105.233	%			12:23:15
1	Al 396.153†	713732.0	677447.0	183.324	mg/L	183.324	mg/L	12:23:15
1	Ba 455.398†	187863.0	179451.8	0.496125	mg/L	0.496125	mg/L	12:23:15
1	Ca 315.887†	2383.5	1661.0	0.973699	mg/L	0.973699	mg/L	12:23:20
1	Fe 238.204†	393013.2	373393.5	243.894	mg/L	243.894	mg/L	12:23:15
1	K 766.490	7806.4	7370.2	10.2004	mg/L	10.2004	mg/L	12:23:20
1	Li 670.784†	7447.9	5923.4	0.148622	mg/L	0.148622	mg/L	12:23:20
1	Mg 279.071†	5697.8	5372.8	12.2832	mg/L	12.2832	mg/L	12:23:20
1	Na 589.592†	2047.4	792.4	0.0818605	mg/L	0.0818605	mg/L	12:23:20
1	Sr 407.771†	25497.6	23561.1	0.0219116	mg/L	0.0219116	mg/L	12:23:20
1	Ti 334.940†	75476.9	71691.7	3.89615	mg/L	3.89615	mg/L	12:23:20
1	Sc 357.234	266066.9	266066.9	110.109	%			12:23:37
1	Ag 328.068†	-7784.3	-7909.1	-0.0921333	mg/L	-0.0921333	mg/L	12:23:57
1	As 188.979†	14.3	51.3	0.0201326	mg/L	0.0201326	mg/L	12:23:57
1	B 249.677†	850.8	-45.8	-0.0141483	mg/L	-0.0141483	mg/L	12:23:37
1	Be 234.861†	23317.2	22166.3	0.0015545	mg/L	0.0015545	mg/L	12:23:37
1	Cd 214.437†	1952.8	1486.7	0.0142424	mg/L	0.0142424	mg/L	12:23:57
1	Ce 413.764†	24884.3	21980.2	0.587452	mg/L	0.587452	mg/L	12:23:37
1	Co 228.616†	787.1	803.7	0.0909982	mg/L	0.0909982	mg/L	12:23:57
1	Cr 205.557†	2672.8	2452.9	0.195842	mg/L	0.195842	mg/L	12:23:57
1	Cu 327.397†	2833.7	3768.3	0.0882428	mg/L	0.0882428	mg/L	12:23:57
1	Mn 257.610†	554754.8	503484.3	3.53472	mg/L	3.53472	mg/L	12:23:37
1	Mo 202.031†	120.9	1.2	-0.0032410	mg/L	-0.0032410	mg/L	12:23:57
1	Ni 231.604†	1744.6	1155.4	0.0790789	mg/L	0.0790789	mg/L	12:23:57
1	Pb 220.353†	297.7	252.2	0.141512	mg/L	0.141512	mg/L	12:23:57
1	Sb 217.584†	-2218.9	-1926.0	-0.486226	mg/L	-0.486226	mg/L	12:23:57
1	Se 196.026†	-196.0	-122.3	-0.121744	mg/L	-0.121744	mg/L	12:23:57
1	Si 251.611†	261674.0	222683.6	14.5540	mg/L	14.5540	mg/L	12:23:37
1	Sn 189.927†	10.4	13.9	-0.0061464	mg/L	-0.0061464	mg/L	12:23:57
1	Tl 190.801†	-87.1	-44.4	-0.0241439	mg/L	-0.0241439	mg/L	12:23:57
1	V 292.395†	22964.5	22983.1	0.388578	mg/L	0.388578	mg/L	12:23:37
1	Zn 206.200†	5125.0	4771.0	0.311731	mg/L	0.311731	mg/L	12:23:57
2	Y 360.076	245543.7	245543.7	105.303	%			12:23:25
2	Al 396.153†	715715.8	678877.7	183.711	mg/L	183.711	mg/L	12:23:25
2	Ba 455.398†	188536.9	179972.4	0.497568	mg/L	0.497568	mg/L	12:23:25
2	Ca 315.887†	2376.9	1653.3	0.969941	mg/L	0.969941	mg/L	12:23:30
2	Fe 238.204†	394865.0	374902.5	244.880	mg/L	244.880	mg/L	12:23:25
2	K 766.490	7735.5	7299.4	10.1022	mg/L	10.1022	mg/L	12:23:30
2	Li 670.784†	7407.4	5880.2	0.147537	mg/L	0.147537	mg/L	12:23:30
2	Mg 279.071†	5720.3	5390.5	12.3238	mg/L	12.3238	mg/L	12:23:30
2	Na 589.592†	2172.3	909.7	0.0980528	mg/L	0.0980528	mg/L	12:23:30
2	Sr 407.771†	25663.9	23702.8	0.0220534	mg/L	0.0220534	mg/L	12:23:30
2	Ti 334.940†	75298.3	71474.1	3.88432	mg/L	3.88432	mg/L	12:23:30
2	Sc 357.234	265762.1	265762.1	109.983	%			12:24:03
2	Ag 328.068†	-7717.7	-7856.6	-0.0912706	mg/L	-0.0912706	mg/L	12:24:23
2	As 188.979†	32.0	67.5	0.0379732	mg/L	0.0379732	mg/L	12:24:23
2	B 249.677†	767.9	-120.3	-0.0176069	mg/L	-0.0176069	mg/L	12:24:03
2	Be 234.861†	23290.8	22166.5	0.0011785	mg/L	0.0011785	mg/L	12:24:03
2	Cd 214.437†	1954.5	1490.3	0.0142688	mg/L	0.0142688	mg/L	12:24:23

2	Ce 413.764†	24876.9	21999.3	0.588044 mg/L	0.588044 mg/L	12:24:03
2	Co 228.616†	775.1	793.6	0.0896523 mg/L	0.0896523 mg/L	12:24:23
2	Cr 205.557†	2670.0	2453.1	0.195896 mg/L	0.195896 mg/L	12:24:23
2	Cu 327.397†	2773.5	3716.5	0.0870591 mg/L	0.0870591 mg/L	12:24:23
2	Mn 257.610†	555373.9	504624.9	3.54275 mg/L	3.54275 mg/L	12:24:03
2	Mo 202.031†	141.9	20.4	-0.0012103 mg/L	-0.0012103 mg/L	12:24:23
2	Ni 231.604†	1751.8	1163.8	0.0796656 mg/L	0.0796656 mg/L	12:24:23
2	Pb 220.353†	306.4	260.4	0.145223 mg/L	0.145223 mg/L	12:24:23
2	Sb 217.584†	-2216.2	-1925.9	-0.483398 mg/L	-0.483398 mg/L	12:24:23
2	Se 196.026†	-202.2	-128.1	-0.131746 mg/L	-0.131746 mg/L	12:24:23
2	Si 251.611†	260894.7	222247.5	14.5257 mg/L	14.5257 mg/L	12:24:03
2	Sn 189.927†	9.8	13.3	-0.0063833 mg/L	-0.0063833 mg/L	12:24:23
2	Tl 190.801†	-96.2	-52.7	-0.0334276 mg/L	-0.0334276 mg/L	12:24:23
2	V 292.395†	22986.7	23027.3	0.389280 mg/L	0.389280 mg/L	12:24:03
2	Zn 206.200†	5122.3	4773.9	0.311918 mg/L	0.311918 mg/L	12:24:23

Mean Data: 0908257-06

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	265914.5	110.046	%	0.0892				0.08%
Y 360.076	245461.6	105.268	%	0.0498				0.05%
Ag 328.068†	-7882.8	-0.0917020	mg/L	0.00061007	-0.0917020	mg/L	0.00061007	0.67%
Al 396.153†	678162.3	183.518	mg/L	0.2737	183.518	mg/L	0.2737	0.15%
As 188.979†	59.4	0.0290529	mg/L	0.01261521	0.0290529	mg/L	0.01261521	43.42%
B 249.677†	-83.1	-0.0158776	mg/L	0.00244561	-0.0158776	mg/L	0.00244561	15.40%
Ba 455.398†	179712.1	0.496847	mg/L	0.0010206	0.496847	mg/L	0.0010206	0.21%
Be 234.861†	22166.4	0.0013665	mg/L	0.00026583	0.0013665	mg/L	0.00026583	19.45%
Ca 315.887†	1657.2	0.971820	mg/L	0.0026570	0.971820	mg/L	0.0026570	0.27%
Cd 214.437†	1488.5	0.0142556	mg/L	0.00001866	0.0142556	mg/L	0.00001866	0.13%
Ce 413.764†	21989.8	0.587748	mg/L	0.0004181	0.587748	mg/L	0.0004181	0.07%
Co 228.616†	798.6	0.0903252	mg/L	0.00095166	0.0903252	mg/L	0.00095166	1.05%
Cr 205.557†	2453.0	0.195869	mg/L	0.0000385	0.195869	mg/L	0.0000385	0.02%
Cu 327.397†	3742.4	0.0876509	mg/L	0.00083706	0.0876509	mg/L	0.00083706	0.95%
Fe 238.204†	374148.0	244.387	mg/L	0.6970	244.387	mg/L	0.6970	0.29%
K 766.490	7334.8	10.1513	mg/L	0.06943	10.1513	mg/L	0.06943	0.68%
Li 670.784†	5901.8	0.148080	mg/L	0.0007672	0.148080	mg/L	0.0007672	0.52%
Mg 279.071†	5381.6	12.3035	mg/L	0.02876	12.3035	mg/L	0.02876	0.23%
Mn 257.610†	504054.6	3.53874	mg/L	0.005678	3.53874	mg/L	0.005678	0.16%
Mo 202.031†	10.8	-0.0022256	mg/L	0.00143598	-0.0022256	mg/L	0.00143598	64.52%
Na 589.592†	851.0	0.0899566	mg/L	0.01144968	0.0899566	mg/L	0.01144968	12.73%
Ni 231.604†	1159.6	0.0793722	mg/L	0.00041483	0.0793722	mg/L	0.00041483	0.52%
Pb 220.353†	256.3	0.143368	mg/L	0.0026236	0.143368	mg/L	0.0026236	1.83%
Sb 217.584†	-1926.0	-0.484812	mg/L	0.0019996	-0.484812	mg/L	0.0019996	0.41%
Se 196.026†	-125.2	-0.126745	mg/L	0.0070726	-0.126745	mg/L	0.0070726	5.58%
Si 251.611†	222465.6	14.5399	mg/L	0.01999	14.5399	mg/L	0.01999	0.14%
Sn 189.927†	13.6	-0.0062648	mg/L	0.00016751	-0.0062648	mg/L	0.00016751	2.67%
Sr 407.771†	23632.0	0.0219825	mg/L	0.00010029	0.0219825	mg/L	0.00010029	0.46%
Ti 334.940†	71582.9	3.89024	mg/L	0.008365	3.89024	mg/L	0.008365	0.22%
Tl 190.801†	-48.5	-0.0287858	mg/L	0.00656462	-0.0287858	mg/L	0.00656462	22.81%
V 292.395†	23005.2	0.388929	mg/L	0.0004966	0.388929	mg/L	0.0004966	0.13%
Zn 206.200†	4772.4	0.311824	mg/L	0.0001323	0.311824	mg/L	0.0001323	0.04%

Sequence No.: 28
Sample ID: 0908257-07
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 29
Date Collected: 8/25/2009 12:25:37 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-07

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Y 360.076	242760.7	242760.7	104.110	%			12:26:42
1	Al 396.153†	623747.4	598331.4	161.920	mg/L	161.920	mg/L	12:26:42
1	Ba 455.398†	293316.9	282668.6	0.782207	mg/L	0.782207	mg/L	12:26:42
1	Ca 315.887†	15613.8	14393.6	7.52070	mg/L	7.52070	mg/L	12:26:47
1	Fe 238.204†	254300.3	244185.5	159.497	mg/L	159.497	mg/L	12:26:42
1	K 766.490	5116.3	4680.1	6.47052	mg/L	6.47052	mg/L	12:26:47
1	Li 670.784†	5812.4	4428.9	0.111126	mg/L	0.111126	mg/L	12:26:47

02914

1	Mg 279.071†	3519.2	3338.6	7.64040 mg/L	7.64040 mg/L	12:26:47
1	Na 589.592†	2262.6	1020.1	0.113285 mg/L	0.113285 mg/L	12:26:47
1	Sr 407.771†	87017.3	82913.6	0.0813942 mg/L	0.0813942 mg/L	12:26:42
1	Ti 334.940†	39571.5	37977.5	2.06295 mg/L	2.06295 mg/L	12:26:47
1	Sc 357.234	256574.8	256574.8	106.181 %		12:27:04
1	Ag 328.068†	-4613.3	-5184.2	-0.0603210 mg/L	-0.0603210 mg/L	12:27:24
1	As 188.979†	24.1	61.0	0.0412651 mg/L	0.0412651 mg/L	12:27:24
1	B 249.677†	793.9	-70.8	-0.0139807 mg/L	-0.0139807 mg/L	12:27:04
1	Be 234.861†	14979.9	15097.7	0.0032290 mg/L	0.0032290 mg/L	12:27:04
1	Cd 214.437†	1472.6	1100.1	0.0092545 mg/L	0.0092545 mg/L	12:27:24
1	Ce 413.764†	19432.3	17681.6	0.468350 mg/L	0.468350 mg/L	12:27:04
1	Co 228.616†	443.4	506.4	0.0582022 mg/L	0.0582022 mg/L	12:27:24
1	Cr 205.557†	2325.6	2215.7	0.174351 mg/L	0.174351 mg/L	12:27:24
1	Cu 327.397†	2170.1	3238.5	0.0742573 mg/L	0.0742573 mg/L	12:27:24
1	Mn 257.610†	658382.4	619718.7	4.34482 mg/L	4.34482 mg/L	12:27:04
1	Mo 202.031†	141.9	25.1	-0.0007174 mg/L	-0.0007174 mg/L	12:27:24
1	Ni 231.604†	1480.2	965.0	0.0658927 mg/L	0.0658927 mg/L	12:27:24
1	Pb 220.353†	313.5	277.1	0.148282 mg/L	0.148282 mg/L	12:27:24
1	Sb 217.584†	-1461.5	-1287.2	-0.329556 mg/L	-0.329556 mg/L	12:27:24
1	Se 196.026†	-144.6	-80.5	-0.0858574 mg/L	-0.0858574 mg/L	12:27:24
1	Si 251.611†	249050.4	219586.8	14.3796 mg/L	14.3796 mg/L	12:27:04
1	Sn 189.927†	-11.3	-6.2	-0.0146927 mg/L	-0.0146927 mg/L	12:27:24
1	Tl 190.801†	-63.4	-24.9	-0.0161165 mg/L	-0.0161165 mg/L	12:27:24
1	V 292.395†	17985.7	19065.7	0.329597 mg/L	0.329597 mg/L	12:27:04
1	Zn 206.200†	4516.4	4370.0	0.285376 mg/L	0.285376 mg/L	12:27:24
2	Y 360.076	244203.4	244203.4	104.729 %		12:26:52
2	Al 396.153†	626466.8	597388.7	161.665 mg/L	161.665 mg/L	12:26:52
2	Ba 455.398†	294680.5	282306.2	0.781202 mg/L	0.781202 mg/L	12:26:52
2	Ca 315.887†	15616.9	14307.9	7.47649 mg/L	7.47649 mg/L	12:26:57
2	Fe 238.204†	255545.5	243931.4	159.331 mg/L	159.331 mg/L	12:26:52
2	K 766.490	5130.8	4694.7	6.49066 mg/L	6.49066 mg/L	12:26:57
2	Li 670.784†	5833.2	4415.7	0.110796 mg/L	0.110796 mg/L	12:26:57
2	Mg 279.071†	3552.1	3350.0	7.66642 mg/L	7.66642 mg/L	12:26:57
2	Na 589.592†	2238.5	984.2	0.108335 mg/L	0.108335 mg/L	12:26:57
2	Sr 407.771†	87401.4	82786.6	0.0812670 mg/L	0.0812670 mg/L	12:26:52
2	Ti 334.940†	39667.1	37844.2	2.05570 mg/L	2.05570 mg/L	12:26:57
2	Sc 357.234	257052.9	257052.9	106.379 %		12:27:29
2	Ag 328.068†	-4630.8	-5192.5	-0.0604592 mg/L	-0.0604592 mg/L	12:27:49
2	As 188.979†	15.8	53.2	0.0326184 mg/L	0.0326184 mg/L	12:27:49
2	B 249.677†	848.2	-21.2	-0.0116662 mg/L	-0.0116662 mg/L	12:27:29
2	Be 234.861†	14913.6	15009.1	0.0029113 mg/L	0.0029113 mg/L	12:27:29
2	Cd 214.437†	1469.6	1094.7	0.0091425 mg/L	0.0091425 mg/L	12:27:49
2	Ce 413.764†	19468.1	17681.3	0.468325 mg/L	0.468325 mg/L	12:27:29
2	Co 228.616†	444.7	506.8	0.0582900 mg/L	0.0582900 mg/L	12:27:49
2	Cr 205.557†	2354.6	2238.8	0.176130 mg/L	0.176130 mg/L	12:27:49
2	Cu 327.397†	2212.0	3274.1	0.0750472 mg/L	0.0750472 mg/L	12:27:49
2	Mn 257.610†	658213.6	618406.8	4.33562 mg/L	4.33562 mg/L	12:27:29
2	Mo 202.031†	147.7	30.3	-0.0001681 mg/L	-0.0001681 mg/L	12:27:49
2	Ni 231.604†	1492.8	974.3	0.0665395 mg/L	0.0665395 mg/L	12:27:49
2	Pb 220.353†	323.6	286.1	0.152236 mg/L	0.152236 mg/L	12:27:49
2	Sb 217.584†	-1451.9	-1275.7	-0.323076 mg/L	-0.323076 mg/L	12:27:49
2	Se 196.026†	-128.9	-65.5	-0.0591027 mg/L	-0.0591027 mg/L	12:27:29
2	Si 251.611†	249148.2	219242.4	14.3570 mg/L	14.3570 mg/L	12:27:49
2	Sn 189.927†	2.9	7.1	-0.0090246 mg/L	-0.0090246 mg/L	12:27:49
2	Tl 190.801†	-71.0	-31.9	-0.0239044 mg/L	-0.0239044 mg/L	12:27:29
2	V 292.395†	17882.7	18937.4	0.327214 mg/L	0.327214 mg/L	12:27:49
2	Zn 206.200†	4554.7	4398.1	0.287226 mg/L	0.287226 mg/L	

Mean Data: 0908257-07

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 357.234	256813.9	106.280	%	0.1399				0.13%
Y 360.076	243482.1	104.419	%	0.4375				0.42%
Ag 328.068†	-5188.3	-0.0603901	mg/L	0.00009770	-0.0603901	mg/L	0.00009770	0.16%
Al 396.153†	597860.0	161.793	mg/L	0.1804	161.793	mg/L	0.1804	0.11%
As 188.979†	57.1	0.0369417	mg/L	0.00611417	0.0369417	mg/L	0.00611417	16.55%
B 249.677†	-46.0	-0.0128235	mg/L	0.00163656	-0.0128235	mg/L	0.00163656	12.76%
Ba 455.398†	282487.4	0.781704	mg/L	0.0007102	0.781704	mg/L	0.0007102	0.09%
Be 234.861†	15053.4	0.0030702	mg/L	0.00022465	0.0030702	mg/L	0.00022465	7.32%
Ca 315.887†	14350.7	7.49859	mg/L	0.031266	7.49859	mg/L	0.031266	0.42%

02315

Cd 214.437†	1097.4	0.0091985 mg/L	0.00007922	0.0091985 mg/L	0.00007922	0.86%
Ce 413.764†	17681.4	0.468338 mg/L	0.0000176	0.468338 mg/L	0.0000176	0.00%
Co 228.616†	506.6	0.0582461 mg/L	0.00006211	0.0582461 mg/L	0.00006211	0.11%
Cr 205.557†	2227.3	0.175240 mg/L	0.0012582	0.175240 mg/L	0.0012582	0.72%
Cu 327.397†	3256.3	0.0746522 mg/L	0.00055853	0.0746522 mg/L	0.00055853	0.75%
Fe 238.204†	244058.4	159.414 mg/L	0.1173	159.414 mg/L	0.1173	0.07%
K 766.490	4687.4	6.48059 mg/L	0.014238	6.48059 mg/L	0.014238	0.22%
Li 670.784†	4422.3	0.110961 mg/L	0.0002334	0.110961 mg/L	0.0002334	0.21%
Mg 279.071†	3344.3	7.65341 mg/L	0.018399	7.65341 mg/L	0.018399	0.24%
Mn 257.610†	619062.7	4.34022 mg/L	0.006501	4.34022 mg/L	0.006501	0.15%
Mo 202.031†	27.7	-0.0004427 mg/L	0.00038842	-0.0004427 mg/L	0.00038842	87.74%
Na 589.592†	1002.1	0.110810 mg/L	0.0034998	0.110810 mg/L	0.0034998	3.16%
Ni 231.604†	969.6	0.0662161 mg/L	0.00045736	0.0662161 mg/L	0.00045736	0.69%
Pb 220.353†	281.6	0.150259 mg/L	0.0027957	0.150259 mg/L	0.0027957	1.86%
Sb 217.584†	-1281.5	-0.326316 mg/L	0.0045819	-0.326316 mg/L	0.0045819	1.40%
Se 196.026†	-73.0	-0.0724801 mg/L	0.01891842	-0.0724801 mg/L	0.01891842	26.10%
Si 251.611†	219414.6	14.3683 mg/L	0.01596	14.3683 mg/L	0.01596	0.11%
Sn 189.927†	0.4	-0.0118586 mg/L	0.00400795	-0.0118586 mg/L	0.00400795	33.80%
Sr 407.771†	82850.1	0.0813306 mg/L	0.00008997	0.0813306 mg/L	0.00008997	0.11%
Ti 334.940†	37910.8	2.05932 mg/L	0.005127	2.05932 mg/L	0.005127	0.25%
Tl 190.801†	-28.4	-0.0200105 mg/L	0.00550689	-0.0200105 mg/L	0.00550689	27.52%
V 292.395†	19001.6	0.328405 mg/L	0.0016853	0.328405 mg/L	0.0016853	0.51%
Zn 206.200†	4384.0	0.286301 mg/L	0.0013083	0.286301 mg/L	0.0013083	0.46%

Sequence No.: 29
Sample ID: 0908257-08
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 30
Date Collected: 8/25/2009 12:29:08 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-08

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	249506.1	249506.1	107.003	%			12:30:14
1	Al 396.153†	764067.2	713271.0	193.018	mg/L	193.018	mg/L	12:30:14
1	Ba 455.398†	294269.7	275942.3	0.763594	mg/L	0.763594	mg/L	12:30:14
1	Ca 315.887†	2909.6	2115.3	1.22131	mg/L	1.22131	mg/L	12:30:19
1	Fe 238.204†	439652.6	410804.0	268.330	mg/L	268.330	mg/L	12:30:14
1	K 766.490	8391.7	7955.6	11.0120	mg/L	11.0120	mg/L	12:30:19
1	Li 670.784†	6401.7	4828.7	0.121157	mg/L	0.121157	mg/L	12:30:19
1	Mg 279.071†	5904.0	5475.9	12.5397	mg/L	12.5397	mg/L	12:30:19
1	Na 589.592†	2288.1	985.1	0.108460	mg/L	0.108460	mg/L	12:30:19
1	Sr 407.771†	22891.7	20725.0	0.0190630	mg/L	0.0190630	mg/L	12:30:19
1	Ti 334.940†	91215.7	85214.3	4.63152	mg/L	4.63152	mg/L	12:30:14
1	Sc 357.234	266367.3	266367.3	110.233	%			12:30:36
1	Ag 328.068†	-8737.3	-8765.6	-0.102337	mg/L	-0.102337	mg/L	12:30:56
1	As 188.979†	34.9	70.0	0.0367360	mg/L	0.0367360	mg/L	12:30:56
1	B 249.677†	786.9	-104.7	-0.0174436	mg/L	-0.0174436	mg/L	12:30:36
1	Be 234.861†	25828.9	24420.9	0.0019450	mg/L	0.0019450	mg/L	12:30:36
1	Cd 214.437†	2093.1	1612.0	0.0158386	mg/L	0.0158386	mg/L	12:30:56
1	Ce 413.764†	26311.7	23249.6	0.622583	mg/L	0.622583	mg/L	12:30:36
1	Co 228.616†	968.9	967.7	0.110420	mg/L	0.110420	mg/L	12:30:56
1	Cr 205.557†	2783.3	2550.4	0.204293	mg/L	0.204293	mg/L	12:30:56
1	Cu 327.397†	3000.1	3916.3	0.0925634	mg/L	0.0925634	mg/L	12:30:56
1	Mn 257.610†	878033.4	796183.6	5.58521	mg/L	5.58521	mg/L	12:30:36
1	Mo 202.031†	85.4	-31.1	-0.0066516	mg/L	-0.0066516	mg/L	12:30:56
1	Ni 231.604†	1774.6	1180.8	0.0808332	mg/L	0.0808332	mg/L	12:30:56
1	Pb 220.353†	326.8	278.3	0.155126	mg/L	0.155126	mg/L	12:30:56
1	Sb 217.584†	-2454.3	-2137.3	-0.546379	mg/L	-0.546379	mg/L	12:30:56
1	Se 196.026†	-194.6	-120.8	-0.107736	mg/L	-0.107736	mg/L	12:30:56
1	Si 251.611†	259908.6	220814.1	14.4167	mg/L	14.4167	mg/L	12:30:36
1	Sn 189.927†	1.8	6.1	-0.0094721	mg/L	-0.0094721	mg/L	12:30:56
1	Tl 190.801†	-99.8	-55.7	-0.0314010	mg/L	-0.0314010	mg/L	12:30:56
1	V 292.395†	26327.3	26010.2	0.441156	mg/L	0.441156	mg/L	12:30:36
1	Zn 206.200†	5865.5	5437.5	0.355720	mg/L	0.355720	mg/L	12:30:56
2	Y 360.076	246254.3	246254.3	105.608	%			12:30:24
2	Al 396.153†	757340.0	716330.1	193.846	mg/L	193.846	mg/L	12:30:24
2	Ba 455.398†	291469.8	276922.5	0.766312	mg/L	0.766312	mg/L	12:30:24
2	Ca 315.887†	2887.1	2129.9	1.22947	mg/L	1.22947	mg/L	12:30:29

02916

2	Fe 238.204†	437876.6	414547.9	270.776 mg/L	270.776 mg/L	12:30:24
2	K 766.490	8291.6	7855.5	10.8732 mg/L	10.8732 mg/L	12:30:29
2	Li 670.784†	6406.0	4911.7	0.123241 mg/L	0.123241 mg/L	12:30:29
2	Mg 279.071†	5891.4	5536.9	12.6792 mg/L	12.6792 mg/L	12:30:29
2	Na 589.592†	2272.0	998.1	0.110259 mg/L	0.110259 mg/L	12:30:29
2	Sr 407.771†	22789.4	20910.7	0.0192483 mg/L	0.0192483 mg/L	12:30:29
2	Ti 334.940†	90804.8	85950.8	4.67158 mg/L	4.67158 mg/L	12:30:24
2	Sc 357.234	265438.5	265438.5	109.849 %		12:31:02
2	Ag 328.068†	-8775.3	-8828.0	-0.103015 mg/L	-0.103015 mg/L	12:31:22
2	As 188.979†	50.7	84.5	0.0524438 mg/L	0.0524438 mg/L	12:31:22
2	B 249.677†	744.5	-140.8	-0.0191487 mg/L	-0.0191487 mg/L	12:31:02
2	Be 234.861†	25791.9	24469.2	0.0012193 mg/L	0.0012193 mg/L	12:31:02
2	Cd 214.437†	2110.6	1634.6	0.0162463 mg/L	0.0162463 mg/L	12:31:22
2	Ce 413.764†	26361.6	23378.5	0.626146 mg/L	0.626146 mg/L	12:31:02
2	Co 228.616†	957.3	960.3	0.109238 mg/L	0.109238 mg/L	12:31:22
2	Cr 205.557†	2805.9	2579.8	0.206649 mg/L	0.206649 mg/L	12:31:22
2	Cu 327.397†	2979.7	3907.2	0.0924103 mg/L	0.0924103 mg/L	12:31:22
2	Mn 257.610†	878813.0	799680.6	5.60980 mg/L	5.60980 mg/L	12:31:02
2	Mo 202.031†	79.8	-35.9	-0.0071643 mg/L	-0.0071643 mg/L	12:31:22
2	Ni 231.604†	1814.4	1222.7	0.0837351 mg/L	0.0837351 mg/L	12:31:22
2	Pb 220.353†	309.8	263.8	0.148802 mg/L	0.148802 mg/L	12:31:22
2	Sb 217.584†	-2460.9	-2151.1	-0.547937 mg/L	-0.547937 mg/L	12:31:22
2	Se 196.026†	-196.7	-123.3	-0.111139 mg/L	-0.111139 mg/L	12:31:22
2	Si 251.611†	259690.3	221440.4	14.4575 mg/L	14.4575 mg/L	12:31:02
2	Sn 189.927†	-5.4	-0.5	-0.0122666 mg/L	-0.0122666 mg/L	12:31:22
2	Tl 190.801†	-105.5	-61.3	-0.0372040 mg/L	-0.0372040 mg/L	12:31:22
2	V 292.395†	26202.7	25980.4	0.440169 mg/L	0.440169 mg/L	12:31:02
2	Zn 206.200†	5877.9	5467.4	0.357690 mg/L	0.357690 mg/L	12:31:22

Mean Data: 0908257-08

Analyte	Mean Corrected Intensity	Calib. Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 357.234	265902.9	110.041	%	0.2718				0.25%
Y 360.076	247880.2	106.305	%	0.9861				0.93%
Ag 328.068†	-8796.8	-0.102676	mg/L	0.0004792	-0.102676	mg/L	0.0004792	0.47%
Al 396.153†	714800.5	193.432	mg/L	0.5853	193.432	mg/L	0.5853	0.30%
As 188.979†	77.3	0.0445899	mg/L	0.01110713	0.0445899	mg/L	0.01110713	24.91%
B 249.677†	-122.7	-0.0182961	mg/L	0.00120572	-0.0182961	mg/L	0.00120572	6.59%
Ba 455.398†	276432.4	0.764953	mg/L	0.0019219	0.764953	mg/L	0.0019219	0.25%
Be 234.861†	24445.0	0.0015822	mg/L	0.00051319	0.0015822	mg/L	0.00051319	32.44%
Ca 315.887†	2122.6	1.22539	mg/L	0.005768	1.22539	mg/L	0.005768	0.47%
Cd 214.437†	1623.3	0.0160424	mg/L	0.00028830	0.0160424	mg/L	0.00028830	1.80%
Ce 413.764†	23314.1	0.624364	mg/L	0.0025194	0.624364	mg/L	0.0025194	0.40%
Co 228.616†	964.0	0.109829	mg/L	0.0008354	0.109829	mg/L	0.0008354	0.76%
Cr 205.557†	2565.1	0.205471	mg/L	0.0016655	0.205471	mg/L	0.0016655	0.81%
Cu 327.397†	3911.7	0.0924869	mg/L	0.00010831	0.0924869	mg/L	0.00010831	0.12%
Fe 238.204†	412675.9	269.553	mg/L	1.7292	269.553	mg/L	1.7292	0.64%
K 766.490	7905.5	10.9426	mg/L	0.09813	10.9426	mg/L	0.09813	0.90%
Li 670.784†	4870.2	0.122199	mg/L	0.0014731	0.122199	mg/L	0.0014731	1.21%
Mg 279.071†	5506.4	12.6095	mg/L	0.09866	12.6095	mg/L	0.09866	0.78%
Mn 257.610†	797932.1	5.59751	mg/L	0.017390	5.59751	mg/L	0.017390	0.31%
Mo 202.031†	-33.5	-0.0069079	mg/L	0.00036252	-0.0069079	mg/L	0.00036252	5.25%
Na 589.592†	991.6	0.109359	mg/L	0.0012720	0.109359	mg/L	0.0012720	1.16%
Ni 231.604†	1201.8	0.0822841	mg/L	0.00205197	0.0822841	mg/L	0.00205197	2.49%
Pb 220.353†	271.1	0.151964	mg/L	0.0044715	0.151964	mg/L	0.0044715	2.94%
Sb 217.584†	-2144.2	-0.547158	mg/L	0.0011014	-0.547158	mg/L	0.0011014	0.20%
Se 196.026†	-122.1	-0.109437	mg/L	0.0024061	-0.109437	mg/L	0.0024061	2.20%
Si 251.611†	221127.2	14.4371	mg/L	0.02886	14.4371	mg/L	0.02886	0.20%
Sn 189.927†	2.8	-0.0108694	mg/L	0.00197604	-0.0108694	mg/L	0.00197604	18.18%
Sr 407.771†	20817.9	0.0191557	mg/L	0.00013100	0.0191557	mg/L	0.00013100	0.68%
Ti 334.940†	85582.6	4.65155	mg/L	0.028321	4.65155	mg/L	0.028321	0.61%
Tl 190.801†	-58.5	-0.0343025	mg/L	0.00410335	-0.0343025	mg/L	0.00410335	11.96%
V 292.395†	25995.3	0.440663	mg/L	0.0006980	0.440663	mg/L	0.0006980	0.16%
Zn 206.200†	5452.5	0.356705	mg/L	0.0013930	0.356705	mg/L	0.0013930	0.39%

Sequence No.: 30
Sample ID: 0908257-09
Analyst:
Initial Sample Wt:

Autosampler Location: 31
Date Collected: 8/25/2009 12:32:36 PM
Data Type: Original
Initial Sample Vol:

Dilution: Sample Prep Vol:

Replicate Data: 0908257-09

Rep1#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	243705.8	243705.8	104.515	%			12:33:44
1	Al 396.153†	738588.2	705887.7	191.020	mg/L	191.020	mg/L	12:33:44
1	Ba 455.398†	212064.0	203833.3	0.563728	mg/L	0.563728	mg/L	12:33:44
1	Ca 315.887†	1141.5	488.3	0.370923	mg/L	0.370923	mg/L	12:34:04
1	Fe 238.204†	411565.4	393709.3	257.164	mg/L	257.164	mg/L	12:33:44
1	K 766.490	8020.7	7584.6	10.4976	mg/L	10.4976	mg/L	12:34:04
1	Li 670.784†	6061.8	4645.8	0.116568	mg/L	0.116568	mg/L	12:34:04
1	Mg 279.071†	5548.0	5266.6	12.0394	mg/L	12.0394	mg/L	12:34:04
1	Na 589.592†	2007.2	767.2	0.0783878	mg/L	0.0783878	mg/L	12:34:04
1	Sr 407.771†	26018.7	24226.1	0.0225581	mg/L	0.0225581	mg/L	12:33:44
1	Ti 334.940†	86684.1	82907.3	4.50606	mg/L	4.50606	mg/L	12:33:44
1	Sc 357.234	262116.6	262116.6	108.474	%			12:34:36
1	Ag 328.068†	-8071.1	-8280.0	-0.0961001	mg/L	-0.0961001	mg/L	12:34:56
1	As 188.979†	35.5	71.0	0.0380446	mg/L	0.0380446	mg/L	12:34:56
1	B 249.677†	743.8	-132.8	-0.0185976	mg/L	-0.0185976	mg/L	12:34:36
1	Be 234.861†	24105.9	23212.5	0.0009800	mg/L	0.0009800	mg/L	12:34:36
1	Cd 214.437†	2006.2	1562.7	0.0151820	mg/L	0.0151820	mg/L	12:34:56
1	Ce 413.764†	28176.0	25355.3	0.675792	mg/L	0.675792	mg/L	12:34:36
1	Co 228.616†	764.3	793.4	0.0875359	mg/L	0.0875359	mg/L	12:34:56
1	Cr 205.557†	2134.3	1993.1	0.160881	mg/L	0.160881	mg/L	12:34:56
1	Cu 327.397†	2557.2	3552.1	0.0841196	mg/L	0.0841196	mg/L	12:34:56
1	Mn 257.610†	504196.0	464468.2	3.26213	mg/L	3.26213	mg/L	12:34:36
1	Mo 202.031†	106.8	-10.1	-0.0044349	mg/L	-0.0044349	mg/L	12:34:56
1	Ni 231.604†	1746.9	1181.3	0.0808698	mg/L	0.0808698	mg/L	12:34:56
1	Pb 220.353†	302.8	261.0	0.146942	mg/L	0.146942	mg/L	12:34:56
1	Sb 217.584†	-2303.4	-2034.3	-0.514705	mg/L	-0.514705	mg/L	12:34:56
1	Se 196.026†	-176.9	-107.4	-0.0885514	mg/L	-0.0885514	mg/L	12:34:56
1	Si 251.611†	260065.5	224782.3	14.6794	mg/L	14.6794	mg/L	12:34:36
1	Sn 189.927†	11.5	15.0	-0.0056673	mg/L	-0.0056673	mg/L	12:34:56
1	Tl 190.801†	-108.0	-64.7	-0.0416559	mg/L	-0.0416559	mg/L	12:34:56
1	V 292.395†	25673.4	25794.7	0.438984	mg/L	0.438984	mg/L	12:34:36
1	Zn 206.200†	5782.9	5447.7	0.356435	mg/L	0.356435	mg/L	12:34:56
2	Y 360.076	241308.9	241308.9	103.487	%			12:34:09
2	Al 396.153†	733375.2	707869.7	191.556	mg/L	191.556	mg/L	12:34:09
2	Ba 455.398†	210482.2	204320.2	0.565078	mg/L	0.565078	mg/L	12:34:09
2	Ca 315.887†	1142.5	500.1	0.377326	mg/L	0.377326	mg/L	12:34:29
2	Fe 238.204†	410102.7	396207.2	258.796	mg/L	258.796	mg/L	12:34:09
2	K 766.490	8000.0	7563.9	10.4689	mg/L	10.4689	mg/L	12:34:29
2	Li 670.784†	6040.5	4682.8	0.117498	mg/L	0.117498	mg/L	12:34:29
2	Mg 279.071†	5546.0	5317.4	12.1553	mg/L	12.1553	mg/L	12:34:29
2	Na 589.592†	2003.8	783.1	0.0805794	mg/L	0.0805794	mg/L	12:34:29
2	Sr 407.771†	25722.6	24187.3	0.0225188	mg/L	0.0225188	mg/L	12:34:09
2	Ti 334.940†	86295.9	83356.0	4.53046	mg/L	4.53046	mg/L	12:34:09
2	Sc 357.234	262678.2	262678.2	108.707	%			12:35:01
2	Ag 328.068†	-8094.3	-8285.4	-0.0960242	mg/L	-0.0960242	mg/L	12:35:21
2	As 188.979†	19.2	56.0	0.0213065	mg/L	0.0213065	mg/L	12:35:21
2	B 249.677†	719.5	-156.6	-0.0197229	mg/L	-0.0197229	mg/L	12:35:01
2	Be 234.861†	24097.1	23156.9	0.0001165	mg/L	0.0001165	mg/L	12:35:01
2	Cd 214.437†	1989.7	1543.5	0.0146212	mg/L	0.0146212	mg/L	12:35:21
2	Ce 413.764†	28308.8	25421.9	0.677669	mg/L	0.677669	mg/L	12:35:01
2	Co 228.616†	771.4	798.4	0.0880962	mg/L	0.0880962	mg/L	12:35:21
2	Cr 205.557†	2130.7	1985.6	0.160364	mg/L	0.160364	mg/L	12:35:21
2	Cu 327.397†	2494.5	3489.4	0.0827364	mg/L	0.0827364	mg/L	12:35:21
2	Mn 257.610†	504701.4	463939.4	3.25850	mg/L	3.25850	mg/L	12:35:01
2	Mo 202.031†	110.3	-7.2	-0.0041259	mg/L	-0.0041259	mg/L	12:35:21
2	Ni 231.604†	1741.0	1172.5	0.0802591	mg/L	0.0802591	mg/L	12:35:21
2	Pb 220.353†	300.8	258.6	0.145982	mg/L	0.145982	mg/L	12:35:21
2	Sb 217.584†	-2290.3	-2017.7	-0.500129	mg/L	-0.500129	mg/L	12:35:21
2	Se 196.026†	-175.5	-105.8	-0.0848336	mg/L	-0.0848336	mg/L	12:35:21
2	Si 251.611†	260741.6	224891.7	14.6863	mg/L	14.6863	mg/L	12:35:01
2	Sn 189.927†	8.9	12.7	-0.0066668	mg/L	-0.0066668	mg/L	12:35:21
2	Tl 190.801†	-98.4	-55.7	-0.0315537	mg/L	-0.0315537	mg/L	12:35:21
2	V 292.395†	25730.0	25796.2	0.438736	mg/L	0.438736	mg/L	12:35:01
2	Zn 206.200†	5766.3	5421.0	0.354670	mg/L	0.354670	mg/L	12:35:21

Mean Data: 0908257-09

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	262397.4	108.590	%	0.1643				0.15%
Y 360.076	242507.3	104.001	%	0.7268				0.70%
Ag 328.068†	-8282.7	-0.0960622	mg/L	0.00005370	-0.0960622	mg/L	0.00005370	0.06%
Al 396.153†	706878.7	191.288	mg/L	0.3792	191.288	mg/L	0.3792	0.20%
As 188.979†	63.5	0.0296755	mg/L	0.01183566	0.0296755	mg/L	0.01183566	39.88%
B 249.677†	-144.7	-0.0191603	mg/L	0.00079573	-0.0191603	mg/L	0.00079573	4.15%
Ba 455.398†	204076.8	0.564403	mg/L	0.0009546	0.564403	mg/L	0.0009546	0.17%
Be 234.861†	23184.7	0.0005482	mg/L	0.00061062	0.0005482	mg/L	0.00061062	111.38%
Ca 315.887†	494.2	0.374124	mg/L	0.0045275	0.374124	mg/L	0.0045275	1.21%
Cd 214.437†	1553.1	0.0149016	mg/L	0.00039656	0.0149016	mg/L	0.00039656	2.66%
Ce 413.764†	25388.6	0.676731	mg/L	0.0013277	0.676731	mg/L	0.0013277	0.20%
Co 228.616†	795.9	0.0878161	mg/L	0.00039618	0.0878161	mg/L	0.00039618	0.45%
Cr 205.557†	1989.3	0.160622	mg/L	0.0003660	0.160622	mg/L	0.0003660	0.23%
Cu 327.397†	3520.7	0.0834280	mg/L	0.00097804	0.0834280	mg/L	0.00097804	1.17%
Fe 238.204†	394958.3	257.980	mg/L	1.1538	257.980	mg/L	1.1538	0.45%
K 766.490	7574.2	10.4832	mg/L	0.02026	10.4832	mg/L	0.02026	0.19%
Li 670.784†	4664.3	0.117033	mg/L	0.0006576	0.117033	mg/L	0.0006576	0.56%
Mg 279.071†	5292.0	12.0974	mg/L	0.08198	12.0974	mg/L	0.08198	0.68%
Mn 257.610†	464203.8	3.26032	mg/L	0.002567	3.26032	mg/L	0.002567	0.08%
Mo 202.031†	-8.6	-0.0042804	mg/L	0.00021847	-0.0042804	mg/L	0.00021847	5.10%
Na 589.592†	775.1	0.0794836	mg/L	0.00154964	0.0794836	mg/L	0.00154964	1.95%
Ni 231.604†	1176.9	0.0805644	mg/L	0.00043189	0.0805644	mg/L	0.00043189	0.54%
Pb 220.353†	259.8	0.146462	mg/L	0.0006788	0.146462	mg/L	0.0006788	0.46%
Sb 217.584†	-2026.0	-0.507417	mg/L	0.0103069	-0.507417	mg/L	0.0103069	2.03%
Se 196.026†	-106.6	-0.0866925	mg/L	0.00262886	-0.0866925	mg/L	0.00262886	3.03%
Si 251.611†	224837.0	14.6829	mg/L	0.00490	14.6829	mg/L	0.00490	0.03%
Sn 189.927†	13.8	-0.0061671	mg/L	0.00070670	-0.0061671	mg/L	0.00070670	11.46%
Sr 407.771†	24206.7	0.0225384	mg/L	0.00002780	0.0225384	mg/L	0.00002780	0.12%
Ti 334.940†	83131.7	4.51826	mg/L	0.017254	4.51826	mg/L	0.017254	0.38%
Tl 190.801†	-60.2	-0.0366048	mg/L	0.00714338	-0.0366048	mg/L	0.00714338	19.51%
V 292.395†	25795.4	0.438860	mg/L	0.0001755	0.438860	mg/L	0.0001755	0.04%
Zn 206.200†	5434.3	0.355553	mg/L	0.0012480	0.355553	mg/L	0.0012480	0.35%

Sequence No.: 31
Sample ID: 0908257-10
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 32
Date Collected: 8/25/2009 12:36:35 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-10

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	255482.2	255482.2	109.566	%			12:37:40
1	Al 396.153†	807138.5	735879.0	199.146	mg/L	199.146	mg/L	12:37:40
1	Ba 455.398†	263486.4	241413.6	0.667854	mg/L	0.667854	mg/L	12:37:40
1	Ca 315.887†	48224.9	43410.7	22.4830	mg/L	22.4830	mg/L	12:37:45
1	Fe 238.204†	345681.3	315425.8	206.029	mg/L	206.029	mg/L	12:37:40
1	K 766.490	7914.6	7478.5	10.3505	mg/L	10.3505	mg/L	12:37:45
1	Li 670.784†	7213.7	5429.8	0.136238	mg/L	0.136238	mg/L	12:37:45
1	Mg 279.071†	6143.3	5565.2	12.7216	mg/L	12.7216	mg/L	12:37:45
1	Na 589.592†	2512.8	1140.2	0.129861	mg/L	0.129861	mg/L	12:37:45
1	Sr 407.771†	149441.1	135725.6	0.134298	mg/L	0.134298	mg/L	12:37:40
1	Ti 334.940†	50762.3	46298.6	2.51584	mg/L	2.51584	mg/L	12:37:45
1	Sc 357.234	258720.0	258720.0	107.069	%			12:38:02
1	Ag 328.068†	-6732.6	-7127.5	-0.0844171	mg/L	-0.0844171	mg/L	12:38:22
1	As 188.979†	24.3	61.0	0.0385321	mg/L	0.0385321	mg/L	12:38:22
1	B 249.677†	921.7	42.4	-0.0090033	mg/L	-0.0090033	mg/L	12:38:02
1	Be 234.861†	20526.2	20160.9	0.0071725	mg/L	0.0071725	mg/L	12:38:02
1	Cd 214.437†	1873.0	1462.5	0.0142381	mg/L	0.0142381	mg/L	12:38:22
1	Ce 413.764†	19889.7	17957.0	0.480027	mg/L	0.480027	mg/L	12:38:02
1	Co 228.616†	433.5	493.7	0.0541128	mg/L	0.0541128	mg/L	12:38:22
1	Cr 205.557†	3529.9	3322.3	0.261462	mg/L	0.261462	mg/L	12:38:22
1	Cu 327.397†	2447.3	3480.4	0.0811506	mg/L	0.0811506	mg/L	12:38:22
1	Mn 257.610†	563418.3	525882.9	3.68987	mg/L	3.68987	mg/L	12:38:02
1	Mo 202.031†	151.1	32.5	0.0000681	mg/L	0.0000681	mg/L	12:38:22

1	Ni 231.604†	1661.2	1122.5	0.0768319 mg/L	0.0768319 mg/L	12:38:22
1	Pb 220.353†	334.7	294.4	0.162379 mg/L	0.162379 mg/L	12:38:22
1	Sb 217.584†	-1996.1	-1775.1	-0.488465 mg/L	-0.488465 mg/L	12:38:22
1	Se 196.026†	-159.1	-92.9	-0.0868648 mg/L	-0.0868648 mg/L	12:38:22
1	Si 251.611†	285282.9	251482.4	16.4823 mg/L	16.4823 mg/L	12:38:02
1	Sn 189.927†	-13.8	-8.5	-0.0156413 mg/L	-0.0156413 mg/L	12:38:22
1	Tl 190.801†	-76.2	-36.4	-0.0253845 mg/L	-0.0253845 mg/L	12:38:22
1	V 292.395†	25220.9	25682.8	0.446603 mg/L	0.446603 mg/L	12:38:02
1	Zn 206.200†	5131.3	4909.1	0.320778 mg/L	0.320778 mg/L	12:38:22
2	Y 360.076	239087.5	239087.5	102.535 %		12:37:51
2	Al 396.153†	831631.3	810281.4	219.279 mg/L	219.279 mg/L	12:37:51
2	Ba 455.398†	270303.1	264552.1	0.731992 mg/L	0.731992 mg/L	12:37:51
2	Ca 315.887†	47902.4	46114.4	23.8810 mg/L	23.8810 mg/L	12:37:56
2	Fe 238.204†	357145.6	348241.3	227.464 mg/L	227.464 mg/L	12:37:51
2	K 766.490	7867.7	7431.5	10.2854 mg/L	10.2854 mg/L	12:37:56
2	Li 670.784†	7118.6	5788.5	0.145238 mg/L	0.145238 mg/L	12:37:56
2	Mg 279.071†	6089.8	5897.6	13.4812 mg/L	13.4812 mg/L	12:37:56
2	Na 589.592†	2613.8	1396.0	0.165165 mg/L	0.165165 mg/L	12:37:56
2	Sr 407.771†	153420.2	148959.2	0.147555 mg/L	0.147555 mg/L	12:37:51
2	Ti 334.940†	50264.4	48990.0	2.66224 mg/L	2.66224 mg/L	12:37:56
2	Sc 357.234	257294.5	257294.5	106.479 %		12:38:28
2	Ag 328.068†	-6795.7	-7221.6	-0.0838001 mg/L	-0.0838001 mg/L	12:38:48
2	As 188.979†	40.1	76.0	0.0542431 mg/L	0.0542431 mg/L	12:38:48
2	B 249.677†	876.8	4.9	-0.0108525 mg/L	-0.0108525 mg/L	12:38:28
2	Be 234.861†	20575.4	20313.3	-0.0004445 mg/L	-0.0004445 mg/L	12:38:28
2	Cd 214.437†	1885.7	1484.1	0.0128080 mg/L	0.0128080 mg/L	12:38:48
2	Ce 413.764†	19886.3	18056.8	0.484694 mg/L	0.484694 mg/L	12:38:28
2	Co 228.616†	452.4	513.7	0.0558847 mg/L	0.0558847 mg/L	12:38:48
2	Cr 205.557†	3549.3	3358.8	0.265084 mg/L	0.265084 mg/L	12:38:48
2	Cu 327.397†	2484.8	3528.3	0.0824925 mg/L	0.0824925 mg/L	12:38:48
2	Mn 257.610†	562133.6	527591.8	3.70279 mg/L	3.70279 mg/L	12:38:28
2	Mo 202.031†	149.3	31.6	-0.0000229 mg/L	-0.0000229 mg/L	12:38:48
2	Ni 231.604†	1657.0	1127.1	0.0771516 mg/L	0.0771516 mg/L	12:38:48
2	Pb 220.353†	334.8	296.3	0.166577 mg/L	0.166577 mg/L	12:38:48
2	Sb 217.584†	-2009.2	-1797.8	-0.439723 mg/L	-0.439723 mg/L	12:38:48
2	Se 196.026†	-167.2	-101.4	-0.0922093 mg/L	-0.0922093 mg/L	12:38:48
2	Si 251.611†	284573.7	252292.6	16.5366 mg/L	16.5366 mg/L	12:38:28
2	Sn 189.927†	-11.5	-6.4	-0.0147444 mg/L	-0.0147444 mg/L	12:38:48
2	Tl 190.801†	-75.1	-35.8	-0.0236912 mg/L	-0.0236912 mg/L	12:38:48
2	V 292.395†	25100.6	25700.3	0.443419 mg/L	0.443419 mg/L	12:38:28
2	Zn 206.200†	5150.5	4953.6	0.323700 mg/L	0.323700 mg/L	12:38:48

Mean Data: 0908257-10

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 357.234	258007.2	106.774	%	0.4171				0.39%
Y 360.076	247284.8	106.050	%	4.9717				4.69%
Ag 328.068†	-7174.6	-0.0841086	mg/L	0.00043629	-0.0841086	mg/L	0.00043629	0.52%
Al 396.153†	773080.2	209.213	mg/L	14.2362	209.213	mg/L	14.2362	6.80%
As 188.979†	68.5	0.0463876	mg/L	0.01110934	0.0463876	mg/L	0.01110934	23.95%
B 249.677†	23.6	-0.0099279	mg/L	0.00130760	-0.0099279	mg/L	0.00130760	13.17%
Ba 455.398†	252982.9	0.699923	mg/L	0.0453526	0.699923	mg/L	0.0453526	6.48%
Be 234.861†	20237.1	0.0033640	mg/L	0.00538604	0.0033640	mg/L	0.00538604	160.11%
Ca 315.887†	44762.6	23.1820	mg/L	0.98858	23.1820	mg/L	0.98858	4.26%
Cd 214.437†	1473.3	0.0135231	mg/L	0.00101122	0.0135231	mg/L	0.00101122	7.48%
Ce 413.764†	18006.9	0.482361	mg/L	0.0032998	0.482361	mg/L	0.0032998	0.68%
Co 228.616†	503.7	0.0549988	mg/L	0.00125295	0.0549988	mg/L	0.00125295	2.28%
Cr 205.557†	3340.6	0.263273	mg/L	0.0025607	0.263273	mg/L	0.0025607	0.97%
Cu 327.397†	3504.4	0.0818215	mg/L	0.00094886	0.0818215	mg/L	0.00094886	1.16%
Fe 238.204†	331833.5	216.747	mg/L	15.1564	216.747	mg/L	15.1564	6.99%
K 766.490	7455.0	10.3179	mg/L	0.04602	10.3179	mg/L	0.04602	0.45%
Li 670.784†	5609.2	0.140738	mg/L	0.0063636	0.140738	mg/L	0.0063636	4.52%
Mg 279.071†	5731.4	13.1014	mg/L	0.53710	13.1014	mg/L	0.53710	4.10%
Mn 257.610†	526737.4	3.69633	mg/L	0.009134	3.69633	mg/L	0.009134	0.25%
Mo 202.031†	32.1	0.0000226	mg/L	0.00006432	0.0000226	mg/L	0.00006432	284.45%
Na 589.592†	1268.1	0.147513	mg/L	0.0249634	0.147513	mg/L	0.0249634	16.92%
Ni 231.604†	1124.8	0.0769917	mg/L	0.00022611	0.0769917	mg/L	0.00022611	0.29%
Pb 220.353†	295.3	0.164478	mg/L	0.0029681	0.164478	mg/L	0.0029681	1.80%
Sb 217.584†	-1786.5	-0.464094	mg/L	0.0344652	-0.464094	mg/L	0.0344652	7.43%
Se 196.026†	-97.1	-0.0895371	mg/L	0.00377917	-0.0895371	mg/L	0.00377917	4.22%

Si 251.611†	251887.5	16.5094 mg/L	0.03834	16.5094 mg/L	0.03834	0.23%
Sn 189.927†	-7.4	-0.0151928 mg/L	0.00063422	-0.0151928 mg/L	0.00063422	4.17%
Sr 407.771†	142342.4	0.140926 mg/L	0.0093737	0.140926 mg/L	0.0093737	6.65%
Ti 334.940†	47644.3	2.58904 mg/L	0.103518	2.58904 mg/L	0.103518	4.00%
Tl 190.801†	-36.1	-0.0245378 mg/L	0.00119739	-0.0245378 mg/L	0.00119739	4.88%
V 292.395†	25691.6	0.445011 mg/L	0.0022515	0.445011 mg/L	0.0022515	0.51%
Zn 206.200†	4931.4	0.322239 mg/L	0.0020666	0.322239 mg/L	0.0020666	0.64%

Sequence No.: 32
Sample ID: 0908257-12
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 33
Date Collected: 8/25/2009 12:40:08 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-12

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	251152.4	251152.4	107.709	%			12:41:14
1	Al 396.153†	478955.7	443884.3	120.136	mg/L	120.136	mg/L	12:41:14
1	Ba 455.398†	519021.6	482806.0	1.33694	mg/L	1.33694	mg/L	12:41:14
1	Ca 315.887†	42506.4	38860.3	20.1468	mg/L	20.1468	mg/L	12:41:19
1	Fe 238.204†	300841.7	279234.5	182.392	mg/L	182.392	mg/L	12:41:14
1	K 766.490	7557.8	7121.7	9.85580	mg/L	9.85580	mg/L	12:41:19
1	Li 670.784†	6112.3	4520.8	0.113433	mg/L	0.113433	mg/L	12:41:19
1	Mg 279.071†	12008.7	11107.5	25.4205	mg/L	25.4205	mg/L	12:41:19
1	Na 589.592†	3506.7	2102.5	0.262668	mg/L	0.262668	mg/L	12:41:19
1	Sr 407.771†	83128.5	76510.4	0.0750078	mg/L	0.0750078	mg/L	12:41:19
1	Ti 334.940†	97131.3	90147.7	4.90033	mg/L	4.90033	mg/L	12:41:19
1	Sc 357.234	256678.0	256678.0	106.224	%			12:41:36
1	Ag 328.068†	-5700.5	-6206.0	-0.0737166	mg/L	-0.0737166	mg/L	12:41:56
1	As 188.979†	39.0	75.0	0.0438304	mg/L	0.0438304	mg/L	12:41:56
1	B 249.677†	917.0	44.8	-0.0105392	mg/L	-0.0105392	mg/L	12:41:36
1	Be 234.861†	18247.3	18168.0	0.0080710	mg/L	0.0080710	mg/L	12:41:36
1	Cd 214.437†	1524.5	1148.4	0.0119377	mg/L	0.0119377	mg/L	12:41:56
1	Ce 413.764†	14320.5	12862.0	0.346298	mg/L	0.346298	mg/L	12:41:36
1	Co 228.616†	635.8	687.4	0.0739028	mg/L	0.0739028	mg/L	12:41:56
1	Cr 205.557†	2703.9	2570.9	0.202620	mg/L	0.202620	mg/L	12:41:56
1	Cu 327.397†	3727.9	4704.2	0.111721	mg/L	0.111721	mg/L	12:41:56
1	Mn 257.610†	1096431.5	1031853.8	7.23149	mg/L	7.23149	mg/L	12:41:36
1	Mo 202.031†	141.8	24.8	-0.0007419	mg/L	-0.0007419	mg/L	12:41:56
1	Ni 231.604†	1977.5	1432.6	0.0983372	mg/L	0.0983372	mg/L	12:41:56
1	Pb 220.353†	430.1	386.7	0.192006	mg/L	0.192006	mg/L	12:41:56
1	Sb 217.584†	-1707.4	-1518.2	-0.412982	mg/L	-0.412982	mg/L	12:41:56
1	Se 196.026†	-155.7	-90.8	-0.0946253	mg/L	-0.0946253	mg/L	12:41:56
1	Si 251.611†	175611.1	150355.9	9.74198	mg/L	9.74198	mg/L	12:41:36
1	Sn 189.927†	-28.0	-22.0	-0.0213679	mg/L	-0.0213679	mg/L	12:41:56
1	Tl 190.801†	-104.3	-63.4	-0.0401871	mg/L	-0.0401871	mg/L	12:41:56
1	V 292.395†	16034.8	17222.3	0.288952	mg/L	0.288952	mg/L	12:41:36
1	Zn 206.200†	9515.1	9074.1	0.595411	mg/L	0.595411	mg/L	12:41:56
2	Y 360.076	242052.7	242052.7	103.806	%			12:41:24
2	Al 396.153†	490214.2	471447.0	127.594	mg/L	127.594	mg/L	12:41:24
2	Ba 455.398†	531513.4	512955.3	1.42051	mg/L	1.42051	mg/L	12:41:24
2	Ca 315.887†	43191.6	41004.0	21.2540	mg/L	21.2540	mg/L	12:41:29
2	Fe 238.204†	308254.1	296875.4	193.914	mg/L	193.914	mg/L	12:41:24
2	K 766.490	7609.3	7173.1	9.92713	mg/L	9.92713	mg/L	12:41:29
2	Li 670.784†	6168.3	4788.0	0.120138	mg/L	0.120138	mg/L	12:41:29
2	Mg 279.071†	12182.0	11693.6	26.7599	mg/L	26.7599	mg/L	12:41:29
2	Na 589.592†	3537.2	2254.2	0.283608	mg/L	0.283608	mg/L	12:41:29
2	Sr 407.771†	84344.3	80583.1	0.0790876	mg/L	0.0790876	mg/L	12:41:29
2	Ti 334.940†	99094.9	95429.5	5.18759	mg/L	5.18759	mg/L	12:41:29
2	Sc 357.234	255617.4	255617.4	105.785	%			12:42:01
2	Ag 328.068†	-5713.3	-6240.3	-0.0731642	mg/L	-0.0731642	mg/L	12:42:21
2	As 188.979†	36.0	72.3	0.0394127	mg/L	0.0394127	mg/L	12:42:21
2	B 249.677†	940.0	70.1	-0.0095458	mg/L	-0.0095458	mg/L	12:42:01
2	Be 234.861†	18075.8	18077.1	0.0032522	mg/L	0.0032522	mg/L	12:42:01
2	Cd 214.437†	1510.3	1140.9	0.0108990	mg/L	0.0108990	mg/L	12:42:21
2	Ce 413.764†	14285.8	12885.1	0.348020	mg/L	0.348020	mg/L	12:42:01
2	Co 228.616†	616.7	671.8	0.0707006	mg/L	0.0707006	mg/L	12:42:21
2	Cr 205.557†	2715.1	2592.1	0.204689	mg/L	0.204689	mg/L	12:42:21

2	Cu 327.397†	3722.1	4713.3	0.112358 mg/L	0.112358 mg/L	12:42:21
2	Mn 257.610†	1089768.4	1029838.1	7.21789 mg/L	7.21789 mg/L	12:42:01
2	Mo 202.031†	153.2	36.3	0.0004633 mg/L	0.0004633 mg/L	12:42:21
2	Ni 231.604†	1951.4	1415.7	0.0971660 mg/L	0.0971660 mg/L	12:42:21
2	Pb 220.353†	442.3	400.0	0.199300 mg/L	0.199300 mg/L	12:42:21
2	Sb 217.584†	-1707.5	-1525.0	-0.384118 mg/L	-0.384118 mg/L	12:42:21
2	Se 196.026†	-159.4	-94.9	-0.0967328 mg/L	-0.0967328 mg/L	12:42:21
2	Si 251.611†	174090.7	149604.6	9.68734 mg/L	9.68734 mg/L	12:42:01
2	Sn 189.927†	-34.5	-28.2	-0.0240300 mg/L	-0.0240300 mg/L	12:42:21
2	Tl 190.801†	-95.0	-55.1	-0.0289847 mg/L	-0.0289847 mg/L	12:42:21
2	V 292.395†	15922.5	17178.8	0.286086 mg/L	0.286086 mg/L	12:42:01
2	Zn 206.200†	9534.3	9129.5	0.599032 mg/L	0.599032 mg/L	12:42:21

Mean Data: 0908257-12

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	256147.7	106.004	%	0.3104				0.29%
Y 360.076	246602.5	105.757	%	2.7595				2.61%
Ag 328.068†	-6223.2	-0.0734404	mg/L	0.00039064	-0.0734404	mg/L	0.00039064	0.53%
Al 396.153†	457665.6	123.865	mg/L	5.2741	123.865	mg/L	5.2741	4.26%
As 188.979†	73.7	0.0416215	mg/L	0.00312374	0.0416215	mg/L	0.00312374	7.51%
B 249.677†	57.4	-0.0100425	mg/L	0.00070244	-0.0100425	mg/L	0.00070244	6.99%
Ba 455.398†	497880.6	1.37872	mg/L	0.059094	1.37872	mg/L	0.059094	4.29%
Be 234.861†	18122.6	0.0056616	mg/L	0.00340741	0.0056616	mg/L	0.00340741	60.18%
Ca 315.887†	39932.2	20.7004	mg/L	0.78291	20.7004	mg/L	0.78291	3.78%
Cd 214.437†	1144.6	0.0114183	mg/L	0.00073452	0.0114183	mg/L	0.00073452	6.43%
Ce 413.764†	12873.6	0.347159	mg/L	0.0012174	0.347159	mg/L	0.0012174	0.35%
Co 228.616†	679.6	0.0723017	mg/L	0.00226429	0.0723017	mg/L	0.00226429	3.13%
Cr 205.557†	2581.5	0.203655	mg/L	0.0014628	0.203655	mg/L	0.0014628	0.72%
Cu 327.397†	4708.7	0.112039	mg/L	0.0004506	0.112039	mg/L	0.0004506	0.40%
Fe 238.204†	288055.0	188.153	mg/L	8.1478	188.153	mg/L	8.1478	4.33%
K 766.490	7147.4	9.89147	mg/L	0.050443	9.89147	mg/L	0.050443	0.51%
Li 670.784†	4654.4	0.116785	mg/L	0.0047412	0.116785	mg/L	0.0047412	4.06%
Mg 279.071†	11400.6	26.0902	mg/L	0.94706	26.0902	mg/L	0.94706	3.63%
Mn 257.610†	1030845.9	7.22469	mg/L	0.009618	7.22469	mg/L	0.009618	0.13%
Mo 202.031†	30.5	-0.0001393	mg/L	0.00085218	-0.0001393	mg/L	0.00085218	611.80%
Na 589.592†	2178.4	0.273138	mg/L	0.0148073	0.273138	mg/L	0.0148073	5.42%
Ni 231.604†	1424.1	0.0977516	mg/L	0.00082820	0.0977516	mg/L	0.00082820	0.85%
Pb 220.353†	393.3	0.195653	mg/L	0.0051578	0.195653	mg/L	0.0051578	2.64%
Sb 217.584†	-1521.6	-0.398550	mg/L	0.0204099	-0.398550	mg/L	0.0204099	5.12%
Se 196.026†	-92.9	-0.0956790	mg/L	0.00149023	-0.0956790	mg/L	0.00149023	1.56%
Si 251.611†	149980.2	9.71466	mg/L	0.038633	9.71466	mg/L	0.038633	0.40%
Sn 189.927†	-25.1	-0.0226989	mg/L	0.00188238	-0.0226989	mg/L	0.00188238	8.29%
Sr 407.771†	78546.7	0.0770477	mg/L	0.00288481	0.0770477	mg/L	0.00288481	3.74%
Ti 334.940†	92788.6	5.04396	mg/L	0.203120	5.04396	mg/L	0.203120	4.03%
Tl 190.801†	-59.3	-0.0345859	mg/L	0.00792128	-0.0345859	mg/L	0.00792128	22.90%
V 292.395†	17200.6	0.287519	mg/L	0.0020266	0.287519	mg/L	0.0020266	0.70%
Zn 206.200†	9101.8	0.597222	mg/L	0.0025604	0.597222	mg/L	0.0025604	0.43%

Sequence No.: 33
Sample ID: 0908257-13
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 34
Date Collected: 8/25/2009 12:43:36 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-13

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	245150.7	245150.7	105.135	%			12:44:42
1	Al 396.153†	315249.9	299060.3	80.9383	mg/L	80.9383	mg/L	12:44:42
1	Ba 455.398†	140027.8	134119.5	0.370389	mg/L	0.370389	mg/L	12:44:42
1	Ca 315.887†	499.8	-128.5	0.0195043	mg/L	0.0195043	mg/L	12:45:02
1	Fe 238.204†	197933.3	188190.1	122.923	mg/L	122.923	mg/L	12:44:42
1	K 766.490	5151.3	4715.2	6.51912	mg/L	6.51912	mg/L	12:45:02
1	Li 670.784†	3876.4	2533.0	0.0635623	mg/L	0.0635623	mg/L	12:45:02
1	Mg 279.071†	3142.3	2947.1	6.72517	mg/L	6.72517	mg/L	12:45:02
1	Na 589.592†	1638.1	404.9	0.0283858	mg/L	0.0283858	mg/L	12:45:02
1	Sr 407.771†	8877.1	7775.0	0.0061776	mg/L	0.0061776	mg/L	12:45:02

1	Ti 334.940†	40649.3	38632.0	2.09835 mg/L	2.09835 mg/L	12:44:42
1	Sc 357.234	256791.8	256791.8	106.271 %		12:45:33
1	Ag 328.068†	-3478.1	-4112.3	-0.0487999 mg/L	-0.0487999 mg/L	12:45:33
1	As 188.979†	-4.2	34.4	0.0146740 mg/L	0.0146740 mg/L	12:45:54
1	B 249.677†	651.3	-205.6	-0.0202822 mg/L	-0.0202822 mg/L	12:45:33
1	Be 234.861†	11358.8	11678.4	0.0028950 mg/L	0.0028950 mg/L	12:45:33
1	Cd 214.437†	1072.4	722.3	0.0059277 mg/L	0.0059277 mg/L	12:45:54
1	Ce 413.764†	9417.4	8242.3	0.221328 mg/L	0.221328 mg/L	12:45:33
1	Co 228.616†	452.0	514.1	0.0599896 mg/L	0.0599896 mg/L	12:45:54
1	Cr 205.557†	1316.1	1263.9	0.0995564 mg/L	0.0995564 mg/L	12:45:54
1	Cu 327.397†	154.1	1339.7	0.0310590 mg/L	0.0310590 mg/L	12:45:33
1	Mn 257.610†	329814.6	310014.6	2.17473 mg/L	2.17473 mg/L	12:45:33
1	Mo 202.031†	118.8	3.2	-0.0030339 mg/L	-0.0030339 mg/L	12:45:54
1	Ni 231.604†	1040.4	549.9	0.0371151 mg/L	0.0371151 mg/L	12:45:54
1	Pb 220.353†	133.2	107.2	0.0592042 mg/L	0.0592042 mg/L	12:45:54
1	Sb 217.584†	-1140.9	-984.5	-0.263148 mg/L	-0.263148 mg/L	12:45:54
1	Se 196.026†	-119.2	-56.4	-0.0607173 mg/L	-0.0607173 mg/L	12:45:54
1	Si 251.611†	146441.4	122834.1	7.98659 mg/L	7.98659 mg/L	12:45:33
1	Sn 189.927†	-3.0	1.6	-0.0113700 mg/L	-0.0113700 mg/L	12:45:54
1	Tl 190.801†	-59.6	-21.3	-0.0140436 mg/L	-0.0140436 mg/L	12:45:54
1	V 292.395†	7667.4	9341.9	0.152068 mg/L	0.152068 mg/L	12:45:33
1	Zn 206.200†	2587.7	2551.5	0.165370 mg/L	0.165370 mg/L	12:45:54
2	Y 360.076	243161.6	243161.6	104.282 %		12:45:07
2	Al 396.153†	312490.1	298866.8	80.8860 mg/L	80.8860 mg/L	12:45:07
2	Ba 455.398†	138648.1	133886.1	0.369742 mg/L	0.369742 mg/L	12:45:07
2	Ca 315.887†	482.4	-141.2	0.0130796 mg/L	0.0130796 mg/L	12:45:27
2	Fe 238.204†	197375.5	189195.3	123.580 mg/L	123.580 mg/L	12:45:07
2	K 766.490	5110.0	4673.9	6.46181 mg/L	6.46181 mg/L	12:45:27
2	Li 670.784†	3875.1	2561.9	0.0642885 mg/L	0.0642885 mg/L	12:45:27
2	Mg 279.071†	3121.4	2951.6	6.73535 mg/L	6.73535 mg/L	12:45:27
2	Na 589.592†	1630.5	410.3	0.0291344 mg/L	0.0291344 mg/L	12:45:27
2	Sr 407.771†	8846.4	7814.6	0.0062177 mg/L	0.0062177 mg/L	12:45:27
2	Ti 334.940†	40535.0	38838.7	2.10959 mg/L	2.10959 mg/L	12:45:07
2	Sc 357.234	255808.5	255808.5	105.864 %		12:45:59
2	Ag 328.068†	-3462.1	-4109.8	-0.0487086 mg/L	-0.0487086 mg/L	12:45:59
2	As 188.979†	-7.5	31.2	0.0111837 mg/L	0.0111837 mg/L	12:46:19
2	B 249.677†	698.9	-158.3	-0.0180874 mg/L	-0.0180874 mg/L	12:45:59
2	Be 234.861†	11309.5	11672.9	0.0026223 mg/L	0.0026223 mg/L	12:45:59
2	Cd 214.437†	1081.4	734.7	0.0062068 mg/L	0.0062068 mg/L	12:46:19
2	Ce 413.764†	9300.1	8165.5	0.219413 mg/L	0.219413 mg/L	12:45:59
2	Co 228.616†	449.4	513.4	0.0598415 mg/L	0.0598415 mg/L	12:46:19
2	Cr 205.557†	1325.5	1277.5	0.100632 mg/L	0.100632 mg/L	12:46:19
2	Cu 327.397†	131.5	1318.9	0.0306053 mg/L	0.0306053 mg/L	12:45:59
2	Mn 257.610†	328263.3	309742.0	2.17285 mg/L	2.17285 mg/L	12:45:59
2	Mo 202.031†	113.6	-1.3	-0.0035027 mg/L	-0.0035027 mg/L	12:46:19
2	Ni 231.604†	1039.3	552.7	0.0373082 mg/L	0.0373082 mg/L	12:46:19
2	Pb 220.353†	118.6	93.8	0.0532446 mg/L	0.0532446 mg/L	12:46:19
2	Sb 217.584†	-1134.4	-982.4	-0.260108 mg/L	-0.260108 mg/L	12:46:19
2	Se 196.026†	-125.1	-62.5	-0.0713227 mg/L	-0.0713227 mg/L	12:46:19
2	Si 251.611†	146104.2	123045.3	8.00038 mg/L	8.00038 mg/L	12:45:59
2	Sn 189.927†	-2.2	2.4	-0.0110320 mg/L	-0.0110320 mg/L	12:46:19
2	Tl 190.801†	-74.6	-35.7	-0.0298365 mg/L	-0.0298365 mg/L	12:46:19
2	V 292.395†	7597.3	9303.5	0.151226 mg/L	0.151226 mg/L	12:45:59
2	Zn 206.200†	2589.0	2562.1	0.166065 mg/L	0.166065 mg/L	12:46:19

Mean Data: 0908257-13

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	256300.1	106.067	%	0.2877				0.27%
Y 360.076	244156.2	104.708	%	0.6032				0.58%
Ag 328.068†	-4111.0	-0.0487542	mg/L	0.00006454	-0.0487542	mg/L	0.00006454	0.13%
Al 396.153†	298963.6	80.9121	mg/L	0.03701	80.9121	mg/L	0.03701	0.05%
As 188.979†	32.8	0.0129289	mg/L	0.00246800	0.0129289	mg/L	0.00246800	19.09%
B 249.677†	-181.9	-0.0191848	mg/L	0.00155192	-0.0191848	mg/L	0.00155192	8.09%
Ba 455.398†	134002.8	0.370066	mg/L	0.0004579	0.370066	mg/L	0.0004579	0.12%
Be 234.861†	11675.6	0.0027586	mg/L	0.00019281	0.0027586	mg/L	0.00019281	6.99%
Ca 315.887†	-134.9	0.0162919	mg/L	0.00454295	0.0162919	mg/L	0.00454295	27.88%
Cd 214.437†	728.5	0.0060673	mg/L	0.00019738	0.0060673	mg/L	0.00019738	3.25%
Ce 413.764†	8203.9	0.220371	mg/L	0.0013544	0.220371	mg/L	0.0013544	0.61%
Co 228.616†	513.7	0.0599155	mg/L	0.00010471	0.0599155	mg/L	0.00010471	0.17%

Cr 205.557†	1270.7	0.100094	mg/L	0.0007609	0.100094	mg/L	0.0007609	0.76%
Cu 327.397†	1329.3	0.0308321	mg/L	0.00032081	0.0308321	mg/L	0.00032081	1.04%
Fe 238.204†	188692.7	123.251	mg/L	0.4643	123.251	mg/L	0.4643	0.38%
K 766.490	4694.5	6.49046	mg/L	0.040528	6.49046	mg/L	0.040528	0.62%
Li 670.784†	2547.4	0.0639254	mg/L	0.00051347	0.0639254	mg/L	0.00051347	0.80%
Mg 279.071†	2949.3	6.73026	mg/L	0.007195	6.73026	mg/L	0.007195	0.11%
Mn 257.610†	309878.3	2.17379	mg/L	0.001329	2.17379	mg/L	0.001329	0.06%
Mo 202.031†	0.9	-0.0032683	mg/L	0.00033147	-0.0032683	mg/L	0.00033147	10.14%
Na 589.592†	407.6	0.0287601	mg/L	0.00052940	0.0287601	mg/L	0.00052940	1.84%
Ni 231.604†	551.3	0.0372116	mg/L	0.00013651	0.0372116	mg/L	0.00013651	0.37%
Pb 220.353†	100.5	0.0562244	mg/L	0.00421410	0.0562244	mg/L	0.00421410	7.50%
Sb 217.584†	-983.4	-0.261628	mg/L	0.0021493	-0.261628	mg/L	0.0021493	0.82%
Se 196.026†	-59.5	-0.0660200	mg/L	0.00749914	-0.0660200	mg/L	0.00749914	11.36%
Si 251.611†	122939.7	7.99348	mg/L	0.009747	7.99348	mg/L	0.009747	0.12%
Sn 189.927†	2.0	-0.0112010	mg/L	0.00023901	-0.0112010	mg/L	0.00023901	2.13%
Sr 407.771†	7794.8	0.0061977	mg/L	0.00002837	0.0061977	mg/L	0.00002837	0.46%
Ti 334.940†	38735.4	2.10397	mg/L	0.007948	2.10397	mg/L	0.007948	0.38%
Tl 190.801†	-28.5	-0.0219400	mg/L	0.01116732	-0.0219400	mg/L	0.01116732	50.90%
V 292.395†	9322.7	0.151647	mg/L	0.0005957	0.151647	mg/L	0.0005957	0.39%
Zn 206.200†	2556.8	0.165718	mg/L	0.0004910	0.165718	mg/L	0.0004910	0.30%

Sequence No.: 34
Sample ID: 0908257-14
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 35
Date Collected: 8/25/2009 12:47:39 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0908257-14

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	229568.1	229568.1	98.4522	%			12:48:51
1	Al 396.153†	681247.3	691165.3	187.636	mg/L	187.636	mg/L	12:48:46
1	Ba 455.398†	291414.0	296926.4	0.821720	mg/L	0.821720	mg/L	12:48:46
1	Ca 315.887†	2218501.1	2252776.0	1161.13	mg/L	1161.13	mg/L	12:48:46
1	Fe 238.204†	351111.2	356555.4	232.895	mg/L	232.895	mg/L	12:48:51
1	K 766.490	8925.4	8489.3	11.7520	mg/L	11.7520	mg/L	12:48:51
1	Li 670.784†	32258.3	31611.4	0.793078	mg/L	0.793078	mg/L	12:48:51
1	Mg 279.071†	228088.2	231632.5	529.174	mg/L	529.174	mg/L	12:48:51
1	Na 589.592†	11349.0	10374.2	1.40422	mg/L	1.40422	mg/L	12:48:51
1	Sr 407.771†	775031.1	786547.5	0.786282	mg/L	0.786282	mg/L	12:48:46
1	Ti 334.940†	20880.5	21176.9	1.18122	mg/L	1.18122	mg/L	12:48:51
1	Sc 357.234	236077.1	236077.1	97.6980	%			12:49:09
1	Ag 328.068†	-6920.9	-7923.4	-0.0936155	mg/L	-0.0936155	mg/L	12:49:09
1	As 188.979†	85.0	125.4	0.116815	mg/L	0.116815	mg/L	12:49:29
1	B 249.677†	2354.5	1591.4	0.0639780	mg/L	0.0639780	mg/L	12:49:09
1	Be 234.861†	20420.4	21891.3	0.0045216	mg/L	0.0045216	mg/L	12:49:09
1	Cd 214.437†	2010.0	1770.5	0.0212420	mg/L	0.0212420	mg/L	12:49:29
1	Ce 413.764†	16634.5	16406.9	0.442668	mg/L	0.442668	mg/L	12:49:09
1	Co 228.616†	464.1	563.8	0.0668393	mg/L	0.0668393	mg/L	12:49:29
1	Cr 205.557†	2541.9	2627.2	0.208861	mg/L	0.208861	mg/L	12:49:29
1	Cu 327.397†	3309.9	4582.5	0.163458	mg/L	0.163458	mg/L	12:49:09
1	Mn 257.610†	841024.6	860501.7	6.03397	mg/L	6.03397	mg/L	12:49:09
1	Mo 202.031†	301.0	199.5	0.0177145	mg/L	0.0177145	mg/L	12:49:29
1	Ni 231.604†	2209.7	1832.7	0.126123	mg/L	0.126123	mg/L	12:49:29
1	Pb 220.353†	680.4	678.2	0.331385	mg/L	0.331385	mg/L	12:49:29
1	Sb 217.584†	-2174.6	-2136.6	-0.348293	mg/L	-0.348293	mg/L	12:49:29
1	Se 196.026†	-174.3	-122.7	-0.128311	mg/L	-0.128311	mg/L	12:49:29
1	Si 251.611†	256112.4	247180.5	16.2398	mg/L	16.2398	mg/L	12:49:09
1	Sn 189.927†	-216.2	-216.8	-0.104121	mg/L	-0.104121	mg/L	12:49:29
1	Tl 190.801†	-59.5	-26.1	-0.0239571	mg/L	-0.0239571	mg/L	12:49:29
1	V 292.395†	17674.3	20217.7	0.340571	mg/L	0.340571	mg/L	12:49:09
1	Zn 206.200†	13717.6	14157.3	0.917920	mg/L	0.917920	mg/L	12:49:09
2	Y 360.076	230246.8	230246.8	98.7432	%			12:49:02
2	Al 396.153†	678743.1	686589.7	186.394	mg/L	186.394	mg/L	12:48:57
2	Ba 455.398†	290266.7	294892.1	0.816081	mg/L	0.816081	mg/L	12:48:57
2	Ca 315.887†	2213334.2	2240901.8	1155.02	mg/L	1155.02	mg/L	12:48:57
2	Fe 238.204†	352512.0	356922.8	233.136	mg/L	233.136	mg/L	12:49:02
2	K 766.490	8948.3	8512.2	11.7837	mg/L	11.7837	mg/L	12:49:02
2	Li 670.784†	32256.2	31512.6	0.790600	mg/L	0.790600	mg/L	12:49:02

2	Mg 279.071†	228420.8	231286.5	528.383 mg/L	528.383 mg/L	12:49:02
2	Na 589.592†	11371.9	10363.4	1.40273 mg/L	1.40273 mg/L	12:49:02
2	Sr 407.771†	771944.5	781101.3	0.780826 mg/L	0.780826 mg/L	12:48:57
2	Ti 334.940†	20943.4	21178.0	1.18111 mg/L	1.18111 mg/L	12:49:02
2	Sc 357.234	235100.2	235100.2	97.2938 %		12:49:34
2	Ag 328.068†	-6833.6	-7863.1	-0.0927156 mg/L	-0.0927156 mg/L	12:49:34
2	As 188.979†	95.1	136.1	0.128703 mg/L	0.128703 mg/L	12:49:54
2	B 249.677†	2314.0	1559.8	0.0625071 mg/L	0.0625071 mg/L	12:49:34
2	Be 234.861†	20309.1	21863.8	0.0043197 mg/L	0.0043197 mg/L	12:49:34
2	Cd 214.437†	2037.0	1806.9	0.0221874 mg/L	0.0221874 mg/L	12:49:54
2	Ce 413.764†	16510.8	16350.6	0.441238 mg/L	0.441238 mg/L	12:49:34
2	Co 228.616†	462.0	563.6	0.0668070 mg/L	0.0668070 mg/L	12:49:54
2	Cr 205.557†	2534.4	2630.4	0.209116 mg/L	0.209116 mg/L	12:49:54
2	Cu 327.397†	3316.7	4603.6	0.163615 mg/L	0.163615 mg/L	12:49:34
2	Mn 257.610†	836870.9	859809.5	6.02914 mg/L	6.02914 mg/L	12:49:34
2	Mo 202.031†	290.8	190.3	0.0167344 mg/L	0.0167344 mg/L	12:49:54
2	Ni 231.604†	2214.4	1846.9	0.127109 mg/L	0.127109 mg/L	12:49:54
2	Pb 220.353†	668.6	669.0	0.327064 mg/L	0.327064 mg/L	12:49:54
2	Sb 217.584†	-2175.6	-2147.0	-0.355712 mg/L	-0.355712 mg/L	12:49:54
2	Se 196.026†	-191.9	-141.5	-0.161971 mg/L	-0.161971 mg/L	12:49:54
2	Si 251.611†	254475.7	246587.6	16.2008 mg/L	16.2008 mg/L	12:49:34
2	Sn 189.927†	-215.3	-216.9	-0.104126 mg/L	-0.104126 mg/L	12:49:54
2	Tl 190.801†	-68.8	-35.9	-0.0347783 mg/L	-0.0347783 mg/L	12:49:54
2	V 292.395†	17544.2	20159.2	0.339421 mg/L	0.339421 mg/L	12:49:34
2	Zn 206.200†	13703.0	14200.7	0.920802 mg/L	0.920802 mg/L	12:49:34

Mean Data: 0908257-14

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	235588.7	97.4959	%	0.28587				0.29%
Y 360.076	229907.4	98.5977	%	0.20579				0.21%
Ag 328.068†	-7893.2	-0.0931656	mg/L	0.00063633	-0.0931656	mg/L	0.00063633	0.68%
Al 396.153†	688877.5	187.015	mg/L	0.8777	187.015	mg/L	0.8777	0.47%
As 188.979†	130.7	0.122759	mg/L	0.0084060	0.122759	mg/L	0.0084060	6.85%
B 249.677†	1575.6	0.0632426	mg/L	0.00104004	0.0632426	mg/L	0.00104004	1.64%
Ba 455.398†	295909.2	0.818901	mg/L	0.0039875	0.818901	mg/L	0.0039875	0.49%
Be 234.861†	21877.5	0.0044206	mg/L	0.00014276	0.0044206	mg/L	0.00014276	3.23%
Ca 315.887†	2246838.9	1158.08	mg/L	4.327	1158.08	mg/L	4.327	0.37%
Cd 214.437†	1788.7	0.0217147	mg/L	0.00066852	0.0217147	mg/L	0.00066852	3.08%
Ce 413.764†	16378.7	0.441953	mg/L	0.0010107	0.441953	mg/L	0.0010107	0.23%
Co 228.616†	563.7	0.0668232	mg/L	0.00002285	0.0668232	mg/L	0.00002285	0.03%
Cr 205.557†	2628.8	0.208989	mg/L	0.0001806	0.208989	mg/L	0.0001806	0.09%
Cu 327.397†	4593.1	0.163536	mg/L	0.0001111	0.163536	mg/L	0.0001111	0.07%
Fe 238.204†	356739.1	233.016	mg/L	0.1697	233.016	mg/L	0.1697	0.07%
K 766.490	8500.7	11.7679	mg/L	0.02246	11.7679	mg/L	0.02246	0.19%
Li 670.784†	31562.0	0.791839	mg/L	0.0017521	0.791839	mg/L	0.0017521	0.22%
Mg 279.071†	231459.5	528.779	mg/L	0.5589	528.779	mg/L	0.5589	0.11%
Mn 257.610†	860155.6	6.03156	mg/L	0.003420	6.03156	mg/L	0.003420	0.06%
Mo 202.031†	194.9	0.0172245	mg/L	0.00069306	0.0172245	mg/L	0.00069306	4.02%
Na 589.592†	10368.8	1.40347	mg/L	0.001054	1.40347	mg/L	0.001054	0.08%
Ni 231.604†	1839.8	0.126616	mg/L	0.0006972	0.126616	mg/L	0.0006972	0.55%
Pb 220.353†	673.6	0.329224	mg/L	0.0030556	0.329224	mg/L	0.0030556	0.93%
Sb 217.584†	-2141.8	-0.352003	mg/L	0.0052457	-0.352003	mg/L	0.0052457	1.49%
Se 196.026†	-132.1	-0.145141	mg/L	0.0238009	-0.145141	mg/L	0.0238009	16.40%
Si 251.611†	246884.1	16.2203	mg/L	0.02762	16.2203	mg/L	0.02762	0.17%
Sn 189.927†	-216.8	-0.104124	mg/L	0.0000038	-0.104124	mg/L	0.0000038	0.00%
Sr 407.771†	783824.4	0.783554	mg/L	0.0038576	0.783554	mg/L	0.0038576	0.49%
Ti 334.940†	21177.5	1.18116	mg/L	0.000077	1.18116	mg/L	0.000077	0.01%
Tl 190.801†	-31.0	-0.0293677	mg/L	0.00765176	-0.0293677	mg/L	0.00765176	26.06%
V 292.395†	20188.5	0.339996	mg/L	0.0008135	0.339996	mg/L	0.0008135	0.24%
Zn 206.200†	14179.0	0.919361	mg/L	0.0020380	0.919361	mg/L	0.0020380	0.22%

Sequence No.: 35
Sample ID: 9H25006-CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 8/25/2009 12:51:09 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

8/25/25

Analyte	Intensity	Conc.	Units	Std.Dev.	Conc.	Units	Std.Dev.	RSD
Sc 357.234	241704.2	100.027	%	0.0563				0.06%
Y 360.076	232440.0	99.6838	%	0.07496				0.08%
Ag 328.068†	35438.9	0.519955	mg/L	0.0018217	0.519955	mg/L	0.0018217	0.35%
QC value within limits for Ag 328.068 Recovery = 103.99%								
Al 396.153†	9838.2	2.66359	mg/L	0.011120	2.66359	mg/L	0.011120	0.42%
QC value within limits for Al 396.153 Recovery = 106.54%								
As 188.979†	2379.4	2.59926	mg/L	0.001821	2.59926	mg/L	0.001821	0.07%
QC value within limits for As 188.979 Recovery = 103.97%								
B 249.677†	11129.0	0.506959	mg/L	0.0041553	0.506959	mg/L	0.0041553	0.82%
QC value within limits for B 249.677 Recovery = 101.39%								
Ba 455.398†	194094.1	0.536703	mg/L	0.0008310	0.536703	mg/L	0.0008310	0.15%
QC value within limits for Ba 455.398 Recovery = 107.34%								
Be 234.861†	12191.1	0.0521109	mg/L	0.00014024	0.0521109	mg/L	0.00014024	0.27%
QC value within limits for Be 234.861 Recovery = 104.22%								
Ca 315.887†	10350.2	5.39135	mg/L	0.001369	5.39135	mg/L	0.001369	0.03%
QC value within limits for Ca 315.887 Recovery = 107.83%								
Cd 214.437†	21590.6	0.525031	mg/L	0.0026981	0.525031	mg/L	0.0026981	0.51%
QC value within limits for Cd 214.437 Recovery = 105.01%								
Ce 413.764†	20462.5	0.524992	mg/L	0.0016176	0.524992	mg/L	0.0016176	0.31%
Co 228.616†	3856.6	0.518035	mg/L	0.0049443	0.518035	mg/L	0.0049443	0.95%
QC value within limits for Co 228.616 Recovery = 103.61%								
Cr 205.557†	6821.9	0.523153	mg/L	0.0031746	0.523153	mg/L	0.0031746	0.61%
QC value within limits for Cr 205.557 Recovery = 104.63%								
Cu 327.397†	23234.2	0.523387	mg/L	0.0030513	0.523387	mg/L	0.0030513	0.58%
QC value within limits for Cu 327.397 Recovery = 104.68%								
Fe 238.204†	867.1	0.566346	mg/L	0.0008032	0.566346	mg/L	0.0008032	0.14%
QC value greater than the upper limit for Fe 238.204 Recovery = 113.27%								
K 766.490	3614.6	4.99318	mg/L	0.008851	4.99318	mg/L	0.008851	0.18%
QC value within limits for K 766.490 Recovery = 99.86%								
Li 670.784†	21442.7	0.537966	mg/L	0.0014524	0.537966	mg/L	0.0014524	0.27%
QC value within limits for Li 670.784 Recovery = 107.59%								
Mg 279.071†	2383.8	5.42829	mg/L	0.006761	5.42829	mg/L	0.006761	0.12%
QC value within limits for Mg 279.071 Recovery = 108.57%								
Mn 257.610†	74929.9	0.523295	mg/L	0.0004954	0.523295	mg/L	0.0004954	0.09%
QC value within limits for Mn 257.610 Recovery = 104.66%								
Mo 202.031†	4986.2	0.523450	mg/L	0.0031376	0.523450	mg/L	0.0031376	0.60%
QC value within limits for Mo 202.031 Recovery = 104.69%								
Na 589.592†	38803.4	5.32765	mg/L	0.016548	5.32765	mg/L	0.016548	0.31%
QC value within limits for Na 589.592 Recovery = 106.55%								
Ni 231.604†	7585.5	0.526106	mg/L	0.0030080	0.526106	mg/L	0.0030080	0.57%
QC value within limits for Ni 231.604 Recovery = 105.22%								
Pb 220.353†	1181.5	0.525032	mg/L	0.0049708	0.525032	mg/L	0.0049708	0.95%
QC value within limits for Pb 220.353 Recovery = 105.01%								
Sb 217.584†	4336.7	2.62007	mg/L	0.012309	2.62007	mg/L	0.012309	0.47%
QC value within limits for Sb 217.584 Recovery = 104.80%								
Se 196.026†	1454.7	2.59686	mg/L	0.033676	2.59686	mg/L	0.033676	1.30%
QC value within limits for Se 196.026 Recovery = 103.87%								
Si 251.611†	50190.6	3.20279	mg/L	0.073020	3.20279	mg/L	0.073020	2.28%
QC value greater than the upper limit for Si 251.611 Recovery = 128.11%								
Sn 189.927†	6180.5	2.61239	mg/L	0.010776	2.61239	mg/L	0.010776	0.41%
QC value within limits for Sn 189.927 Recovery = 104.50%								
Sr 407.771†	536210.5	0.535478	mg/L	0.0007988	0.535478	mg/L	0.0007988	0.15%
QC value within limits for Sr 407.771 Recovery = 107.10%								
Ti 334.940†	9941.9	0.538204	mg/L	0.0025748	0.538204	mg/L	0.0025748	0.48%
QC value within limits for Ti 334.940 Recovery = 107.64%								
Tl 190.801†	2367.2	2.60792	mg/L	0.017640	2.60792	mg/L	0.017640	0.68%
QC value within limits for Tl 190.801 Recovery = 104.32%								
V 292.395†	28056.9	0.529630	mg/L	0.0032668	0.529630	mg/L	0.0032668	0.62%
QC value within limits for V 292.395 Recovery = 105.93%								
Zn 206.200†	7984.3	0.523816	mg/L	0.0034424	0.523816	mg/L	0.0034424	0.66%
QC value within limits for Zn 206.200 Recovery = 104.76%								
QC Failed. Continue with analysis.								

Sequence No.: 36
Sample ID: 9H25006-CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 8/25/2009 12:55:12 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 9H25006-CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Units	Sample Conc.	Units	Analysis Time
1	Y 360.076	240286.1	240286.1	103.049	%			12:56:17
1	Al 396.153†	816.5	-0.1	0.0171364	mg/L	0.0171364	mg/L	12:56:17
1	Ba 455.398†	-878.1	78.7	-0.0012056	mg/L	-0.0012056	mg/L	12:56:17
1	Ca 315.887†	603.6	-18.1	0.0408392	mg/L	0.0408392	mg/L	12:56:37
1	Fe 238.204†	82.6	4.2	0.0030526	mg/L	0.0030526	mg/L	12:56:37
1	K 766.490	418.5	-17.6	-0.0430285	mg/L	-0.0430285	mg/L	12:56:17
1	Li 670.784†	1129.3	-58.2	-0.0014432	mg/L	-0.0014432	mg/L	12:56:17
1	Mg 279.071†	44.4	1.4	-0.0290055	mg/L	-0.0290055	mg/L	12:56:37
1	Na 589.592†	1143.1	-44.0	-0.0335570	mg/L	-0.0335570	mg/L	12:56:17
1	Sr 407.771†	762.2	71.1	-0.0014920	mg/L	-0.0014920	mg/L	12:56:17
1	Ti 334.940†	46.3	13.1	-0.0017361	mg/L	-0.0017361	mg/L	12:56:37
1	Sc 357.234	247937.2	247937.2	102.606	%			12:57:08
1	Ag 328.068†	792.9	-66.7	-0.0015457	mg/L	-0.0015457	mg/L	12:57:08
1	As 188.979†	-36.9	2.3	-0.0075007	mg/L	-0.0075007	mg/L	12:57:28
1	B 249.677†	901.7	60.3	-0.0063052	mg/L	-0.0063052	mg/L	12:57:28
1	Be 234.861†	-951.1	62.9	-0.0000389	mg/L	-0.0000389	mg/L	12:57:28
1	Cd 214.437†	289.2	-5.0	-0.0025883	mg/L	-0.0025883	mg/L	12:57:28
1	Ce 413.764†	650.4	14.3	-0.0028838	mg/L	-0.0028838	mg/L	12:57:08
1	Co 228.616†	-83.1	7.8	0.0006747	mg/L	0.0006747	mg/L	12:57:28
1	Cr 205.557†	-31.7	-5.4	-0.0029954	mg/L	-0.0029954	mg/L	12:57:28
1	Cu 327.397†	-1193.4	31.6	-0.0011787	mg/L	-0.0011787	mg/L	12:57:08
1	Mn 257.610†	265.1	-80.7	-0.0019339	mg/L	-0.0019339	mg/L	12:57:28
1	Mo 202.031†	110.0	-1.4	-0.0035130	mg/L	-0.0035130	mg/L	12:57:28
1	Ni 231.604†	427.0	-12.9	-0.0019011	mg/L	-0.0019011	mg/L	12:57:28
1	Pb 220.353†	18.1	-0.5	-0.0031304	mg/L	-0.0031304	mg/L	12:57:28
1	Sb 217.584†	-76.8	14.3	-0.0060923	mg/L	-0.0060923	mg/L	12:57:28
1	Se 196.026†	-57.7	-0.5	-0.0177286	mg/L	-0.0177286	mg/L	12:57:28
1	Si 251.611†	14327.2	-1003.1	-0.156161	mg/L	-0.156161	mg/L	12:57:08
1	Sn 189.927†	-5.4	-0.9	-0.0124169	mg/L	-0.0124169	mg/L	12:57:28
1	Tl 190.801†	-37.5	-1.7	-0.0085295	mg/L	-0.0085295	mg/L	12:57:28
1	V 292.395†	-2015.5	162.7	0.0002072	mg/L	0.0002072	mg/L	12:57:28
1	Zn 206.200†	-105.6	13.5	-0.0019615	mg/L	-0.0019615	mg/L	12:57:28
2	Y 360.076	241383.6	241383.6	103.519	%			12:56:42
2	Al 396.153†	817.6	-2.7	0.0164089	mg/L	0.0164089	mg/L	12:56:42
2	Ba 455.398†	-917.9	44.2	-0.0013013	mg/L	-0.0013013	mg/L	12:56:42
2	Ca 315.887†	602.3	-22.0	0.0388199	mg/L	0.0388199	mg/L	12:57:02
2	Fe 238.204†	88.4	9.5	0.0064706	mg/L	0.0064706	mg/L	12:57:02
2	K 766.490	440.1	3.9	-0.0131573	mg/L	-0.0131573	mg/L	12:56:42
2	Li 670.784†	1165.5	-28.2	-0.0006910	mg/L	-0.0006910	mg/L	12:56:42
2	Mg 279.071†	47.7	4.4	-0.0221077	mg/L	-0.0221077	mg/L	12:57:02
2	Na 589.592†	1058.6	-130.6	-0.0455168	mg/L	-0.0455168	mg/L	12:56:42
2	Sr 407.771†	768.5	73.8	-0.0014892	mg/L	-0.0014892	mg/L	12:56:42
2	Ti 334.940†	41.3	8.0	-0.0020122	mg/L	-0.0020122	mg/L	12:57:02
2	Sc 357.234	244035.1	244035.1	100.991	%			12:57:33
2	Ag 328.068†	798.6	-48.7	-0.0012831	mg/L	-0.0012831	mg/L	12:57:33
2	As 188.979†	-21.8	16.7	0.0084046	mg/L	0.0084046	mg/L	12:57:53
2	B 249.677†	895.8	68.5	-0.0059259	mg/L	-0.0059259	mg/L	12:57:53
2	Be 234.861†	-959.0	40.2	-0.0001379	mg/L	-0.0001379	mg/L	12:57:53
2	Cd 214.437†	264.2	-25.2	-0.0030819	mg/L	-0.0030819	mg/L	12:57:53
2	Ce 413.764†	632.7	7.0	-0.0030714	mg/L	-0.0030714	mg/L	12:57:33
2	Co 228.616†	-80.1	9.5	0.0009050	mg/L	0.0009050	mg/L	12:57:53
2	Cr 205.557†	-28.8	-3.0	-0.0028101	mg/L	-0.0028101	mg/L	12:57:53
2	Cu 327.397†	-1216.6	-10.0	-0.0021195	mg/L	-0.0021195	mg/L	12:57:33
2	Mn 257.610†	259.2	-82.5	-0.0019457	mg/L	-0.0019457	mg/L	12:57:53
2	Mo 202.031†	118.0	8.3	-0.0024924	mg/L	-0.0024924	mg/L	12:57:53
2	Ni 231.604†	430.7	-2.5	-0.0011783	mg/L	-0.0011783	mg/L	12:57:53
2	Pb 220.353†	17.6	-0.8	-0.0032492	mg/L	-0.0032492	mg/L	12:57:53
2	Sb 217.584†	-78.2	11.7	-0.0076752	mg/L	-0.0076752	mg/L	12:57:53
2	Se 196.026†	-60.4	-4.1	-0.0241249	mg/L	-0.0241249	mg/L	12:57:53
2	Si 251.611†	14015.8	-1088.2	-0.161775	mg/L	-0.161775	mg/L	12:57:33
2	Sn 189.927†	1.9	6.3	-0.0093824	mg/L	-0.0093824	mg/L	12:57:53
2	Tl 190.801†	-34.8	0.3	-0.0063003	mg/L	-0.0063003	mg/L	12:57:53
2	V 292.395†	-2021.2	125.6	-0.0004830	mg/L	-0.0004830	mg/L	12:57:53
2	Zn 206.200†	-118.9	-1.2	-0.0029357	mg/L	-0.0029357	mg/L	12:57:53

Mean Data: 9H25006-CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	245986.1	101.799	%	1.1419				1.12%
Y 360.076	240834.8	103.284	%	0.3328				0.32%
Ag 328.068†	-57.7	-0.0014144	mg/L	0.00018572	-0.0014144	mg/L	0.00018572	13.13%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153†	-1.4	0.0167727	mg/L	0.00051439	0.0167727	mg/L	0.00051439	3.07%
QC value within limits for Al 396.153 Recovery = Not calculated								
As 188.979†	9.5	0.0004519	mg/L	0.01124670	0.0004519	mg/L	0.01124670	>999.9%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	64.4	-0.0061156	mg/L	0.00026816	-0.0061156	mg/L	0.00026816	4.38%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 455.398†	61.4	-0.0012535	mg/L	0.00006766	-0.0012535	mg/L	0.00006766	5.40%
QC value within limits for Ba 455.398 Recovery = Not calculated								
Be 234.861†	51.5	-0.0000884	mg/L	0.00007002	-0.0000884	mg/L	0.00007002	79.21%
QC value within limits for Be 234.861 Recovery = Not calculated								
Ca 315.887†	-20.1	0.0398295	mg/L	0.00142784	0.0398295	mg/L	0.00142784	3.58%
QC value within limits for Ca 315.887 Recovery = Not calculated								
Cd 214.437† −0.01417	-15.1	-0.0028351	mg/L	0.00034906	-0.0028351	mg/L	0.00034906	12.31%
QC value within limits for Cd 214.437 Recovery = Not calculated								
Ce 413.764†	10.7	-0.0029776	mg/L	0.00013262	-0.0029776	mg/L	0.00013262	4.45%
Co 228.616†	8.6	0.0007899	mg/L	0.00016291	0.0007899	mg/L	0.00016291	20.62%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 205.557†	-4.2	-0.0029027	mg/L	0.00013096	-0.0029027	mg/L	0.00013096	4.51%
QC value within limits for Cr 205.557 Recovery = Not calculated								
Cu 327.397†	10.8	-0.0016491	mg/L	0.00066519	-0.0016491	mg/L	0.00066519	40.34%
QC value within limits for Cu 327.397 Recovery = Not calculated								
Fe 238.204† 0.023808	6.9	0.0047616	mg/L	0.00241690	0.0047616	mg/L	0.00241690	50.76%
QC value within limits for Fe 238.204 Recovery = Not calculated								
K 766.490	-6.8	-0.0280929	mg/L	0.02112210	-0.0280929	mg/L	0.02112210	75.19%
QC value within limits for K 766.490 Recovery = Not calculated								
Li 670.784†	-43.2	-0.0010671	mg/L	0.00053188	-0.0010671	mg/L	0.00053188	49.84%
QC value within limits for Li 670.784 Recovery = Not calculated								
Mg 279.071† −0.25306	2.9	-0.0255566	mg/L	0.00487745	-0.0255566	mg/L	0.00487745	19.08%
QC value within limits for Mg 279.071 Recovery = Not calculated								
Mn 257.610† −0.010675	-81.6	-0.0019398	mg/L	0.00000837	-0.0019398	mg/L	0.00000837	0.43%
QC value within limits for Mn 257.610 Recovery = Not calculated								
Mo 202.031†	3.4	-0.0030027	mg/L	0.00072168	-0.0030027	mg/L	0.00072168	24.03%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592†	-87.3	-0.0395369	mg/L	0.00845688	-0.0395369	mg/L	0.00845688	21.39%
QC value within limits for Na 589.592 Recovery = Not calculated								
Ni 231.604†	-7.7	-0.0015397	mg/L	0.00051108	-0.0015397	mg/L	0.00051108	33.19%
QC value within limits for Ni 231.604 Recovery = Not calculated								
Pb 220.353†	-0.6	-0.0031898	mg/L	0.00008402	-0.0031898	mg/L	0.00008402	2.63%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 217.584†	13.0	-0.0068838	mg/L	0.00111925	-0.0068838	mg/L	0.00111925	16.26%
QC value within limits for Sb 217.584 Recovery = Not calculated								
Se 196.026†	-2.3	-0.0209267	mg/L	0.00452287	-0.0209267	mg/L	0.00452287	21.61%
QC value within limits for Se 196.026 Recovery = Not calculated								
Si 251.611†	-1045.6	-0.158968	mg/L	0.0039697	-0.158968	mg/L	0.0039697	2.50%
QC value less than the lower limit for Si 251.611 Recovery = Not calculated								
Sn 189.927†	2.7	-0.0108997	mg/L	0.00214567	-0.0108997	mg/L	0.00214567	19.69%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 407.771†	72.4	-0.0014906	mg/L	0.00000194	-0.0014906	mg/L	0.00000194	0.13%
QC value within limits for Sr 407.771 Recovery = Not calculated								
Ti 334.940†	10.5	-0.0018741	mg/L	0.00019522	-0.0018741	mg/L	0.00019522	10.42%
QC value within limits for Ti 334.940 Recovery = Not calculated								
Tl 190.801†	-0.7	-0.0074149	mg/L	0.00157631	-0.0074149	mg/L	0.00157631	21.26%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.395†	144.2	-0.0001379	mg/L	0.00048804	-0.0001379	mg/L	0.00048804	353.98%
QC value within limits for V 292.395 Recovery = Not calculated								
Zn 206.200†	6.2	-0.0024486	mg/L	0.00068880	-0.0024486	mg/L	0.00068880	28.13%
QC value within limits for Zn 206.200 Recovery = Not calculated								
QC Failed. Continue with analysis.								

Analytical Sequence
Method: DODSolid_6010C_311

Seq.	Loc.	ID	Status
1	1	9H25006-CAL1	Applied
2	2	9H25006-CAL2	Applied

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5121 g / 50 mL

Laboratory ID: 0909583-MS1

QC Batch: 0909583

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Aluminum, Total	122	11500	15400	3180 *	80 - 120	mg/kg dry wt.
Barium, Total	24.4	76.3	114	152 *	80 - 120	mg/kg dry wt.
Beryllium, Total	2.44	0.353	2.95	106	80 - 120	mg/kg dry wt.
Cadmium, Total	24.4	0.653	25.1	100	80 - 120	mg/kg dry wt.
Calcium, Total	1220	662	1980	108	80 - 120	mg/kg dry wt.
Chromium, Total	24.4	21.9	44.3	92	80 - 120	mg/kg dry wt.
Cobalt, Total	24.4	7.10	30.3	95	80 - 120	mg/kg dry wt.
Iron, Total	24.4	12100	12500	1760 *	80 - 120	mg/kg dry wt.
Magnesium, Total	1220	588	2030	118	80 - 120	mg/kg dry wt.
Manganese, Total	24.4	422	517	389 *	80 - 120	mg/kg dry wt.
Potassium, Total	1220	520	1980	119	80 - 120	mg/kg dry wt.
Sodium, Total	1220	8.10	1290	105	80 - 120	mg/kg dry wt.
Zinc, Total	24.4	24.2	55.0	126 *	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

[spike] × 1/4 [parent]

no action

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5016 g / 50 mL

Laboratory ID: 0909583-MSD1

QC Batch: 0909583

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Aluminum, Total	125	14900	2760 *	3	20	80 - 120	mg/kg dry wt.
Barium, Total	24.9	110	133 *	4	20	80 - 120	mg/kg dry wt.
Beryllium, Total	2.49	3.01	107	2	20	80 - 120	mg/kg dry wt.
Cadmium, Total	24.9	25.7	101	2	20	80 - 120	mg/kg dry wt.
Calcium, Total	1250	1990	107	0.7	20	80 - 120	mg/kg dry wt.
Chromium, Total	24.9	47.9	104	8	20	80 - 120	mg/kg dry wt.
Cobalt, Total	24.9	29.9	91	1	20	80 - 120	mg/kg dry wt.
Iron, Total	24.9	13100	4240 *	5	20	80 - 120	mg/kg dry wt.
Magnesium, Total	1250	2050	117	0.7	20	80 - 120	mg/kg dry wt.
Manganese, Total	24.9	424	6 *	20	20	80 - 120	mg/kg dry wt.
Potassium, Total	1250	1980	117	0.07	20	80 - 120	mg/kg dry wt.
Sodium, Total	1250	1310	104	1	20	80 - 120	mg/kg dry wt.
Zinc, Total	24.9	55.7	126 *	1	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

★ [spike] < 1/4 [parent]

∴ no action ★

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 91.11
Laboratory ID: 0909583-PS1
Lab Source ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.04004 g / 4 mL
QC Batch: 0909583
Sequence: 9H25006

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Barium, Total	75 - 125	1.01	0.764	0.250	99	mg/L
Beryllium, Total	75 - 125	0.0299	0.00353	0.0250	106	mg/L
Cadmium, Total	75 - 125	0.259	0.00654	0.250	101	mg/L
Calcium, Total	75 - 125	19.7	6.63	12.5	105	mg/L
Chromium, Total	75 - 125	0.478	0.219	0.250	103	mg/L
Cobalt, Total	75 - 125	0.312	0.0711	0.250	96	mg/L
Magnesium, Total	75 - 125	19.0	5.89	12.5	105	mg/L
Manganese, Total	75 - 125	4.44	4.23	0.250	85	mg/L
Potassium, Total	75 - 125	18.2	5.20	12.5	104	mg/L
Sodium, Total	75 - 125	13.2	0.0811	12.5	105	mg/L
Zinc, Total	75 - 125	0.494	0.242	0.250	101	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 91.11
Laboratory ID: 0909583-PS2
Lab Source ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Initial/Final: 0.0005005 g / 0.05 mL
QC Batch: 0909583
Sequence: 9H25006

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Aluminum, Total	75 - 125	380	115	250	106	mg/L
Iron, Total	75 - 125	174	121	50.0	106	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6010B

30SS3

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 91.11
Laboratory ID: 9H25006-SRD1
Lab Source ID: 0908257-05

SDG: SS0809C
Project: RFAAP SSP at Six Sites
QC Batch: 9H25006
Sequence: 9H25006

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Barium, Total	0.764		0.755		1.0		mg/L	10
Beryllium, Total	0.00353	J	0.00370	J	5.0 #		mg/L	10
Cadmium, Total	0.00654	J	-0.00424	U	165.0 #		mg/L	10
Calcium, Total	6.63		7.21		9.0		mg/L	10
Chromium, Total	0.219		0.216	J	1.0 #		mg/L	10
Cobalt, Total	0.0711		0.0726	J	2.0 #		mg/L	10
Magnesium, Total	5.89		5.80		2.0		mg/L	10
Manganese, Total	4.23		4.35		3.0		mg/L	10
Potassium, Total	5.20		4.75		9.0		mg/L	10
Sodium, Total	0.0811	J	-0.0488	U	160.0 #		mg/L	10
Zinc, Total	0.242		0.240	J	1.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

30SS3

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
% Solids: 91.11
Laboratory ID: 9H25006-SRD2
QC Batch: 9H25006
Lab Source ID: 0908257-05
Sequence: 9H25006

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Aluminum, Total	0.575		0.689		20.0 #		mg/L	10
Iron, Total	0.605		0.640		6.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SAMPLE ID SUMMARY

USEPA-7471A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14

SAMPLE ID SUMMARY
USEPA-7470A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SS0809C
Client: URS Corporation
Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
EQBK-3	0908257-15

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-7471A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 7471A Mercury Digestion

Initial/Final: 0.3067 g / 50 mL

Laboratory ID: 0909585-MS1

QC Batch: 0909585

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Mercury, Total	0.326	0.0411	0.368	100	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-7471A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 7471A Mercury Digestion

Initial/Final: 0.3073 g / 50 mL

Laboratory ID: 0909585-MSD1

QC Batch: 0909585

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Mercury, Total	0.325	0.356	97	3	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

SAMPLE ID SUMMARY

USEPA-9012A

Laboratory: TriMatrix Laboratories, Inc.

SDG: SS0809C

Client: URS Corporation

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
30SS1	0908257-01
30SB1B	0908257-02
DUP-4	0908257-03
30SS2	0908257-04
30SS3	0908257-05
30SB2B	0908257-06
79SS1	0908257-07
30SB3B	0908257-08
DUP-5	0908257-09
79SS2	0908257-10
79SS3	0908257-12
79SB2B	0908257-13
60SS6	0908257-14
EQBK-3	0908257-15

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.13 g / 250 mL

Laboratory ID: 0909637-MS1

QC Batch: 0909637

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Cyanide, Total	1.09	0.123	1.17	96	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9012A

30SS3

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.18 g / 250 mL

Laboratory ID: 0909637-MSD1

QC Batch: 0909637

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Cyanide, Total	1.09	1.20	98	2	20	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DUPLICATES
USEPA-9012A

60SS6

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
QC Batch: 0909637
Preparation: 9010B Cyanide Distillation
Source Sample Name: 60SS6

SDG: SS0809C
Project: RFAAP SSP at Six Sites
Laboratory ID: 0909637-DUP1
Lab Source ID: 0908257-14
Initial/Final: 25.04 g / 250 mL
% Solids: 76.09

Analyte	Control Limit	Sample Conc.	C	Dup. Conc.	C	RPD %	Q	Method	Units
Cyanide, Total	20	0.39	U	0.39	U			USEPA-9012A	mg/kg dry

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Reviewer: Andrea Sansom
Date: November 19, 2009
DV Level: II III IV
Review Document:

_X__ Region III Modified for National Functional Guidelines
_X__ SW-846 for aqueous by SW9060 or Methods of Soil Analyses for soil by Walkley Black
_X__ Project QAPP/SAP

Total Organic Carbon

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SS0809C
Test Name: TOC
Method No.: Walkley Black

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do sample preservation, collection and storage condition meet method requirement? (4C and <2)	X		
	If samples were received with the cooler temperature exceeding 20 ^{O}C, then flag L(+)/UL(-).			
1.4	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Have any technical holding times (28 days), determined from date of sampling to date of analysis, been exceeded? If yes, J(+)/UJ(-).		X	
2.2	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.			X

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are two standards included in the calibration curve run with four injections each? If no, flag "R".			
4.2	Was a second source calibration verification analyzed for each calibration curve? If no, flag "R".			
4.3	Were continuing calibration standards analyzed every 10 samples? If no, flag "R".			
4.4	Are all calibration standard %RSD (<20%, r>0.995, or r^2<0.99), second source (±10%) or %D(≤10%) within the			
For initial calibration: %RSD > 20%, but < 50%, J(+), only; %RSD > 50%, but < 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).				
For second source: %D>10%, J(+)/R(-).				
For continuing calibration: Positive Bias - %D >+ 10%, J(+), only. Negative Bias - %D>-10% but <-50%, J(+)/UJ(-) and %D>-50%, J(+)/R(-).				

Notes: N/A, this is a titration

5.0 Laboratory Control Sample (LCS)		Yes	No	NA
5.1	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
5.2	Are there any %R for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
5.3	Are there any RPD for LCS/LCSD recoveries outside the QC limits? If Yes, J(+) only.		X	

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?			X
6.2	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?			X
6.3	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	Action: No action is required based on MS/MSd failure alone. Note in the report and use professional judgement.			

Notes: Laboratory only conducts sample duplicates

7.0 Field Duplicate		Yes	No	NA
7.1	Evaluate field duplicate results? Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria recommended should be noted during data validation and discussed in the DV report.			X

Notes:

8.0 Compound Identification and Detection Limit Verification		Yes	No	NA
8.1	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

9.0 Data Completeness		Yes	No	NA
9.1	Is % completeness for certainty? (Control limit 90%)	X		
9.1.1	Number of samples: 2			
9.1.2	Number of target compounds in each analysis: 1			
9.1.3	Number of results that are uncertain at comparison criteria standard: 0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)			
	% Completeness = 100%			

Notes:

SAMPLE ID SUMMARY

MSA 29-3.5.2

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

SDG: SS0809C

Project: RFAAP SSP at Six Sites

Client Sample Id:	Lab Sample Id:
79SB2A	0908257-11
79SB2B	0908257-13

EMSL Analytical, Inc.
107 Haddon Ave., Westmont, NJ 08108

Attn: **Lisa Harvey**
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court
Grand Rapids, MI 49512

Fax: (616) 940-4470 Phone: (616) 975-4500
Project: **RFAAP SSP 6 SITES**

Customer ID: TRIM50
Customer PO: LMH0908257S
Received: 08/18/09 10:30 AM
EMSL Order: 040920779

EMSL Proj:
Analysis Date: 8/28/2009

PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
30SS1 *040920779-0001*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SB1B *040920779-0002*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
DUP-4 *040920779-0003*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SS2 *040920779-0004*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SS3 *040920779-0005*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SB2B *040920779-0006*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SS1 *040920779-0007*		Brown Fibrous Homogeneous	5.00% Cellulose	95.00% Non-fibrous (other)	**None Detected**
30SB3B *040920779-0008*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
DUP-5 *040920779-0009*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)
Delores Beard (12)

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

EMSL Analytical, Inc.
[illegible]

Attn: **Lisa Harvey**
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court
Grand Rapids, MI 49512

Fax: (616) 940-4470 Phone: (616) 975-4500
Project: **RFAAP SSP 6 SITES**

Customer ID: TRIM50
Customer PO: LMH0908257S
Received: 08/18/09 10:30 AM
EMSL Order: 040920779

EMSL Proj:
Analysis Date: 8/28/2009

PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
79SS2 *040920779-0010*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SS3 *040920779-0011*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SB2B *040920779-0012*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)
Delores Beard (12)

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

THIS IS THE LAST PAGE OF THE REPORT.

SDG CASE NARRATIVE

URS Corporation
RFAAP SSP at Six Sites

SDG Executive Summary

This case narrative applies to samples received on August 14, 2009. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between URS Corporation and TriMatrix Laboratories, Inc..

Each sample receipt event was assigned a unique TriMatrix work order number. Sample receipt documentation is included in section A of this data package.

Project Technical Issues/Problems

Project-related data qualification designations and reporting conventions are included in Attachment 1 - *Project Technical Narrative*.

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG are presented in Attachment 2 - *Statement of Data Qualifications*. The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this data package are intended to comply with the documents referenced in the introductory section of this narrative. The EDD, if requested, will be issued separately from this hardcopy report. Hold time reports for each test procedure are presented following the CLP-like forms section of this report.

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC). Estimates of analytical uncertainties for the test results contained within the report are available upon request.

Lisa M. Harvey, Project Chemist

09-16-2009
Date

SDG: SS0809C

SDG CASE NARRATIVE

Sample Receipt and Login -- Work Order: 0908257

TriMatrix Laboratories received the cooler(s) for this work order on August 14, 2009, at 09:00am. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix *Sample Receiving / Log-In Checklist* provided in section A of this package. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding COC form. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date Sampled
30SS1	0908257-01	Soil	8/13/2009
30SB1B	0908257-02	Soil	8/13/2009
DUP-4	0908257-03	Soil	8/13/2009
30SS2	0908257-04	Soil	8/13/2009
30SS3	0908257-05	Soil	8/13/2009
30SB2B	0908257-06	Soil	8/13/2009
79SS1	0908257-07	Soil	8/13/2009
30SB3B	0908257-08	Soil	8/13/2009
DUP-5	0908257-09	Soil	8/13/2009
79SS2	0908257-10	Soil	8/13/2009
79SB2A	0908257-11	Soil	8/13/2009
79SS3	0908257-12	Soil	8/13/2009
79SB2B	0908257-13	Soil	8/13/2009
60SS6	0908257-14	Soil	8/13/2009
EQBK-3	0908257-15	Water	8/13/2009
Trip Blank	0908257-16	Water	8/13/2009

No administrative issues were encountered during the receipt and analysis of this work order.

5560 Corporate Exchange Court SE • Grand Rapids, MI 49512 • (616) 975-4500 • Fax (616) 942-7463

SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative

Sample Result Reporting Convention

Sample results are reported as RL 'U' (e.g., 0.001 U) if the target analyte was not detected above the MDL. If a sample for an organic parameter is reanalyzed and also reported, the second analysis includes the suffix 'REn' where n = the first, second, etc. reanalysis. If a sample is reanalyzed for confirmation purposes, is confirmed and also reported, the second analysis includes the suffix 'RE1'. If the confirmation was not performed simultaneously, the second set of sample results is reported on a second Form 1 since that confirmation analysis did not occur at the same time and/or date.

Method Detection Limits, Target Analytes, and Reporting Limits

All method detection limits (MDL) for analytes in this report are compliant with the DoD QSM specification that each reporting limit (RL) employed is to be at least three times the MDL. In addition, no RL is less than the equivalent concentration of the lowest instrument calibration standard.

Quality Control Limits

Quality control limits specified in the DoD QSM were employed. For cases in which the analyte is not listed in the QSM, internal laboratory control limits were used.

Data Qualifier Designation

If applicable, a sample result is qualified with:

- a "U" flag if the analyte was not detected at a concentration greater than the MDL,
- a "B", "J", and/or an "E" flag as defined in the Variance section,
- a LIMS-generated statement of qualification. Qualifying statements, if any, will be found in Attachment 2 to this narrative.

QC Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven digit number that associates all samples analyzed as a set under one analytical sequence.

Variances

Data Qualifier Flags

Data qualifier flags other than those listed in the DoD QSM were employed or the definition of an existing flag was modified.

J – Estimated: the analyte was detected at a concentration greater than the limit of detection (i.e., MDL) but less than the reporting limit (i.e., MRL).

B – Blank contamination: The analyte was detected above one-half the reporting limit in an associated method blank. The same analyte in the sample was detected at less than five times the method blank concentration. (If a common laboratory contaminant is present in the method blank at a concentration greater than one-half the reporting limit but less than or equal to that reporting limit, any associated sample results are flagged but corrective action is not necessarily taken. A text qualifier is also associated with such a result.)

E – Exceeds calibration range: The analyte response exceeded the calibrated range of the instrument. (With the exception of metals for which only the final non-qualified result is reported, both the initial E-qualified result and final non-qualified result from reanalysis-at-dilution are reported.)

Text Qualifier

A LIMS-generated text qualifier is substituted for many instances in which the DoD QSM "Q" flag would otherwise apply. The text qualifiers are listed in a summary format by parameter with applicable samples identified.

Methods 6010B and 6020A

The acceptance criterion of < 2 x RL is substituted for < 2 x MDL for interference check solution ICS-A.

Project Correspondence

Any additional correspondence with the Client, and potentially any third parties also involved in the project, regarding sample receipt and/or analysis follows.

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Volatile Organic Compounds by EPA Method 8260B

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8260B

Sample/Analyte:	
0908257-05 30SS3	1,1,2-Trichloro-1,2,2-trifluoroethane
0908257-05 30SS3	1,2,3-Trichlorobenzene
0908257-05 30SS3	1,2,4-Trichlorobenzene
0908257-05 30SS3	cis-1,3-Dichloropropene
0908257-05 30SS3	Methylcyclohexane

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-8260B

Sample/Analyte:	
0908257-05 30SS3	1,2-Dichlorobenzene
0908257-05 30SS3	trans-1,3-Dichloropropene

Qualification: The associated Internal Standard response was less than the lower control limit but greater than or equal to 30%. Reanalysis confirmed the response; sample matrix interference is evident. The result is considered estimated.

Analysis: USEPA-8260B

Sample/Analyte:	
0908257-10 79SS2	1,1,2,2-Tetrachloroethane
0908257-10 79SS2	1,2,3-Trichlorobenzene
0908257-10 79SS2	1,2,4-Trichlorobenzene
0908257-10 79SS2	1,2-Dibromo-3-chloropropane
0908257-10 79SS2	1,2-Dichlorobenzene
0908257-10 79SS2	1,3-Dichlorobenzene
0908257-10 79SS2	1,4-Dichlorobenzene
0908257-10 79SS2	Isopropylbenzene
0908257-14 60SS6	1,1,2,2-Tetrachloroethane
0908257-14 60SS6	1,2,3-Trichlorobenzene
0908257-14 60SS6	1,2,4-Trichlorobenzene
0908257-14 60SS6	1,2-Dibromo-3-chloropropane

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Volatile Organic Compounds by EPA Method 8260B

Sample/Analyte:	0908257-14 60SS6	1,2-Dichlorobenzene
	0908257-14 60SS6	1,3-Dichlorobenzene
	0908257-14 60SS6	1,4-Dichlorobenzene
	0908257-14 60SS6	Isopropylbenzene

Qualification: Concentration exceeds calibration range

Analysis: USEPA-8260B

Sample/Analyte: 0908257-04 30SS2 Acetone

Qualification: One or more surrogate recoveries for the sample were less than the lower control limit but greater than or equal to 10%. All results are considered estimated.

Analysis: USEPA-8260B

Sample/Analyte: 0908257-14 60SS6

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The LCS recovery exceeded the control limit but it was within the marginal exceedance for a compound that is not a project-specific analyte of concern. The result for this analyte in any sample from the associated QC batch is not considered qualified.

Analysis: USEPA-8270C

Sample/Analyte:	
0908257-01 30SS1	4-Methylphenol
0908257-02 30SB1B	4-Methylphenol
0908257-03 DUP-4	4-Methylphenol
0908257-04 30SS2	4-Methylphenol
0908257-06 30SB2B	4-Methylphenol
0908257-07 79SS1	4-Methylphenol
0908257-08 30SB3B	4-Methylphenol
0908257-09 DUP-5	4-Methylphenol
0908257-10 79SS2	4-Methylphenol

Qualification: The LCS recovery was outside of the control limit with no allowed marginal exceedences. The result for this analyte in any sample from the associated QC batch is considered qualified.

Analysis: USEPA-8270C

Sample/Analyte:	
0908257-01 30SS1	Benzaldehyde
0908257-01 30SS1	Carbazole
0908257-01 30SS1	Di-n-butyl Phthalate
0908257-02 30SB1B	Benzaldehyde
0908257-02 30SB1B	Carbazole
0908257-02 30SB1B	Di-n-butyl Phthalate
0908257-03 DUP-4	Benzaldehyde
0908257-03 DUP-4	Carbazole
0908257-03 DUP-4	Di-n-butyl Phthalate
0908257-04 30SS2	Benzaldehyde
0908257-04 30SS2	Carbazole
0908257-04 30SS2	Di-n-butyl Phthalate
0908257-05 30SS3	Benzaldehyde
0908257-06 30SB2B	Benzaldehyde
0908257-06 30SB2B	Carbazole
0908257-06 30SB2B	Di-n-butyl Phthalate
0908257-07 79SS1	Benzaldehyde
0908257-07 79SS1	Carbazole

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Sample/Analyte:	0908257-07 79SS1	Di-n-butyl Phthalate
	0908257-08 30SB3B	Benzaldehyde
	0908257-08 30SB3B	Carbazole
	0908257-08 30SB3B	Di-n-butyl Phthalate
	0908257-09 DUP-5	Benzaldehyde
	0908257-09 DUP-5	Carbazole
	0908257-09 DUP-5	Di-n-butyl Phthalate
	0908257-10 79SS2	Benzaldehyde
	0908257-10 79SS2	Carbazole
	0908257-10 79SS2	Di-n-butyl Phthalate
	0908257-12 79SS3	Benzaldehyde
	0908257-13 79SB2B	Benzaldehyde
	0908257-14 60SS6	Benzaldehyde
	0908257-15 EQBK-3	2,3,4,6-Tetrachlorophenol
	0908257-15 EQBK-3	2,4,5-Trichlorophenol
	0908257-15 EQBK-3	2,4,6-Trichlorophenol
	0908257-15 EQBK-3	2,4-Dichlorophenol
	0908257-15 EQBK-3	2,4-Dinitrotoluene
	0908257-15 EQBK-3	2,6-Dinitrotoluene
	0908257-15 EQBK-3	2-Chloronaphthalene
	0908257-15 EQBK-3	2-Methylnaphthalene
	0908257-15 EQBK-3	2-Nitroaniline
	0908257-15 EQBK-3	4-Bromophenyl Phenyl Ether
	0908257-15 EQBK-3	4-Chloro-3-methylphenol
	0908257-15 EQBK-3	4-Chlorophenyl Phenyl Ether
	0908257-15 EQBK-3	Acenaphthene
	0908257-15 EQBK-3	Acenaphthylene
	0908257-15 EQBK-3	Anthracene
	0908257-15 EQBK-3	Benzo(a)anthracene
	0908257-15 EQBK-3	Benzo(a)pyrene
	0908257-15 EQBK-3	Benzo(b)fluoranthene
	0908257-15 EQBK-3	Benzo(k)fluoranthene
	0908257-15 EQBK-3	Bis(2-ethylhexyl) Phthalate
	0908257-15 EQBK-3	Butyl Benzyl Phthalate

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Sample/Analyte:	0908257-15 EQBK-3	Caprolactam
	0908257-15 EQBK-3	Carbazole
	0908257-15 EQBK-3	Chrysene
	0908257-15 EQBK-3	Dibenzofuran
	0908257-15 EQBK-3	Diethyl Phthalate
	0908257-15 EQBK-3	Di-n-butyl Phthalate
	0908257-15 EQBK-3	Fluoranthene
	0908257-15 EQBK-3	Fluorene
	0908257-15 EQBK-3	Hexachlorobenzene
	0908257-15 EQBK-3	Hexachloroethane
	0908257-15 EQBK-3	Naphthalene
	0908257-15 EQBK-3	Pentachlorophenol
	0908257-15 EQBK-3	Phenanthrene

Qualification: The analyte concentration in the MB for this common lab contaminant was greater than 1/2 the RL, but less than the RL. The positive sample result, which was less than 5 times the MB value, is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	0908257-01 30SS1	Di-n-butyl Phthalate
	0908257-04 30SS2	Di-n-butyl Phthalate
	0908257-07 79SS1	Di-n-butyl Phthalate
	0908257-09 DUP-5	Di-n-butyl Phthalate
	0908257-10 79SS2	Di-n-butyl Phthalate

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	0908257-05 30SS3	Atrazine
	0908257-05 30SS3	Caprolactam

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	0908257-05 30SS3	3,3´-Dichlorobenzidine

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The MS and/or MSD recovery was less than 10%. A positive result for this analyte in the unspiked sample is considered estimated; a non-detect result for the same analyte is considered unusable.

Analysis: USEPA-8270C

Sample/Analyte: 0908257-05 30SS3 Benzaldehyde

Qualification: 3-Methylphenol cannot be resolved from 4-Methylphenol due to chromatographic limitations. The reported result could be 3-Methylphenol, 4-Methylphenol, or a combination of both isomers.

Analysis: USEPA-8270C

Sample/Analyte: 0908257-04 30SS2 4-Methylphenol

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Nitroaromatics & Nitramines by EPA Method 8330

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8330

Sample/Analyte:	
9F26032-CAL1	4-Nitroaniline
9F26032-CAL1	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
9F26032-CAL2	4-Nitroaniline
9F26032-CAL2	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
9F26032-SCV1	4-Nitroaniline
9F26032-SCV1	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6010B

Sample/Analyte:	
0908257-05 30SS3	Barium
0908257-05 30SS3	Zinc

Analysis: USEPA-6020A

Sample/Analyte:	
0908257-05 30SS3	Lead

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	
0908257-05 30SS3	Vanadium

Qualification: This analyte was not present in this sample at a concentration greater than 50 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6010B

Sample/Analyte:	
0908257-05 30SS3	Aluminum

Qualification: This analyte was not present in this sample at a concentration greater than 100 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6020A

Sample/Analyte:	
0908257-05 30SS3	Antimony
0908257-05 30SS3	Thallium

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was greater than or equal to 4 times the spiked amount; the non-spiked sample result is not qualified.

Analysis: USEPA-6010B

Sample/Analyte:	
0908257-05 30SS3	Aluminum
0908257-05 30SS3	Iron
0908257-05 30SS3	Manganese

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TriMatrix Laboratories, Inc.

SAMPLE RECEIVING / LOG-IN CHECKLIST

Client: URS Richmond
Receipt Record Page/Line No.: 27-2
Project-Submittal No.: new / add to 0908257
Project Chemist: [illegible]
Sample Nos.: 01-16

Coolers Received

Recorded by (initials/date): WC 8-14-09

☑ Cooler ☐ Box ☐ Other ____ | Qty Received: 4

Thermometer Used: ☑ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#____) ☐ See Additional Cooler Information Form

Cooler No.	Time	Custody Seals	Coolant Location	Coolant / Temperature Taken Via	Alternate Temperature Taken Via	Recorded °C	Correction Factor °C	Actual °C
Tm 1390	0925	☐ none ☑ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☑ temperature blank (tb) ☐ 1 container	tb 2.4	-	2.4
						tb location: representative / in ice		
						1 3.1	-	3.1
						2 3.0	-	3.0
						3 2.9	-	2.9
							Average °C	3.0
						☐ Cooler ID on COC? ☐ VOC trip blank received?		
Tm 1353	0930	☐ none ☑ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☑ temperature blank (tb) ☐ 1 container	tb 2.1	-	2.1
						tb location: representative / in ice		
						1 2.7	-	2.7
						2 3.3	-	3.3
						3 3.2	-	3.2
							Average °C	
						☐ Cooler ID on COC? ☐ VOC trip blank received?		
Tm 1085	0935	☐ none ☑ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☑ temperature blank (tb) ☐ 1 container	tb 3.2	-	3.2
						tb location: representative / in ice		
						1 3.8	-	3.8
						2 4.2	-	4.2
						3 3.0	-	3.0
							Average °C	
						☐ Cooler ID on COC? ☑ VOC trip blank received?		
Tm 1573	0940	☐ none ☑ present / intact ☐ present / not intact	Dispersed / Top / Middle / Bottom	☑ loose ice / avg 2-3 containers ☐ bagged ice / avg 2-3 containers ☐ blue ice / avg 2-3 containers ☐ none / avg 2-3 containers	☑ temperature blank (tb) ☐ 1 container	tb 3.6	-	3.6
						tb location: representative / in ice		
						1 3.5	-	3.5
						2 3.9	-	3.9
						3 4.3	-	4.3
							Average °C	
						☐ Cooler ID on COC? ☐ VOC trip blank received?		

If any shaded areas checked, complete Sample Receiving Non-Conformance Form

Paperwork Received

☐ No COC received

N/A	Yes	No	
	☑	☐	Chain of Custody Record(s)?
	☐		If No, COC initiated by ____
	☑		Rec'd for Lab signed/date/time?
☐	☑		Shipping Document?
☑	☐		Other ____

COC ID Nos.

☑ TriMatrix

☐ Other (name or ID#)____

Check COC for Accuracy

☐ No analysis requested

Yes	No	
☑	☐	Sample ID matches COC?
☑	☐	Sample date and time matches COC?
☐	☑	Container type completed on COC?
☑	☐	All container types indicated are received?

Sample Condition Summary

☐ Non-TriMatrix containers, see Notes

N/A	Yes	No	
	☐	☑	Broken containers/lids?
	☐	☑	Missing or incomplete labels?
	☐	☑	Illegible information on labels?
	☐	☑	Low volume received?
	☐	☑	Inappropriate containers received?
☐	☐	☑	VOC vials / TOX containers have headspace?
☐	☐	☑	Extra sample locations / containers not listed on COC?

Check Sample Preservation

N/A	Yes	No	
	☑	☐	Average sample temperature ≤6° C?
☐	☑		Completed Sample Preservation Verification Form?
☐	☑	☐	Samples preserved correctly?
☑	☐		If "No", added orange tag?
☑	☐		Received pre-preserved VOC soils?

☐ MeOH ☐ Na_2SO_4

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☑ EnCores / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged Containers
☐ Yellow/White-tagged 1L Ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☑ RECEIVED, COCs TO LAB(S)

Notes

☑ Trip blank received ☐ Trip blank not listed on COC
☐ No COC received, Proj. Chemist reviewed (init./date) ____
☐ No analysis requested, Proj. Chemist completed (init./date) ____

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
8-14-09 0900	8-14-09 1000	Yes / No

TriMatrix Laboratories, Inc.

SAMPLE PRESERVATION VERIFICATION FORM

page ___ of ___

Client	URS	Project-Submittal No.	09082257
Receipt Log No.	272	Completed By (initials/date)	WC 8.14.09
		Project Chemist	CTH

COC ID No.	129114	Adjusted by:		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
		Date:					
Container Type	5	4	13	3	6	15	
Tag Color	Lt. Blue	Blue	Brown	Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4	None	HNO_3	HNO_3	
Expected pH	>12	<2	<2	~7	<2	<2	
COC Line No. 1							
COC Line No. 2							
COC Line No. 3							
COC Line No. 4							
COC Line No. 5							
COC Line No. 6		✓		✓			
COC Line No. 7							
COC Line No. 8							
COC Line No. 9							
COC Line No. 10							

Comments

COC ID No.		Adjusted by:		DO NOT ADJUST pH FOR THESE CONTAINER TYPES			
		Date:					
Container Type	5	4	13	3	6	15	
Tag Color	Lt. Blue	Blue	Brown	Green	Red	Red Stripe	
Preservative	NaOH	H_2SO_4	H_2SO_4	None	HNO_3	HNO_3	
Expected pH	>12	<2	<2	~7	<2	<2	
COC Line No. 1							
COC Line No. 2							
COC Line No. 3							
COC Line No. 4							
COC Line No. 5							
COC Line No. 6							
COC Line No. 7							
COC Line No. 8							
COC Line No. 9							
COC Line No. 10							

Comments

pH strip lot No. HC821466

Aqueous Samples: For each sample and container type, check the box if pH is acceptable. **If pH is not acceptable for any sample container, record pH in box, and note on Sample Receiving Checklist and on Sample Receiving Non-Conformance Form.** If approved by Project Chemist, add acid or base to the sample to achieve the correct pH. Add up to, but do not exceed 2x the volume initially added at container prep (see table below for initial volumes used). **Add orange pH tag to sample container and record information requested. Record adjusted pH on this form. Do not adjust pH for container types 3, 6, and 15.**

Container Size (mL)	Original Vol. of Preservative (mL)
Container Type 5:	NaOH
500	2.5
1000	5.0
Container Type 4:	H_2SO_4
125	0.5
250	1.0
500	2.0
1000	4.0
Container Type 13	H_2SO_4
500	2.5

Official Sample Seal

TriMatrix Laboratories, Inc.

(616) 975-4500

Signature

Date 8/13/07

Official Sample Seal

TriMatrix Laboratories, Inc.

(616) 975-4500

Signature

Date 8/13/07

Official Sample Seal

TriMatrix Laboratories, Inc.

(616) 975-4500

Signature

Date 8/13/07

Official Sample Seal

TriMatrix Laboratories, Inc.

(616) 975-4500

CUSTODY SEAL

Signature

Site EC044

Date 8/13/07

(616) 975-4500

FedEx Express **US Airbill**

FedEx Tracking Number 8617 5417 6798

Form ID No. 0200

1 From

Date

Sender's Name — Phone

Company

Address — Dept./Floor/Suite/Room

City — State — ZIP

2 Your Internal Billing Reference

3 To

Recipient's Name — Phone

Company

Recipient's Address — Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City — State — ZIP

8617 5417 6798

4a Express Package Service — *Packages up to 150 lbs.*

- FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service — *Packages over 150 lbs.*

- FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation.

** To most locations.

5 Packaging

- FedEx Envelope*
- FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- FedEx Box
- FedEx Tube
- Other

* Declared value limit $500.

6 Special Handling — Include FedEx Address in Section 3

- SATURDAY Delivery — Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- HOLD Weekday at FedEx Location — Not available for FedEx First Overnight.
- HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- No
- Yes — As per attached Shipper's Declaration.
- Yes — Shipper's Declaration not required.
- Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* — Enter FedEx Acct. No. or Credit Card No. below. — Obtain Recip. Acct. No.

- Sender — Acct. No. in Section 1 will be billed.
- Recipient
- Third Party
- Credit Card
- Cash/Check

Total Packages	Total Weight	Total Declared Value†
4	213	$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details.

Credit Card Auth.

8 Residential Delivery Signature Options — If you require a signature, check Direct or Indirect.

- No Signature Required — Package may be left without obtaining a signature for delivery.
- Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *Fee applies.*

520

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TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 128111S

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Cart

VOA Rack/Tray

Receipt Log No.

Project Chemist: Lisa Harvey

Work Order No.

Client Name: TriMatrix Laboratory

Address: 5560 Corporate Exchange Court SE, Grand Rapids, Michigan 49512

Phone: 616-975-4544

Fax: 616-942-7463

Project Name: RFAAP SSP 6 Sites

Client Project No. / P.O. No.: LMH0908257

Invoice To: (●) Client ( ) Other (comments)

Contact/Report To: Lisa Harvey

Analyses Requested

Container Type (corresponds to Container Packing List): A = asbestos (soil) CARB 435

Number of Containers Submitted: 20

⇦ PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

Schedule	Matrix Code	Laboratory Sample Number		Sample ID	Cooler ID	Sample Date	Sample Time	Comp / Grab	Matrix	Number of Containers Submitted	Total	Sample Comments
			1	30SS1		8/13/09	8:25		SOIL	1	1	
			2	30SB1B		8/13/09	8:40		SOIL	1	1	
			3	Dup-4		8/13/09	- - -		SOIL	1	1	
			4	30SS2		8/13/09	9:00		SOIL	1	1	
			5	30SS3		8/13/09	9:30		SOIL	1	1	run matrix QC
			6	30SB2B		8/13/09	9:35		SOIL	1	1	
			7	79SS1		8/13/09	10:15		SOIL	1	1	
			8	30SB3B		8/13/09	10:25		SOIL	1	1	
			9	Dup-5		8/13/09	- - -		SOIL	1	1	
			10	79SS2		8/13/09	10:55		SOIL	1	1	

SAMPLES ACCEPTED FOR ANALYSIS BY TMSL ANALYTICAL, INC.

Sampled By (print)

Sampler's Signature

Company

How Shipped?

Tracking No.

Comments: DOD requirements. Standard turn. Please run matrix QC as applicable per the method for the noted sample. Hard copy report to Lisa Harvey. Email results to harveylm@trimatrixlabs.com. See PC for additional information

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
						Lisa Harvey	8/17/09	16[illegible]

1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time

C4C0074 pg 2/2

TriMatrix Laboratories, Inc.

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Chain of Custody Record

COC No. 128112S

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VOA Rack/Tray

Receipt Log No.

Project Chemist: Lisa Harvey

Work Order No.

Client Name: TriMatrix Laboratory

Address: 5560 Corporate Exchange Court SE, Grand Rapids, Michigan 49512

Phone: 616-975-4544

Fax: 616-942-7463

Project Name: RFAAP SSP 6 Sites

Client Project No. / P.O. No.: LMH0908257

Invoice To: (●) Client ( ) Other (comments)

Contact/Report To: Lisa Harvey

Analyses Requested

Container Type (corresponds to Container Packing List)

	Schedule	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	Comp / Grab	Matrix	A: asbestos (soil) CARB 435	A: asbestos (wtr) 100.2 (Low)	20	16	Total	Sample Comments
										Number of Containers Submitted					
1				79SS3		8/13/09	11:10		SOIL			1		1	
2				79SB2B		8/13/09	11:25		SOIL			1		1	
3				51MW2		8/13/09	14:50		WTR				1	1	
4				C-1		8/13/09	15:35		WTR				3	3	run matrix QC
5				16-4		8/13/09	16:20		WTR				1	1	
6				51MW1		8/13/09	17:00		WTR				1	1	
7				Dup		8/13/09	---		WTR				1	1	
8				EQBK		8/13/09	17:15		WTR				1	1	
9															
10															

PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

Client Requested Matrix QC

SAMPLES ACCEPTED FOR ANALYSIS BY TRIMATRIX ANALYTICAL INC.

Sampled By (print)

Sampler's Signature

Company

How Shipped?

Tracking No.

Comments: DOD requirements. Standard turn. Please run matrix QC as applicable per the method on the noted sample. Hard copy report to Lisa Harvey. Email results to harveylm@trimatrixlabs.com. See PO for additional information

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
						LSA Harvey	8/17/09	16[illegible]
1. Received By	**Date**	**Time**	**2. Received By**	**Date**	**Time**	**3. Received For Lab By**	**Date**	**Time**

TriMatrix Laboratories, Inc.

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Chain of Custody Record

COC No. 128111

SS08D9C

Page 1 of

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Cart: 3
VOA Rack/Tray:
Receipt Log No.: 27.2
Project Chemist: CMA
Laboratory Project No.: 09082257

Client Name: URS Corporation
Address: 5540 Falmouth St, Suite 201
Richmond, VA 23230
Phone (804) 965-9000
Fax (804) 965-5764

Project Name: DFHAP SSP 6 Sites
Client Project No./P.O. No.: 11657490
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina Divine

Analyses Requested

VOCs 8260B; SVOCs 8270C; PCB/Pest 8081A/8082; Exp/NC/PETRO; TAL metals 6010, 6020, 7470/7471A; % solids; Asbestos (MED 432)

Page 1 of

PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Container Type (corresponds to Container Packing List)	Number of Containers Submitted	Total	Sample Comments
X	X	X Y MF	1 ~~30 SB1A~~		8/13/09	0800		X	S	3 1	1 1	6	
A	SO	01	2 30551	1390	8/13/09	0825		X	S	3 1	1 1	6	
A	|	02	3 30 SB1B	|	8/13/09	0840		X	S	3 1	1 1	6	
|	|	03	4 DUP - 4	|	8/13/09	—		X	S	3 1	1 1	6	
|	|	04	5 30552	|	8/13/09	0900		X	S	3 1	1 1	6	
B	|	05	6 30553 MS/MSD	|	8/13/09	0930		X	S	6 3	1 1	13	
A	|	06	7 30 SB2B	|	8/13/09	0935		X	S	3 1	1 1	6	
|	|	07	8 79551	|	8/13/09	1015		X	S	3 1	1 1	6	
|	|	08	9 30 SB3B	|	8/13/09	1025		X	S	3 1	1 1	6	
|	|	09	10 DUP - 5	↓	8/13/09	—		X	S	3 1	1 1	6	

Sampled By (print): Mark Fisher
Sampler's Signature:
Company: URS Corp

How Shipped? Hand Carrier Fed Ex
Tracking No.

Comments

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
	8/13/09							

1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
							8/14/09	0900

09082257

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Chain of Custody Record

COC No. 128114

SSPIDMC

Page 2 of ___

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Cart 3

VOA Rack/Tray

Receipt Log No. 27-2

Project Chemist [illegible]

Laboratory Project No. 0908257

Client Name: URS Corporation

Address: 5540 Falmouth St. Suite 201, Richmond, VA 23230

Phone (804) 965-9000

Fax (804) 965-9764

Project Name: RFHBO SSP - SD Sites

Client Project No./P.O. No. 11657490

Invoice No. ☐ Client ☐ Other (comments)

Contact/Report To Tina Dewitt

Analyses Requested

VOCs SW8260B; SVOCs SW8270C; PCB 1668A; 1,4-Dioxane 8270C-SIM; TAL Metals 6010B/7470A/7471A; TCLP Metals 1311/6010B/7470A/7471A; pH 9045C; COD 410.4; Asbestos Chrysotile 198.1; TOC SW9060; TCLP Metals pH 1040B

Container Type (corresponds to Container Packing List) 1e

PRESERVATIVES
A NONE pH>7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted	Total	Sample Comments
A	SO	10	1 79552		8/13/09	1055		X	S	3 1 → 1 1	6	
H	SO	11	2 79552A		8/13/09	1100		X	S	1	1	
A	SD	12	3 79553		8/13/09	1110		X	S	3 1 → 1 1	6	
G	SD	13	4 79553B		8/13/09	1125		X	S	3 1 → 1 1 1	7	
A	SD	14	5 GC556		8/13/09	1320		X	S	3 1 → 1	5	
X	X	X	X	6 SSPIDM-Water		8/13/09	1725	X	W	2 1 1	4	
				7								
				8								
				9								
				10								

Sampled By (print) MARK FISHER

Sampler's Signature [signature]

Company URS Corp.

How Shipped? Hand Carrier FedEx

Tracking No.

Comments

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
[signature]	8/13/09	1800						
1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
						[signature]	8.14.09	0900

TriMatrixCOC -- COC

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TriMatrix Laboratories, Inc.

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Chain of Custody Record

COC No. 128113

SDG# C

Page 4 of ___

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Cart: 3
VOA Rack/Tray: 052G
Receipt Log No.: 27.2
Project Chemist: CMH
Laboratory Project No.: 0908257

Client Name: URS Corporation
Address: 5540 Falmouth St Ste 201
Richmond, VA 23230
Phone 804 965 9000
Fax 804 965 9764

Project Name: RFAAP SSP 6 Sites
Client Project No./P.O. No.: 11657490
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina DeVine

Analyses Requested

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	Number of Containers Submitted						Total	Sample Comments
										VOCs 8260	SVOCs 8270 Exp/Nit/Perch 8330M	Pest/PCBs 8081A	8082	Total Metals 6020	Cyanide		
C	SO WP	15	1 EQBK-3		8/13/09	1200		X	W	3	2	4	2	1	1		
T	WP PB	16	2 Trip Blank		8/13/09	1200		X	W	1							
			3														
			4														
			5														
			6														
			7														
			8														
			9														
			10														

Container Type (corresponds to Container Packing List)

PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH >9
G MeOH
H Other (note below)

Sampled By (print): Rhoda Willis
Sampler's Signature: RWillis
Company: URS Corp

How Shipped? Hand Carrier Fedex
Tracking No.

Comments

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
RWillis	8/13/09	1900						
1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
						WmCole	8/14/09	0900

TriMatrixCOC -- COC WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Region III Modifications to the National Functional Guidelines for Data Review (September 1994).

Data Validation Flags

Flag	Interpretation
R	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
U	Not detected. The associated number indicates the approximate sample concentration is necessary to be detected.
B	Not detected substantially above the level reported in laboratory or field blanks.
N	Tentative Identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.
J	Analyte present. Reported value may not be accurate or precise.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	Not detected, quantitation limit may be inaccurate or imprecise.
UL	Not detected, quantitation limit is probably higher.
NT	Not tested, no analytical result provided.

The other type of code used by URS is a “Reason Code”. The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	j	Vial Headspace
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits
l	LCS recovery failure	l	LCS recovery failure	l	LCS recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	m	MS/MSD recovery failure
p	Poor chromatography	p	Poor chromatography	n	ICS failure
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	o	Calibration blank contamination
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	p	Preparation blank contamination
s	Surrogate failure	s	Surrogate failure	q	Concentration exceeded the linear range
t	TIC	u	No confirmation column	r	Linearity failure in calibration or MSA
w	Identification criteria failure	w	Retention time failure	s	Serial dilution failure
x	Field blank contamination	x	Field blank contamination	u	BOD minimum depletion did not exceed 2mg/L
y	Trip blank contamination	z	Method blank contamination	v	Post-digestion spike failure
z	Method blank contamination			w	CRDL Standard Failure
				x	Field blank contamination

DATA VALIDATION REPORT - Level M3 Review

SDG No.:	**G296-641**	**Fraction:**	**Dioxin / Furan**
Laboratory:	**SGS**	**Project:**	**Radford SSP SSA 77**
Reviewer:	**Andrea Sansom**	**Date:**	**October 7, 2009**

This report presents the findings of a review of the referenced data. The report consists of this summary, a listing of the samples included in the review, copies of data reports with data qualifying flags applied, data review worksheets, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the referenced analytical methods and laboratory generated control limits; and, qualified according to the protocols defined in *USEPA, Region III, Dioxin / Furan Data Validation Guidance (March 1999)*.

Major Anomalies: None.

Minor Anomalies: The following detections are less than the lower calibration level:

Sample	Analyte	Result (pg/g)
77SB3A	1,2,3,7,8,9-HxCDF	5.06
DUP-2	1,2,3,4,7,8,9-HpCDF	7.76
	1,2,3,4,7,8-HxCDD	7.43
	1,2,3,7,8,9-HxCDF	4.93
	1,2,3,7,8-PeCDD	8.08
	1,2,3,7,8-PeCDF	6.1
	2,3,4,7,8-PeCDF	11.3
	2,3,7,8-TCDD	1.52

These results were flagged J,q, unless subsequently flagged B for method blank detections. The OCDD result was calculated from a concentration that exceeded the linear range of the initial calibration for field sample 77SB2A. This result should be considered estimate and was flagged J,q. The method blank for batch WG17269 displayed the following detections:

Analyte	Result (pg/g)	EMPC (pg/g)
2,3,7,8-TCDD	0.482	
1,2,3,4,6,7,8-HpCDD	0.318	
OCDD	2.07	
2,3,7,8-TCDF	0.268	
OCDF	EMPC	0.444

The associated field sample results less than five times the blank concentrations were flagged B,z. The matrix spike duplicate pair performed on field sample 77SB2A displayed the following percent recoveries less than the lower control limit of 70% and relative percent differences (RPD) greater than the control limit of 20%:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	RPD
1,2,3,6,7,8-HxCDD	**69.4**	91.8	18.7
2,3,7,8-TCDF	**31.3**	**54.4**	13.8
2,3,4,7,8-PeCDF	**68.7**	85.0	17.1
1,2,3,4,7,8-HxCDF	**68.3**	82.1	12.7
1,2,3,6,7,8-HxCDF	**66.0**	81.7	14.9
2,3,4,6,7,8-HxCDF	**59.8**	79.5	16.1
1,2,3,7,8,9-HxCDF	**49.8**	94.1	**51.4**

The parent sample result for 2,3,7,8-TCDF was positive and was flagged L,m. The parent sample for 1,2,3,7,8,9-HxCDF was positive was flagged J,d. The field duplicate pair (77SB3A/DUP-2) displayed a relative percent difference greater than the control limit of 50% for Total TCDD at 57%. Both sample results were positive and were flagged J,f.

Correctable Anomalies: The laboratory used the average of the average response factors from the initial calibration for Total HxCDD, PeCDF, HxCDF, and HpCDF instead of the lowest average response factor of the calibrated isomers. Total results for each congener group include concentrations reported for the 17 target analytes. EMPC were only reported as present in the Total Homologues. Individual peaks included in the EMPC concentrations reported may be within the EPA Region III expanded ion ratio.

Comments: The case narrative explains that field sample DUP-2 was re-extracted and reported from a dilution factor of two due to matrix interference. On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of anomalies discussed above. All data are usable, as qualified, for their intended purpose based on the data reviewed.

Signed: Andrea Sansom

Andrea Sansom

Radford SSP SSA 77
Duplicate Statistics

Client Sample ID:				77SB3A		DUP-2				
Lab Sample ID:				G296-641-1		G296-641-2				
Date Sampled:				8/11/09		8/11/09				
	Units	**RL**	**5xRL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
Dioxins / Furans											
1,2,3,4,6,7,8-HpCDD	pg/g	11.4	57	337		348		**3.2%**	11	22.8	Pass
1,2,3,4,6,7,8-HpCDF	pg/g	11.4	57	100		98.7		**1.3%**	1.3	22.8	Pass
1,2,3,4,7,8,9-HpCDF	pg/g	11.4	57	8.72		7.76	A	11.7%	**0.96**	22.8	Pass
1,2,3,4,7,8-HxCDD	pg/g	11.4	57	7.18		7.43	A	3.4%	**0.25**	22.8	Pass
1,2,3,4,7,8-HxCDF	pg/g	11.4	57	18		16.6		8.1%	**1.4**	22.8	Pass
1,2,3,6,7,8-HxCDD	pg/g	11.4	57	17.1		17.6		2.9%	**0.5**	22.8	Pass
1,2,3,6,7,8-HxCDF	pg/g	11.4	57	13.9		14.4		3.5%	**0.5**	22.8	Pass
1,2,3,7,8,9-HxCDD	pg/g	11.4	57	19.5		19		2.6%	**0.5**	22.8	Pass
1,2,3,7,8,9-HxCDF	pg/g	11.4	57	5.06	A	4.93	A	2.6%	**0.13**	22.8	Pass
1,2,3,7,8-PeCDD	pg/g	11.4	57	7.09		8.08	A	13.1%	**0.99**	22.8	Pass
1,2,3,7,8-PeCDF	pg/g	11.4	57	6.34		6.1	A	3.9%	**0.24**	22.8	Pass
2,3,4,6,7,8-HxCDF	pg/g	11.4	57	16		14.8		7.8%	**1.2**	22.8	Pass
2,3,4,7,8-PeCDF	pg/g	11.4	57	11.4		11.3	A	0.9%	**0.1**	22.8	Pass
2,3,7,8-TCDD	pg/g	2.29	11.45	1.47		1.52	A	3.3%	**0.05**	4.58	Pass
2,3,7,8-TCDF	pg/g	2.29	11.45	7.12		8.4		16.5%	**1.28**	4.58	Pass
OCDD	pg/g	22.9	114.5	3110		2820		**9.8%**	290	45.8	Pass
OCDF	pg/g	22.9	114.5	172		157		**9.1%**	15	45.8	Pass
Total HpCDDs	pg/g	11.4	57	622		656		**5.3%**	34	22.8	Pass
Total HpCDFs	pg/g	11.4	57	228		217		**4.9%**	11	22.8	Pass
Total HxCDDs	pg/g	11.4	57	163		175		**7.1%**	12	22.8	Pass
Total HxCDFs	pg/g	11.4	57	178		165		**7.6%**	13	22.8	Pass
Total PeCDDs	pg/g	11.4	57	58.8		65.1		**10.2%**	6.3	22.8	Pass
Total PeCDFs	pg/g	11.4	57	110		127		**14.3%**	17	22.8	Pass
Total TCDDs	pg/g	2.29	11.45	16.7		30		**57.0%**	13.3	4.58	**Fail**
Total TCDFs	pg/g	2.29	11.45	80.5		114		**34.4%**	33.5	4.58	Pass

Control limit

[sample]>5xRL use 50%
[sample]<5xRL use Delta<2xRL

Method 8290
77SB3A
URS

Analytical Data Summary Sheet

Analyte	Amount pg/g	EDL pg/g	EMPC pg/g	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	**1.47**			28:22	0.78	
1,2,3,7,8-PeCDD	**7.09**			32:46	1.55	
1,2,3,4,7,8-HxCDD	**7.18**			35:06	1.33	
1,2,3,6,7,8-HxCDD	**17.1**			35:10	1.30	
1,2,3,7,8,9-HxCDD	**19.5**			35:24	1.24	
1,2,3,4,6,7,8-HpCDD	**337**			38:07	1.04	
OCDD	**3110**			41:55	0.89	
2,3,7,8-TCDF	**7.12**			27:28	0.84	
1,2,3,7,8-PeCDF	**6.34**			32:01	1.59	
2,3,4,7,8-PeCDF	**11.4**			32:36	1.58	
1,2,3,4,7,8-HxCDF	**18.0**			34:28	1.40	
1,2,3,6,7,8-HxCDF	**13.9**			34:34	1.15	
2,3,4,6,7,8-HxCDF	**16.0**			35:01	1.25	
1,2,3,7,8,9-HxCDF	**5.06**			35:39	1.30	A
1,2,3,4,6,7,8-HpCDF	**100**			37:04	1.04	
1,2,3,4,7,8,9-HpCDF	**8.72**			38:37	1.06	
OCDF	**172**			42:06	0.90	
Total TCDDs	**16.7**		17.7			
Total PeCDDs	**58.8**					
Total HxCDDs	**163**		170			
Total HpCDDs	**622**					
Total TCDFs	**80.5**		92.8			
Total PeCDFs	**110**		111			
Total HxCDFs	**178**		180			
Total HpCDFs	**228**					
WHO-2005 TEQ (ND=0)	**28.0**		28.0			
WHO-2005 TEQ (ND=½)	**28.0**		28.0			

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB3A		Weight / Volume:	10.45	g
			Solids / Lipids:	82.4	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-1D		Filename:	a02sep09c_2-2	
Collection Date/Time:	08/11/09	13:40	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	15:01	Initial Cal:	m8290-100708a	

Method 8290
DUP-2
URS

Analytical Data Summary Sheet

Analyte	Amount pg/g	EDL pg/g	EMPC pg/g	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	**1.52**			28:22	0.79	A
1,2,3,7,8-PeCDD	**8.08**			32:46	1.55	A
1,2,3,4,7,8-HxCDD	**7.43**			35:04	1.40	A
1,2,3,6,7,8-HxCDD	**17.6**			35:07	1.18	
1,2,3,7,8,9-HxCDD	**19.0**			35:22	1.23	
1,2,3,4,6,7,8-HpCDD	**348**			38:00	1.04	
OCDD	**2820**			41:37	0.89	
2,3,7,8-TCDF	**8.40**			27:27	0.71	
1,2,3,7,8-PeCDF	**6.10**			32:01	1.61	A
2,3,4,7,8-PeCDF	**11.3**			32:36	1.59	A
1,2,3,4,7,8-HxCDF	**16.6**			34:27	1.31	
1,2,3,6,7,8-HxCDF	**14.4**			34:31	1.24	
2,3,4,6,7,8-HxCDF	**14.8**			34:58	1.31	
1,2,3,7,8,9-HxCDF	**4.93**			35:37	1.10	A
1,2,3,4,6,7,8-HpCDF	**98.7**			36:57	1.01	
1,2,3,4,7,8,9-HpCDF	**7.76**			38:31	1.09	A
OCDF	**157**			41:49	0.88	
Total TCDDs	**30.0**		36.4			
Total PeCDDs	**65.1**					
Total HxCDDs	**175**					
Total HpCDDs	**656**					
Total TCDFs	**114**		120			
Total PeCDFs	**127**					
Total HxCDFs	**165**					
Total HpCDFs	**217**					
WHO-2005 TEQ (ND=0)	**28.9**		28.9			
WHO-2005 TEQ (ND=½)	**28.9**		28.9			

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	DUP-2		Weight / Volume:	5.220	g
			Solids / Lipids:	83.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17287	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-2F		Filename:	a10sep09d-5	
Collection Date/Time:	08/11/09		Retchk:	a10sep09d-1	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a10sep09d-1	
Extraction Date:	09/09/09		End ConCal:	a10sep09d-14	
Analysis Date/Time:	09/10/09	20:44	Initial Cal:	m8290-100708a	

Method 8290
77SB2A
URS

Analytical Data Summary Sheet

Analyte	Amount pg/g	EDL pg/g	EMPC pg/g	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	**5.93**			28:24	0.80	
1,2,3,7,8-PeCDD	**23.3**			32:46	1.54	
1,2,3,4,7,8-HxCDD	**37.0**			35:04	1.24	
1,2,3,6,7,8-HxCDD	**86.8**			35:10	1.26	
1,2,3,7,8,9-HxCDD	**64.3**			35:22	1.28	
1,2,3,4,6,7,8-HpCDD	**1450**			38:01	1.04	
OCDD	**12100**			41:42	0.89	E
2,3,7,8-TCDF	**33.8**			27:30	0.80	
1,2,3,7,8-PeCDF	**35.2**			32:01	1.56	
2,3,4,7,8-PeCDF	**66.6**			32:36	1.57	
1,2,3,4,7,8-HxCDF	**98.0**			34:28	1.24	
1,2,3,6,7,8-HxCDF	**85.4**			34:33	1.24	
2,3,4,6,7,8-HxCDF	**103**			35:00	1.23	
1,2,3,7,8,9-HxCDF	**29.1**			35:37	1.21	
1,2,3,4,6,7,8-HpCDF	**652**			36:58	1.04	
1,2,3,4,7,8,9-HpCDF	**51.7**			38:33	1.03	
OCDF	**928**			41:52	0.89	
Total TCDDs	**93.9**		98.7			
Total PeCDDs	**323**					
Total HxCDDs	**879**					
Total HpCDDs	**2800**					
Total TCDFs	**449**		452			
Total PeCDFs	**657**					
Total HxCDFs	**1010**					
Total HpCDFs	**1240**					
WHO-2005 TEQ (ND=0)	**129**		129			
WHO-2005 TEQ (ND=½)	**129**		129			

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB2A		Weight / Volume:	11.17	g
			Solids / Lipids:	84.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-3D		Filename:	a02sep09c_2-4	
Collection Date/Time:	08/11/09	14:15	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	16:38	Initial Cal:	m8290-100708a	

DATA VALIDATION WORKSHEET

Dioxins and Furans Analysis

Reviewer: Andrea Sansom
Date: 10/7/2009
DV Level: II III IV
Review Document:
X SW-846 X Project QAPP/SAP X NFG Region III Draft Guidance (March 1

Project Name: Radford SSP SSA77
Project Number: 11657490.40000
Laboratory: SGS
SDG No.: G296-641
Method No.: 8290

1.0 General: Chain-of-Custody		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	

Notes:

2.0 Preservation/ Holding Times		Yes	No	NA
2.1	Were samples preserved properly? Stored at 4°C ± 2°C (<4°C to lab and <-10°C at lab for tissue) in the dark. For aqueous, 80mg/L of sodium thiosulfate is required if residual chlorine is present and if the pH is >9, this is adjusted to 7-9 with sulfuric acid. If not, J(+)/UJ(-)	X		
2.2	Have any technical holding times been exceeded? Extraction within 30 days of collection and analysis within 45 days of extraction (tissue must be extracted within 24 hours of defrost) (To comply with 40CFR Part 136.3, drinking water must be extracted within seven days of collection). If yes, J(+)/UJ(-).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Was a preparation blank prepared with each batch?	X		
3.2	Do any blanks have positive results? If yes, an action level of 5 times the blank value is used to qualify sample results "B". (use 10X for OCDD/OCDF data) TEQ values should not be calculated for isomers flagged B.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? Use the same rule.			X

Notes:

4.0 Instrument Calibration		Yes	No	NA
4.1	Are five standards included in the calibration curve? If no, apply "J+/R-".	X		
4.2	Are RSD/%D ± 20% for standard compounds? If no, for RSD out apply "J+/UJ-" to associated specific analytes. For %D indicating a positive bias, flag "J+". For %D indicating a negative bias, flag "J+/UJ-"; by greater than 50%, "J+/R-".	X		
4.3	Are RSD/%D ± 30% for reference compounds? If no, apply "J" to all positive associated analytes.	X		
4.4	Is the signal to noise ratio acceptable for each selected ion current profile? (ICAL ≥ 2.5:1 ; CCC ≥10:1 ; Internal (IS) and Recovery Standards (RS) in any >10:1) If no: for target analytes, R(-); for ISs or RSs, qualify using professional judgement.	X		
4.5	Are Isotopic ratios within the following established control limits...? If no, apply "N+/R-".	X		

# Cl ion atoms	Ion Type	Theoretical Ratio	Control Limits
4	M/M+2	0.77	0.65- 0.89
5	M+2/M+4	1.55	1.32- 1.78
6	M+2/M+2	1.24	1.05- 1.43
(13)C-HxCDF	M/M+2	0.51	0.43- 0.59
(13)C-HpCDF	M/M+2	0.44	0.37- 0.51
7	M+2/M+4	1.04	0.88- 1.20
8	M+2	0.89	0.76- 1.02

4.6	Was the CCV analyzed at the beginning and end of every 12 hours of each analytical sequence? If no, J(+)/UJ(-) all associated samples.	X		

Notes:

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are tuning forms present using perfluorokerosene (PFK) for each start and end of each max 12 hour analytical sequence? If no, apply "R".	X		
5.1a	Is the resolving power ≥ 10,000 with m/z 304.9824? If not, apply "R".	X		
5.1b	Is the deviation from exact m/z and theoretical m/z <0.005 amu or 5 ppm? If not, apply "R".	X		
5.2	Was a window defining mix analyzed at the same frequency as calibrations that defines descriptor switching times of scan ranges? If not, make a note in DV Report.	X		
5.3	Was an isomer specificity check analyzed with peaks resolved with a valley ≤ 25%? (DB5 column: 2,3,7,8-TCDD and 1,2,3,8-TCDD ; DB225 column: 2,3,7,8-TCDF and 2,3,4,7-TCDF) If not, flag positive 2,3,7,8-TCDD and /or 2,3,7,8-TCDF, whichever failed, "J".	X		

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits (in-house generated)?	X		
6.4	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits (in-house generated)?	X		
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS/MSD results in conjunction with other QC to determine sample data usability.			

Notes:

7.0 Laboratory Control Sample (LCS/LCSD) [aka Ongoing Precision Result (OPR/OPRD)		Yes	No	NA
7.1	Is the LCS recovery form present?	X		
7.2	Was an LCS analyzed for each batch?	X		
7.3	Are there any percent recoveries outside the QC limits (in-house generated limits)?		X	
	If Yes, for %R > UCL, "J+" only; for %R < LCL but greater than 10%, "J+/UJ-"; for %R < 10%, flag "J+/R-".			

Notes:

8.0 Internal Standards and Clean-Up Recovery Standards		Yes	No	NA
8.1	Are internal standard recoveries for all samples within 40-135%? If no, apply J/UJ to associated targets.	X		
8.2	Is the signal to noise $\geq$ 10 for each internal standard? If no, J(+)/UJ(-) all associated results.	X		
8.3	Are standard recoveries for all samples within 40-135% for all samples? If no, apply J/UJ.	X		

Notes:

9.0 Field Duplicate

		Yes	No	NA
9.1	Was a field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
9.2	Are all analyte duplicate results within control limits? For sample results > 5 x RL, a control limit of 50% RPD will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.		X	
	Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.			

Notes:

10.0 Sample Results/Detection Limit Verification

		Yes	No	NA
10.1	Were all sample results within the calibrated range? If no, apply J to these results.		X	
10.2	Are absolute RTs within -1 to +3 seconds of the RT of the corresponding labelled standard? If no, R(+).	X		
10.3	Are RRT units less than 0.005 from the CCV when labelled standards are not present? If no, report concentration with totals.	X		
10.4	Is the signal to noise $\geq$ 2.5 for the quantitation ion of any positive result? If no, UJ(+).	X		
10.5	Are the two identification peak apexs within 2 seconds for positive identifications? If not, result is reported as non-detect,	X		
10.6	Are polychlorinated diphenyl ether (PCDPE) interferences in the PCDPE channel with a S/N ratio > 2.5 and with a RT within $\pm$ 2 seconds? If yes, qualify positive furan results I.		X	
10.7	Was a second column confirmation used for positive 2,3,7,8-TCDF?	X		
	If no, apply "R" to the positive 2,3,7,8-TCDF results.			
	If yes, calculate the %D between the two column results, report the lower of the two values if the %D is > 25% and qualify J.			
10.8	Do results reflect corrections made for initial volume, dilution factor, and percent solids? If no, correct concentrations.	X		
10.9	Were any results reported from a dilution? If yes, verify or suggest the best result for use and make note in DV Report.	X		

Notes:

11.0 Ion abundance criteria and EMPC		Yes	No	NA
11.1	Are Isotopic ratios for a detected analyte within the following established control limits...?	X		

# Cl ion atoms	Ion Type	Theoretical	Control Limits	RIII Expanded Limits
4	M/M+2	0.77	0.65- 0.89	0.58- 0.96
5	M+2/M+4	1.55	1.32- 1.78	1.16- 1.94
6	M+2/M+2	1.24	1.05- 1.43	0.93- 1.55
(13)C-HxCDF	M/M+2	0.51	0.43- 0.59	0.38- 0.64
(13)C-HpCDF	M/M+2	0.44	0.37- 0.51	0.33- 0.55
7	M+2/M+4	1.04	0.88- 1.2	0.78- 1.30
8	M+2	0.89	0.76- 1.02	0.67- 1.11

	For positive field sample results with ion abundance ratios outside the method control limits but within the expanded RIII limits, The laboratory should report the concentration as an estimated maximum possible concentration (EMPC). Region III requires this type of result to be reported as true PCDD/PCDF isomer. The validator shall also qualify J.			
	For positive results with ion abundance ratios greater than RIII expanded limits, confirm the value is reported as EMPC by the laboratory. This type of detection is verified and the presence is noted in the DV report. EMPC's with ion ratios greater than 25% from the theoretical ratio are not to be reported by RIII. Values reported as EMPC are not to be included in the total TEQ determination. The validator shall line out or subtract an EMPC with these characteristics.			
	For internal standard with ion abundance ratios outside the method control limits, apply N(+)/R(-).			
11.2	RIII separates 2,3,7,8-chlorinated isomers from total isomers for each congener group and reports results as 2,3,7,8-chlorine substituted and 'Other Total' PCDD/PCDF isomers. If laboratory did not report these separate, make a note in the DV report.	No		

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is the percent completeness within the control limits? (Control limit 90%)	X		
12.1.1	Number of samples: 3			
12.1.2	Number of target compounds in each analysis: 27			
12.1.3	Number of results rejected and not reported: 0			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 100%			

Method 8290
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Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.37	68.4	28:21	0.78	
13C12-1,2,3,7,8-PeCDD	2	2.17	109	32:46	1.59	
13C12-1,2,3,6,7,8-HxCDD	2	1.89	94.5	35:10	1.25	
13C12-1,2,3,4,6,7,8-HpCDD	2	2.06	103	38:06	1.05	
13C12-OCDD	4.0	4.07	102	41:54	0.89	
13C12-2,3,7,8-TCDF	2	1.02	51.0	27:27	0.80	
13C12-1,2,3,7,8-PeCDF	2	2.15	107	32:01	1.57	
13C12-1,2,3,6,7,8-HxCDF	2	1.83	91.6	34:33	0.51	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.98	99.0	37:03	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.301	75.2	28:22	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.451	113	32:36	1.55	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.429	107	35:06	1.25	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.414	103	34:28	0.58	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.419	105	38:37	0.43	
Injection Standards						
13C12-1,2,3,4-TCDD	2.0	-	-	27:34	0.79	
13C12-1,2,3,7,8,9-HxCDD	2.0	-	-	35:24	1.25	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB3A		Weight / Volume:	10.45	g
			Solids / Lipids:	82.4	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-1D		Filename:	a02sep09c_2-2	
Collection Date/Time:	08/11/09	13:40	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	15:01	Initial Cal:	m8290-100708a	

Form Version:[8290]Report

Analyzed by: DS
Date: 9-10-09

Reviewed by:
Date: 9/10/09

Filename ; a02sep09c_2 ;*8290*
Sample ; 2 ;INST: HRMS2
Acquired ; 2-SEP-09 15:01:30
Processed ; 9-SEP-09 14:07:18
Sample ID ; G296-641-1D
Cal Table ; m8290-100708a
Results Table ; m8290-090209c_2
Comments ;

Ent;	Name;	Resp;	Ion 1;	Ion 2;	RA;?;	RT;	Conc;	EDL;	S/N1;?;	S/N2;?;M; Signal1; Noise 1; Signal2; Noise 2
1 ;	2,3,7,8-TCDD;	2.46e+05;	1.07e+05;	1.38e+05;	0.78;y;	28:23;	0.633;	0.4343;	4;y;	6;y;y;2.33e+04;5.36e+03;3.25e+04;5.30e+03
2 ;	1,2,3,7,8-PeCDD;	1.43e+06;	8.73e+05;	5.62e+05;	1.55;y;	32:47;	3.053;	0.1694;	50;y;	33;y;n;2.79e+05;5.62e+03;1.77e+05;5.37e+03
3 ;	1,2,3,4,7,8-HxCDD;	1.47e+06;	8.41e+05;	6.33e+05;	1.33;y;	35:06;	3.094;	0.2862;	43;y;	30;y;n;3.31e+05;7.70e+03;2.36e+05;7.78e+03
4 ;	1,2,3,6,7,8-HxCDD;	3.67e+06;	2.07e+06;	1.60e+06;	1.30;y;	35:11;	7.378;	0.2739;	92;y;	72;y;n;7.12e+05;7.70e+03;5.62e+05;7.78e+03
5 ;	1,2,3,7,8,9-HxCDD;	4.07e+06;	2.25e+06;	1.82e+06;	1.24;y;	35:24;	8.398;	0.2815;	93;y;	74;y;n;7.19e+05;7.70e+03;5.78e+05;7.78e+03
6 ;	1,2,3,4,6,7,8-HpCDD;	6.35e+07;	3.24e+07;	3.11e+07;	1.04;y;	38:07;	145.091;	0.2924;	2128;y;	1211;y;n;6.99e+06;3.28e+03;6.72e+06;5.55e+03
7 ;	OCDD;	4.62e+08;	2.18e+08;	2.44e+08;	0.89;y;	41:56;	1337.797;	0.4778;	7798;y;	8567;y;n;3.49e+07;4.47e+03;3.90e+07;4.56e+03
8 ;	2,3,7,8-TCDF;	1.35e+06;	6.16e+05;	7.36e+05;	0.84;y;	27:28;	3.067;	0.5678;	15;y;	15;y;y;1.05e+05;7.21e+03;1.26e+05;8.29e+03
9 ;	1,2,3,7,8-PeCDF;	1.95e+06;	1.20e+06;	7.55e+05;	1.59;y;	32:01;	2.733;	0.1000;	96;y;	61;y;y;4.37e+05;4.54e+03;2.96e+05;4.82e+03
10 ;	2,3,4,7,8-PeCDF;	3.60e+06;	2.20e+06;	1.39e+06;	1.58;y;	32:36;	4.894;	0.0972;	206;y;	115;y;y;9.35e+05;4.54e+03;5.52e+05;4.82e+03
11 ;	1,2,3,4,7,8-HxCDF;	5.19e+06;	3.03e+06;	2.16e+06;	1.40;y;	34:29;	7.766;	0.4813;	39;y;	96;y;y;1.04e+06;2.68e+04;8.37e+05;8.70e+03
12 ;	1,2,3,6,7,8-HxCDF;	4.33e+06;	2.31e+06;	2.02e+06;	1.15;y;	34:34;	5.998;	0.4456;	29;y;	73;y;y;7.75e+05;2.68e+04;6.38e+05;8.70e+03
13 ;	2,3,4,6,7,8-HxCDF;	4.69e+06;	2.61e+06;	2.08e+06;	1.25;y;	35:01;	6.896;	0.4732;	26;y;	67;y;y;7.02e+05;2.68e+04;5.87e+05;8.70e+03
14 ;	1,2,3,7,8,9-HxCDF;	1.28e+06;	7.26e+05;	5.57e+05;	1.30;y;	35:39;	2.181;	0.5466;	9;y;	21;y;y;2.35e+05;2.68e+04;1.79e+05;8.70e+03
15 ;	1,2,3,4,6,7,8-HpCDF;	2.94e+07;	1.50e+07;	1.44e+07;	1.04;y;	37:04;	43.233;	0.2147;	587;y;	613;y;n;3.38e+06;5.75e+03;3.23e+06;5.28e+03
16 ;	1,2,3,4,7,8,9-HpCDF;	2.00e+06;	1.03e+06;	9.67e+05;	1.06;y;	38:38;	3.758;	0.2752;	36;y;	38;y;n;2.08e+05;5.75e+03;2.03e+05;5.28e+03
17 ;	OCDF;	3.05e+07;	1.45e+07;	1.60e+07;	0.90;y;	42:06;	74.196;	0.4841;	486;y;	462;y;n;2.40e+06;4.94e+03;2.74e+06;5.94e+03
Extraction Standards										
18 ;	13C-2,3,7,8-TCDD;	3.85e+07;	1.69e+07;	2.16e+07;	0.78;y;	28:21;	68.376;	0.3406;	404;y;	829;y;n;3.22e+06;7.97e+03;4.07e+06;4.91e+03
19 ;	13C-1,2,3,7,8-PeCDD;	4.47e+07;	2.74e+07;	1.73e+07;	1.59;y;	32:46;	108.642;	0.3263;	2652;y;	1509;y;n;1.13e+07;4.26e+03;7.18e+06;4.76e+03
20 ;	13C-1,2,3,6,7,8-HxCDD;	5.02e+07;	2.79e+07;	2.23e+07;	1.25;y;	35:10;	94.545;	0.1778;	1768;y;	1590;y;y;9.54e+06;5.40e+03;7.57e+06;4.76e+03
21 ;	13C-1,2,3,4,6,7,8-HpCDD;	4.12e+07;	2.11e+07;	2.01e+07;	1.05;y;	38:06;	102.898;	0.2431;	749;y;	898;y;n;4.38e+06;5.84e+03;4.16e+06;4.63e+03
22 ;	13C-OCDD;	6.49e+07;	3.06e+07;	3.43e+07;	0.89;y;	41:54;	203.480;	0.2625;	1011;y;	1398;y;n;5.04e+06;4.99e+03;5.61e+06;4.01e+03
23 ;	13C-2,3,7,8-TCDF;	4.25e+07;	1.89e+07;	2.36e+07;	0.80;y;	27:27;	50.975;	0.1726;	778;y;	852;y;n;3.49e+06;4.48e+03;4.42e+06;5.19e+03
24 ;	13C-1,2,3,7,8-PeCDF;	7.24e+07;	4.42e+07;	2.82e+07;	1.57;y;	32:01;	107.459;	0.2110;	4003;y;	2122;y;n;1.73e+07;4.33e+03;1.11e+07;5.22e+03
25 ;	13C-1,2,3,6,7,8-HxCDF;	6.38e+07;	2.16e+07;	4.22e+07;	0.51;y;	34:33;	91.586;	0.1700;	1077;y;	2292;y;n;7.18e+06;6.66e+03;1.39e+07;6.07e+03
26 ;	13C-1,2,3,4,6,7,8-HpCDF;	4.95e+07;	1.54e+07;	3.41e+07;	0.45;y;	37:03;	98.961;	0.2005;	737;y;	1278;y;n;3.46e+06;4.70e+03;7.77e+06;6.08e+03
Injection Standards										
27 ;	13C-1,2,3,4-TCDD;	5.04e+07;	2.23e+07;	2.81e+07;	0.79;y;	27:34;	37.115;	-;	565;y;	1155;y;n;4.50e+06;7.97e+03;5.67e+06;4.91e+03
28 ;	13C-1,2,3,7,8,9-HxCDD;	5.09e+07;	2.83e+07;	2.26e+07;	1.25;y;	35:24;	47.125;	-;	1701;y;	1521;y;n;9.18e+06;5.40e+03;7.24e+06;4.76e+03
Cleanup Standards										
29 ;	37Cl-2,3,7,8-TCDD;	9.02e+06;	9.02e+06;	-;	-;-;	28:23;	15.047;	0.1250;	336;y;	-;-;n;1.69e+06;5.04e+03; -; -
30 ;	13C-2,3,4,7,8-PeCDF;	1.49e+07;	9.05e+06;	5.83e+06;	1.55;y;	32:36;	22.567;	0.2155;	889;y;	478;y;n;3.85e+06;4.33e+03;2.50e+06;5.22e+03
31 ;	13C-1,2,3,4,7,8-HxCDD;	1.05e+07;	5.84e+06;	4.65e+06;	1.25;y;	35:06;	21.457;	0.1932;	386;y;	340;y;y;2.08e+06;5.40e+03;1.62e+06;4.76e+03
32 ;	13C-1,2,3,4,7,8-HxCDF;	1.31e+07;	4.80e+06;	8.25e+06;	0.58;y;	34:29;	20.677;	0.1876;	237;y;	501;y;n;1.58e+06;6.66e+03;3.04e+06;6.07e+03
33 ;	13C-1,2,3,4,7,8,9-HpCDF;	8.26e+06;	2.48e+06;	5.78e+06;	0.43;y;	38:38;	20.958;	0.2545;	111;y;	205;y;n;5.22e+05;4.70e+03;1.24e+06;6.08e+03
Sampling Standards										
34 ;	37Cl-2,3,7,8-TCDD;	9.02e+06;	9.02e+06;	-;	-;-;	28:23;	22.006;	0.1943;	336;y;	-;-;n;1.69e+06;5.04e+03; -; -
35 ;	13C-2,3,4,7,8-PeCDF;	1.49e+07;	9.05e+06;	5.83e+06;	1.55;y;	32:36;	21.005;	0.1030;	889;y;	478;y;n;3.85e+06;4.33e+03;2.50e+06;5.22e+03
36 ;	13C-1,2,3,4,7,8-HxCDD;	1.05e+07;	5.84e+06;	4.65e+06;	1.25;y;	35:06;	22.651;	0.1932;	386;y;	340;y;y;2.08e+06;5.40e+03;1.62e+06;4.76e+03
37 ;	13C-1,2,3,4,7,8-HxCDF;	1.31e+07;	4.80e+06;	8.25e+06;	0.58;y;	34:29;	22.575;	0.1997;	237;y;	501;y;n;1.58e+06;6.66e+03;3.04e+06;6.07e+03
38 ;	13C-1,2,3,4,7,8,9-HpCDF;	8.26e+06;	2.48e+06;	5.78e+06;	0.43;y;	38:38;	21.179;	0.3663;	111;y;	205;y;n;5.22e+05;4.70e+03;1.24e+06;6.08e+03

Totals Report

SGS North America, Inc.	Thu Sep 10 15:45:55 EDT 2009	
Filename: a02sep09c_2-2	Acquired: 2009-09-02 15:01:30	Processed: 2009-09-09 14:07:18
Results:	Cal: m8290-100708a	
Sample Text: G296-641-1D		

Total Tetra-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Tetradioxins	3.09E+05	1.39E+05	1.70E+05	0.81	Y	24:55	0.797	0.4343	RT	2.64E+04	5360	4.9	3.56E+04	5304	6.7	y
		Tetradioxins	4.85E+05	2.26E+05	2.60E+05	0.87	Y	25:13	1.251	0.4343	OK	4.31E+04	5360	8	5.29E+04	5304	10	y
		Tetradioxins	1.23E+05	5.97E+04	6.37E+04	0.94	N	25:34	0.318	0.4343	S2N	1.18E+04	5360	2.2	1.60E+04	5304	3	y
		Tetradioxins	2.60E+05	1.09E+05	1.51E+05	0.72	Y	26:30	0.671	0.4343	OK	1.91E+04	5360	3.6	2.57E+04	5304	4.8	y
		Tetradioxins	3.40E+05	1.45E+05	1.95E+05	0.74	Y	26:42	0.876	0.4343	OK	2.90E+04	5360	5.4	3.51E+04	5304	6.6	y
		Tetradioxins	1.65E+05	8.61E+04	7.89E+04	1.09	N	26:51	0.425	0.4343	EMPC	1.66E+04	5360	3.1	1.79E+04	5304	3.4	y
		Tetradioxins	3.45E+05	1.56E+05	1.89E+05	0.82	Y	27:16	0.89	0.4343	OK	2.92E+04	5360	5.4	3.80E+04	5304	7.2	y
		Tetradioxins	1.63E+05	6.44E+04	9.81E+04	0.66	Y	27:36	0.419	0.4343	OK	1.60E+04	5360	3	1.88E+04	5304	3.5	y
		Tetradioxins	4.77E+05	2.09E+05	2.68E+05	0.78	Y	28:04	1.23	0.4343	OK	2.51E+04	5360	4.7	4.10E+04	5304	7.7	y
		2378-TCDD	2.46E+05	1.07E+05	1.38E+05	0.78	Y	28:22	0.633	0.4343	OK	2.33E+04	5360	4	3.25E+04	5300	6	y
		Tetradioxins	3.22E+05	1.42E+05	1.81E+05	0.78	Y	28:43	0.831	0.4343	OK	2.35E+04	5360	4.4	3.39E+04	5304	6.4	y
		Tetradioxins	1.56E+05	6.45E+04	9.16E+04	0.7	Y	29:22	0.402	0.4343	OK	1.34E+04	5360	2.5	1.74E+04	5304	3.3	y
									EDL	0.4343								
									Total Tetra-Dioxins	7.203	Peaks	9						
									Total EMPC Tetra-Dioxins	7.628	Peaks	10						

Total Tetra-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Tetrafurans	1.99E+05	8.93E+04	1.09E+05	0.82	Y	23:13	0.451	0.5678	RT	2.07E+04	7212	2.9	2.67E+04	8292	3.2	y
		Tetrafurans	3.80E+05	1.71E+05	2.09E+05	0.82	Y	23:39	0.863	0.5678	OK	3.42E+04	7212	4.7	4.26E+04	8292	5.1	y
		Tetrafurans	5.54E+05	2.53E+05	3.01E+05	0.84	Y	24:12	1.257	0.5678	OK	4.96E+04	7212	6.9	5.93E+04	8292	7.1	y
		Tetrafurans	5.66E+05	2.51E+05	3.15E+05	0.8	Y	24:22	1.285	0.5678	OK	4.46E+04	7212	6.2	5.12E+04	8292	6.2	y
		Tetrafurans	8.95E+05	4.18E+05	4.77E+05	0.88	Y	24:31	2.031	0.5678	OK	6.47E+04	7212	9	7.12E+04	8292	8.6	y
		Tetrafurans	3.01E+05	1.35E+05	1.66E+05	0.81	Y	24:45	0.684	0.5678	OK	2.20E+04	7212	3	3.45E+04	8292	4.2	y
		Tetrafurans	3.35E+05	1.38E+05	1.97E+05	0.7	Y	24:51	0.761	0.5678	OK	3.30E+04	7212	4.6	4.70E+04	8292	5.7	y
		Tetrafurans	8.17E+05	3.55E+05	4.62E+05	0.77	Y	25:13	1.854	0.5678	OK	5.47E+04	7212	7.6	6.75E+04	8292	8.1	y
		Tetrafurans	2.96E+05	1.42E+05	1.54E+05	0.93	N	25:25	0.671	0.5678	EMPC	2.47E+04	7212	3.4	2.80E+04	8292	3.4	y
		Tetrafurans	2.08E+05	9.59E+04	1.12E+05	0.86	Y	25:45	0.472	0.5678	S2N	2.05E+04	7212	2.8	2.00E+04	8292	2.4	y
		Tetrafurans	1.60E+06	7.59E+05	8.43E+05	0.9	N	25:55	3.638	0.5678	EMPC	1.34E+05	7212	18.6	1.72E+05	8292	20.7	y
		Tetrafurans	1.34E+06	5.53E+05	7.85E+05	0.7	Y	26:04	3.039	0.5678	OK	9.14E+04	7212	12.7	1.19E+05	8292	14.4	y
		Tetrafurans	1.17E+06	5.12E+05	6.63E+05	0.77	Y	26:31	2.667	0.5678	OK	9.73E+04	7212	13.5	1.28E+05	8292	15.4	y
		Tetrafurans	3.99E+05	1.82E+05	2.17E+05	0.84	Y	26:45	0.907	0.5678	OK	3.61E+04	7212	5	3.89E+04	8292	4.7	y
		Tetrafurans	1.52E+06	6.74E+05	8.46E+05	0.8	Y	26:58	3.452	0.5678	OK	1.16E+05	7212	16.1	1.55E+05	8292	18.7	y
		Tetrafurans	1.20E+06	5.21E+05	6.83E+05	0.76	Y	27:12	2.734	0.5678	OK	1.06E+05	7212	14.7	1.25E+05	8292	15.1	y
		Tetrafurans	4.30E+05	2.15E+05	2.15E+05	1	N	27:19	0.976	0.5678	EMPC	4.22E+04	7212	5.9	5.27E+04	8292	6.4	y
		2378-TCDF	1.35E+06	6.16E+05	7.36E+05	0.84	Y	27:28	3.067	0.5678	OK	1.05E+05	7210	15	1.26E+05	8290	15	y
		Tetrafurans	4.23E+06	1.79E+06	2.44E+06	0.74	Y	27:49	9.607	0.5678	OK	3.28E+05	7212	45.5	4.32E+05	8292	52.1	y
		Tetrafurans	2.62E+05	1.22E+05	1.41E+05	0.86	Y	29:31	0.595	0.5678	RT	2.03E+04	7212	2.8	2.49E+04	8292	3	y
		Tetrafurans	1.95E+05	7.74E+04	1.17E+05	0.66	Y	29:39	0.442	0.5678	S2N	1.47E+04	7212	2	2.05E+04	8292	2.5	y
									EDL	0.5678								
									Total EMPC Tetra-Furans	39.493	Peaks	17						
									Total Tetra-Furans	34.208	Peaks	14						

Totals Report

Total Penta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Pentadioxins	2.87E+06	1.73E+06	1.14E+06	1.52	Y	31:24	6.108	0.1694	OK	4.65E+05	5624	82.7	2.89E+05	5368	53.9	n
		Pentadioxins	6.89E+05	4.12E+05	2.78E+05	1.48	Y	31:43	1.467	0.1694	OK	1.55E+05	5624	27.6	1.02E+05	5368	19	n
		Pentadioxins	1.61E+06	9.77E+05	6.33E+05	1.54	Y	32:03	3.425	0.1694	OK	4.49E+05	5624	79.8	2.87E+05	5368	53.5	n
		Pentadioxins	9.28E+05	5.62E+05	3.66E+05	1.54	Y	32:09	1.975	0.1694	OK	2.86E+05	5624	50.9	1.72E+05	5368	32.1	n
		Pentadioxins	1.30E+06	7.89E+05	5.13E+05	1.54	Y	32:13	2.772	0.1694	OK	3.38E+05	5624	60.1	2.22E+05	5368	41.3	n
		Pentadioxins	1.58E+06	9.59E+05	6.18E+05	1.55	Y	32:19	3.356	0.1694	OK	3.20E+05	5624	56.8	2.03E+05	5368	37.8	n
		Pentadioxins	9.27E+05	5.54E+05	3.73E+05	1.49	Y	32:30	1.973	0.1694	OK	2.41E+05	5624	42.8	1.65E+05	5368	30.7	n
		12378-PeCDD	1.43E+06	8.73E+05	5.62E+05	1.55	Y	32:46	3.053	0.1694	OK	2.79E+05	5620	50	1.77E+05	5370	33	n
		Pentadioxins	5.54E+05	3.34E+05	2.20E+05	1.52	Y	33:00	1.178	0.1694	OK	1.51E+05	5624	26.8	9.36E+04	5368	17.4	n
									EDL	0.1694								
									Total EMPC Penta-Dioxins	25.307	Peaks	9						
									Total Penta-Dioxins	25.307	Peaks	9						

Total Penta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Pentafurans	4.71E+06	1.79E+06	2.92E+06	0.61	Y	29:37	6.498	0.1044	RT	2.78E+05	5632	49.3	4.59E+05	4272	107.5	n
		Pentafurans	3.35E+04	1.55E+04	1.80E+04	0.86	N	29:46	0.046	0.1044	S2N	7.66E+03	5632	1.4	1.18E+04	4272	2.8	n
		Pentafurans	4.75E+06	2.92E+06	1.83E+06	1.6	Y	31:13	6.549	0.0986	OK	7.17E+05	4540	158	4.50E+05	4816	93.4	y
		Pentafurans	7.62E+06	4.69E+06	2.93E+06	1.6	Y	31:21	10.508	0.0986	OK	8.74E+05	4540	192.5	5.50E+05	4816	114.1	y
		Pentafurans	3.42E+05	2.30E+05	1.12E+05	2.05	N	31:34	0.472	0.0986	EMPC	7.25E+04	4540	16	3.97E+04	4816	8.2	y
		Pentafurans	1.62E+06	9.81E+05	6.41E+05	1.53	Y	31:40	2.239	0.0986	OK	3.64E+05	4540	80.2	2.27E+05	4816	47.1	y
		Pentafurans	3.82E+06	2.39E+06	1.43E+06	1.67	Y	31:48	5.274	0.0986	OK	8.64E+05	4540	190.3	4.93E+05	4816	102.3	y
		Pentafurans	1.51E+06	9.23E+05	5.91E+05	1.56	Y	31:52	2.088	0.0986	OK	3.48E+05	4540	76.6	2.30E+05	4816	47.8	y
		12378-PeCDF	1.95E+06	1.20E+06	7.55E+05	1.59	Y	32:01	2.733	0.1	OK	4.37E+05	4540	96	2.96E+05	4820	61	y
		Pentafurans	4.12E+06	2.49E+06	1.63E+06	1.53	Y	32:09	5.687	0.0986	OK	8.00E+05	4540	176.2	5.13E+05	4816	106.4	y
		Pentafurans	1.81E+05	1.15E+05	6.53E+04	1.77	Y	32:13	0.249	0.0986	OK	4.61E+04	4540	10.2	2.72E+04	4816	5.6	y
		Pentafurans	2.12E+04	1.46E+04	6.63E+03	2.2	N	32:19	0.029	0.0986	S2N	7.51E+03	4540	1.7	8.70E+03	4816	1.8	y
		Pentafurans	3.50E+05	2.02E+05	1.48E+05	1.36	Y	32:25	0.483	0.0986	OK	8.10E+04	4540	17.8	6.08E+04	4816	12.6	y
		Pentafurans	4.11E+06	2.51E+06	1.61E+06	1.56	Y	32:31	5.675	0.0986	OK	1.02E+06	4540	225.1	6.77E+05	4816	140.6	y
		23478-PeCDF	3.60E+06	2.20E+06	1.39E+06	1.58	Y	32:36	4.894	0.0972	OK	9.35E+05	4540	206	5.52E+05	4820	115	y
		Pentafurans	4.61E+05	2.65E+05	1.96E+05	1.35	Y	32:42	0.636	0.0986	OK	1.09E+05	4540	24	6.63E+04	4816	13.8	y
		Pentafurans	2.94E+05	1.71E+05	1.23E+05	1.38	Y	33:07	0.406	0.0986	OK	7.51E+04	4540	16.5	5.21E+04	4816	10.8	y
									EDL	0.1044								
									Total EMPC Penta-Furans	47.893	Peaks	14						
									Total Penta-Furans	47.421	Peaks	13						

Total Hexa-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Hexadioxins	6.15E+06	3.48E+06	2.68E+06	1.3	Y	34:01	12.653	0.2804	OK	1.33E+06	7700	172.7	9.85E+05	7780	126.5	n
		Hexadioxins	5.98E+06	3.34E+06	2.63E+06	1.27	Y	34:25	12.286	0.2804	OK	1.27E+06	7700	164.7	9.55E+05	7780	122.7	n
		Hexadioxins	3.41E+05	2.09E+05	1.33E+05	1.57	N	34:31	0.701	0.2804	EMPC	8.45E+04	7700	11	6.56E+04	7780	8.4	n
		Hexadioxins	1.13E+07	6.35E+06	4.92E+06	1.29	Y	34:37	23.17	0.2804	OK	1.72E+06	7700	223.7	1.41E+06	7780	181.5	n
		Hexadioxins	9.95E+05	5.10E+05	4.85E+05	1.05	N	34:42	2.045	0.2804	EMPC	2.48E+05	7700	32.2	1.93E+05	7780	24.9	n
		123478-HxCDD	1.47E+06	8.41E+05	6.33E+05	1.33	Y	35:06	3.094	0.2862	OK	3.31E+05	7700	43	2.36E+05	7780	30	n
		123678-HxCDD	3.67E+06	2.07E+06	1.60E+06	1.3	Y	35:10	7.378	0.2739	OK	7.12E+05	7700	92	5.62E+05	7780	72	n
		Hexadioxins	1.62E+06	9.35E+05	6.87E+05	1.36	Y	35:18	3.336	0.2804	OK	3.16E+05	7700	41.1	2.41E+05	7780	31	n
		123789-HxCDD	4.07E+06	2.25E+06	1.82E+06	1.24	Y	35:24	8.398	0.2815	OK	7.19E+05	7700	93	5.78E+05	7780	74	n

Totals Report

								EDL		0.2862							
								Total Hexa-Dioxins		70.315	Peaks	7					
								Total EMPC Hexa-Dioxins		73.061	Peaks	9					

Total Hexa-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Hexafurans	5.05E+06	2.79E+06	2.26E+06	1.23	Y	33:39	7.594	0.484	OK	1.06E+06	26764	39.7	8.20E+05	8696	94.3	y
		Hexafurans	1.59E+07	8.84E+06	7.06E+06	1.25	Y	33:46	23.935	0.484	OK	3.11E+06	26764	116.2	2.51E+06	8696	288.2	y
		Hexafurans	5.82E+05	2.96E+05	2.86E+05	1.03	N	33:52	0.876	0.484	EMPC	9.84E+04	26764	3.7	8.20E+04	8696	9.4	y
		Hexafurans	7.71E+05	4.21E+05	3.50E+05	1.2	Y	34:00	1.16	0.484	OK	1.59E+05	26764	5.9	1.29E+05	8696	14.9	y
		Hexafurans	7.23E+06	4.01E+06	3.22E+06	1.25	Y	34:07	10.885	0.484	OK	1.48E+06	26764	55.2	1.20E+06	8696	138	n
		Hexafurans	5.31E+06	2.91E+06	2.40E+06	1.21	Y	34:24	7.997	0.484	OK	1.02E+06	26764	38.2	7.86E+05	8696	90.4	y
		123478-HxCDF	5.19E+06	3.03E+06	2.16E+06	1.4	Y	34:28	7.766	0.4813	OK	1.04E+06	26800	39	8.37E+05	8700	96	y
		123678-HxCDF	4.33E+06	2.31E+06	2.02E+06	1.15	Y	34:34	5.998	0.4456	OK	7.75E+05	26800	29	6.38E+05	8700	73	y
		Hexafurans	3.46E+05	1.90E+05	1.56E+05	1.22	Y	34:39	0.521	0.484	OK	8.84E+04	26764	3.3	6.89E+04	8696	7.9	y
		Hexafurans	7.60E+05	4.41E+05	3.19E+05	1.38	Y	34:43	1.144	0.484	OK	1.55E+05	26764	5.8	1.11E+05	8696	12.8	y
		Hexafurans	4.29E+05	2.46E+05	1.84E+05	1.33	Y	34:49	0.646	0.484	OK	8.68E+04	26764	3.2	8.25E+04	8696	9.5	y
		234678-HxCDF	4.69E+06	2.61E+06	2.08E+06	1.25	Y	35:01	6.896	0.4732	OK	7.02E+05	26800	26	5.87E+05	8700	67	y
		123789-HxCDF	1.28E+06	7.26E+05	5.57E+05	1.3	Y	35:39	2.181	0.5466	OK	2.35E+05	26800	9	1.79E+05	8700	21	y

								EDL		0.5466							
								Total Hexa-Furans		76.723	Peaks	12					
								Total EMPC Hexa-Furans		77.599	Peaks	13					

Total Hepta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Heptadioxins	7.29E+05	3.86E+05	3.43E+05	1.13	Y	37:03	1.667	0.2924	RT	1.23E+05	3284	37.6	1.29E+05	5548	23.2	n
		Heptadioxins	5.38E+07	2.74E+07	2.64E+07	1.04	Y	37:19	122.91	0.2924	OK	6.20E+06	3284	1887	5.93E+06	5548	1069.2	n
		1234678-HpCDD	6.35E+07	3.24E+07	3.11E+07	1.04	Y	38:07	145.09	0.2924	OK	6.99E+06	3280	2128	6.72E+06	5550	1211	n
		Heptadioxins	1.68E+04	8.88E+03	7.97E+03	1.11	Y	38:42	0.038	0.2924	S2N	4.99E+03	3284	1.5	1.28E+04	5548	2.3	n
		Heptadioxins	1.07E+04	3.31E+03	7.38E+03	0.45	N	38:43	0.024	0.2924	S2N	4.21E+03	3284	1.3	8.44E+03	5548	1.5	n
		Heptadioxins	1.53E+04	7.91E+03	7.38E+03	1.07	Y	38:46	0.035	0.2924	S2N	4.61E+03	3284	1.4	8.44E+03	5548	1.5	n
		Heptadioxins	1.81E+04	1.21E+04	6.02E+03	2.01	N	39:16	0.041	0.2924	S2N	1.08E+04	3284	3.3	6.57E+03	5548	1.2	n
		Heptadioxins	9.96E+03	3.95E+03	6.02E+03	0.66	N	39:18	0.023	0.2924	S2N	6.07E+03	3284	1.8	6.57E+03	5548	1.2	n

								EDL		0.2924							
								Total Hepta-Dioxins		268.003	Peaks	2					
								Total EMPC Hepta-Dioxins		268.003	Peaks	2					

Total Hepta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		1234678-HpCDF	2.94E+07	1.50E+07	1.44E+07	1.04	Y	37:04	43.233	0.2147	OK	3.38E+06	5750	587	3.23E+06	5280	613	n
		Heptafurans	2.59E+06	1.30E+06	1.29E+06	1	Y	37:18	4.275	0.2412	OK	2.84E+05	5752	49.4	2.76E+05	5276	52.4	n
		Heptafurans	2.85E+07	1.45E+07	1.40E+07	1.04	Y	37:28	46.987	0.2412	OK	3.45E+06	5752	599.6	3.31E+06	5276	626.7	n
		Heptafurans	3.47E+04	1.72E+04	1.76E+04	0.98	Y	37:40	0.057	0.2412	S2N	1.80E+04	5752	3.1	1.18E+04	5276	2.2	n
		Heptafurans	3.57E+04	1.82E+04	1.76E+04	1.03	Y	37:43	0.059	0.2412	S2N	6.52E+03	5752	1.1	1.18E+04	5276	2.2	n
		1234789-HpCDF	2.00E+06	1.03E+06	9.67E+05	1.06	Y	38:37	3.758	0.2752	OK	2.08E+05	5750	36	2.03E+05	5280	38	n

								EDL		0.2752							
								Total EMPC Hepta-Furans		98.253	Peaks	4					

TCDF Confirmation - Method 8290
77SB3A
URS

Analytical Data Summary Sheet

Analyte	Amount (pg/g)	EDL (pg/g)	EMPC (pg/g)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDF	6.35	0.639		19.90	0.81	

Labeled Standard	Spiked Amount (ng)	RT (min.)	Ratio	Qualifier
Extraction Standards				
$^{13}C_{12}$-2,3,7,8-TCDF	2.00	19.89	0.74	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB3A		Weight / Volume:	10.45	g
			Solids / Lipids:	82.44	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	hrms3	
Sample ID:	G296-641-1D		Filename:	c04sep09a-8	
Collection Date/Time:	08/11/09	13:40	Retchk:	c04sep09a-2	
Receipt Date:	08/12/09	9:45	Begin ConCal:	c04sep09a-1	
Extraction Date:	08/30/09		End ConCal:	c04sep09a-12	
Analysis Date/Time:	09/04/09	9:24	Initial Cal:	mcf-c042709a	

Analyzed by: DS
Date: 9-4-09

Reviewed by: TM
Date: 9-4-09

Quantify Sample Summary Report **MassLynx 4.1**
Confirms Sample Summary

Dataset: C:\MassLynx\Default.pro\Results\mcf-c090409a.qld

Last Altered: Friday, September 04, 2009 13:38:17 Eastern Standard Time
Printed: Friday, September 04, 2009 13:39:18 Eastern Standard Time

Name: c04sep09a-8
Date: 04-Sep-2009
Time: 09:24:47
ID: G296-641-1D
User: JWP
Submitter: mcf-c042709a
Task: HRMS3

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RRT	RT	pg/µL	EDL	SN1	SN2	M	Height1	Noise1	Height2	Noise2
1	2378-TCDF	2.984e4	1.336e4	1.648e4	0.81	NO	1.0005	19.90	2.735	0.2749	26.9	33.6	dd	2.460e5	9157	2.807e5	8345
2	ES:13C-2378-TCDF	8.878e5	3.785e5	5.093e5	0.74	NO	1.0471	19.89	65.491	0.2361	673.3	909.7	bb	6.626e6	9842	8.937e6	9824
3	JS:13C-1234-TCDD	9.174e5	4.189e5	4.985e5	0.84	NO	0.0000	18.99	60.425	0.1686	940.6	1237.1	db	7.722e6	8210	9.301e6	7519
4	Hexa Ether	1.256e2	1.256e2	-	-	-	0.0000	18.93	-	-	0.0	-	bb	6.306e3	0	-	-
5	F1 Lock Mass	2.022e5	2.022e5	-	-	-	0.0000	15.37	-	-	0.0	-	bb	6.320e5	0	-	-

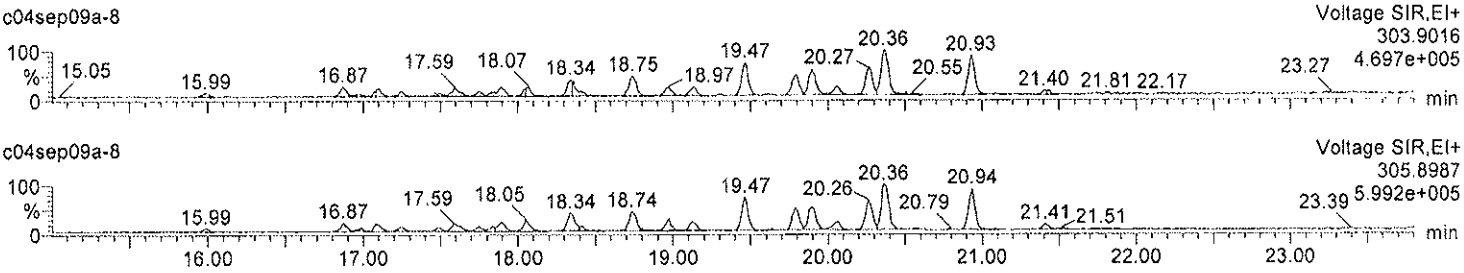
Quantify Sample Report **MassLynx 4.1**
Confirms Sample Summary

Dataset: C:\MassLynx\Default.pro\Results\mcf-c090409a.qld

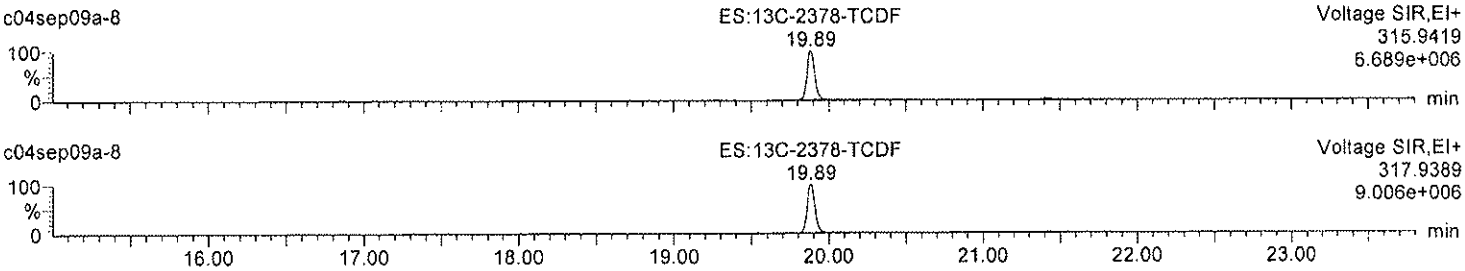
Last Altered: Friday, September 04, 2009 13:33:02 Eastern Standard Time
Printed: Friday, September 04, 2009 13:33:52 Eastern Standard Time

Name: c04sep09a-8, ID: G296-641-1D

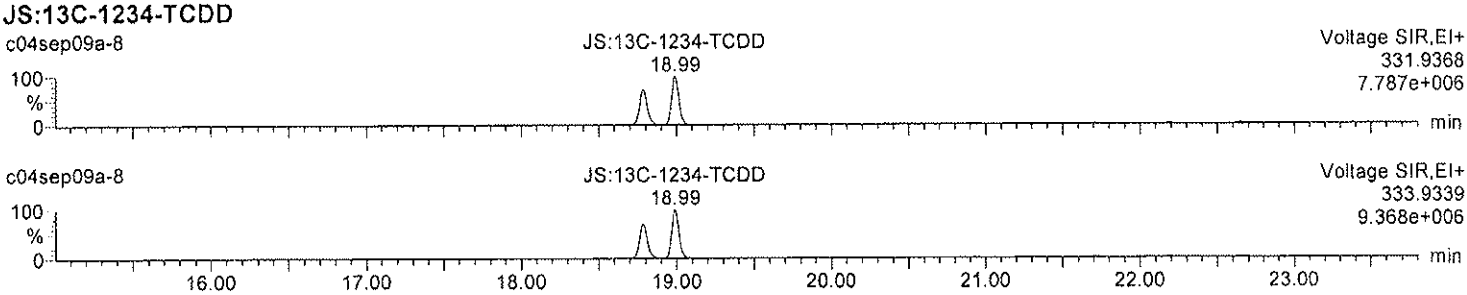
2378-TCDF



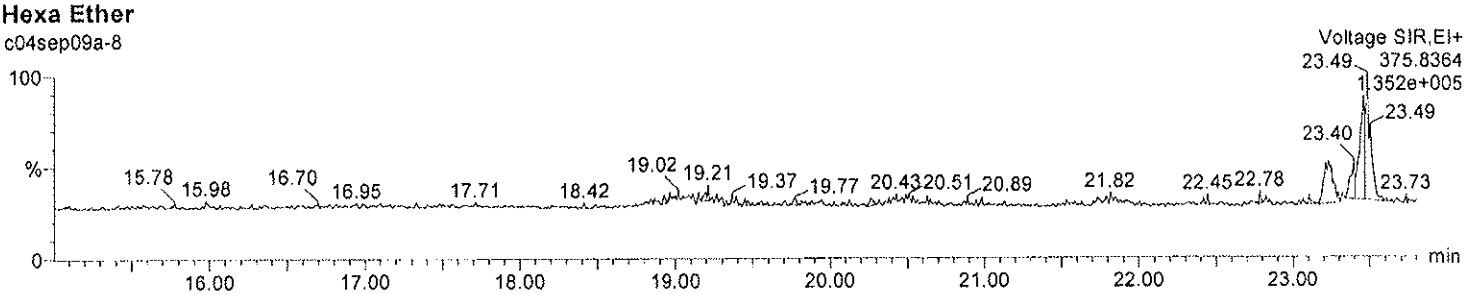
ES:13C-2378-TCDF



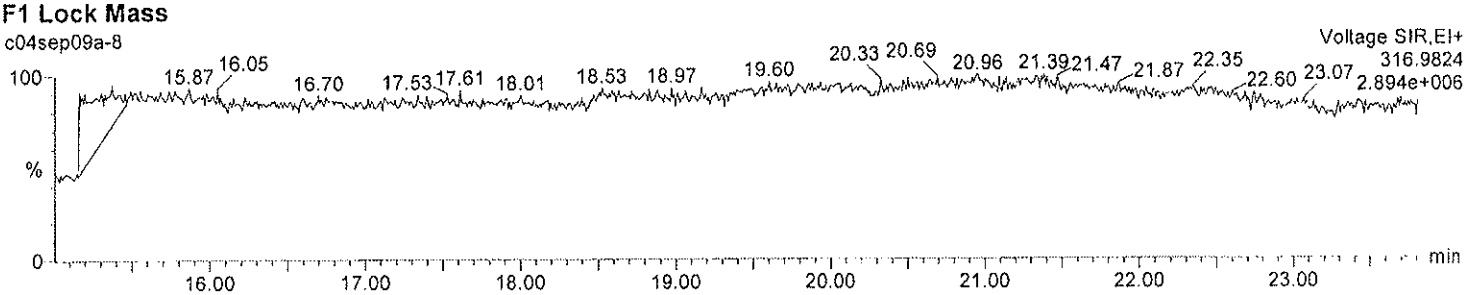
JS:13C-1234-TCDD

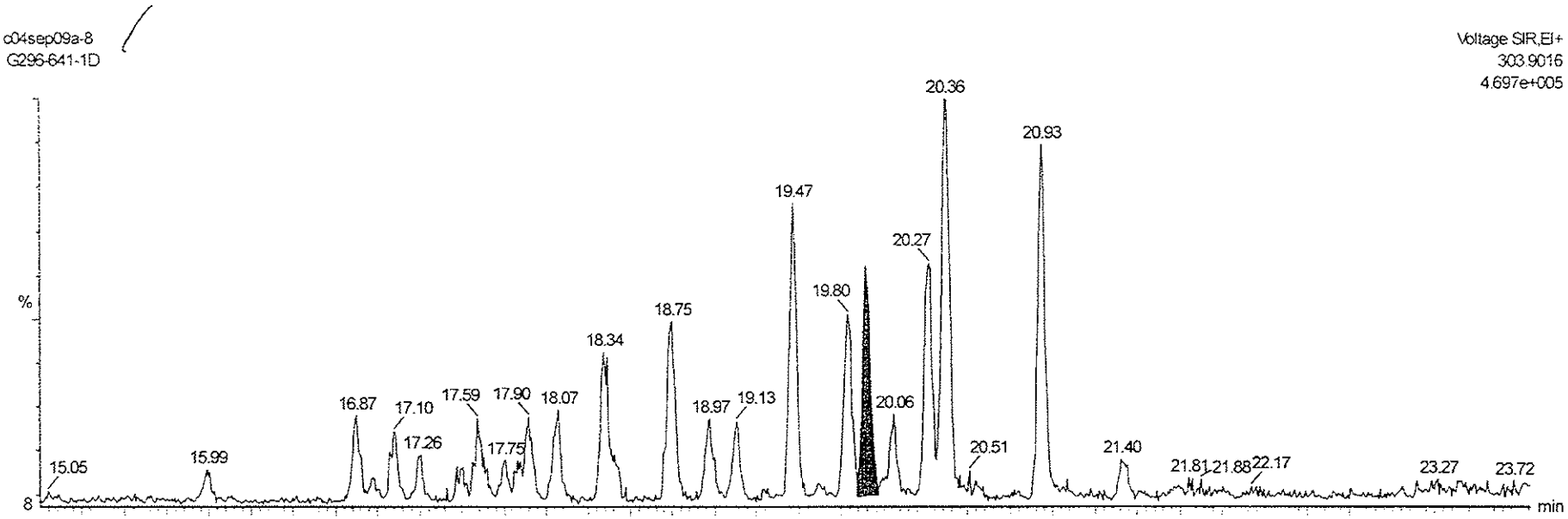


Hexa Ether



F1 Lock Mass




c04sep09a-8
G296-641-1D
Voltage SIR,EI+
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4.697e+005
%
8
min
15.05
15.99
16.87
17.10
17.26
17.59
17.75
17.90
18.07
18.34
18.75
18.97
19.13
19.47
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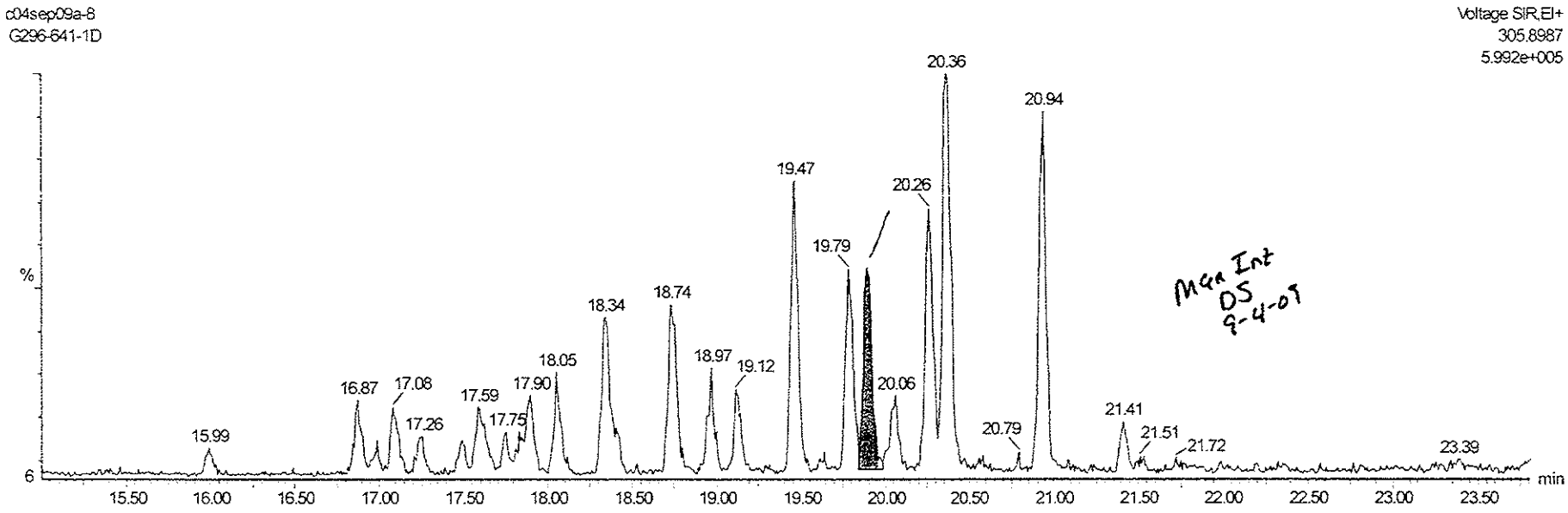
22.17
23.27
23.72


c04sep09a-8
G296-641-1D
Voltage SIR,EI+
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5.992e+005
%
6
min
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17.00
17.50
18.00
18.50
19.00
19.50
20.00
20.50
21.00
21.50
22.00
22.50
23.00
23.50
15.99
16.87
17.08
17.26
17.59
17.75
17.90
18.05
18.34
18.74
18.97
19.12
19.47
19.79
20.06
20.26
20.36
20.79
20.94
21.41
21.51
21.72
23.39
Mean Int
DS
9-4-09

Method 8290
DUP-2
URS

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.62	81.1	28:21	0.79	
13C12-1,2,3,7,8-PeCDD	2	1.86	92.8	32:46	1.58	
13C12-1,2,3,6,7,8-HxCDD	2	1.69	84.3	35:07	1.26	
13C12-1,2,3,4,6,7,8-HpCDD	2	1.78	89.0	37:58	1.06	
13C12-OCDD	4.0	3.79	94.8	41:36	0.90	
13C12-2,3,7,8-TCDF	2	1.87	93.6	27:27	0.78	
13C12-1,2,3,7,8-PeCDF	2	1.95	97.3	32:01	1.60	
13C12-1,2,3,6,7,8-HxCDF	2	1.65	82.5	34:31	0.52	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.69	84.4	36:55	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.377	94.3	28:22	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.409	102	32:36	1.54	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.336	84.0	35:03	1.26	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.327	81.7	34:25	0.52	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.352	88.0	38:31	0.44	
Injection Standards						
13C12-1,2,3,4-TCDD	2.0	-	-	27:34	0.80	
13C12-1,2,3,7,8,9-HxCDD	2.0	-	-	35:21	1.25	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	DUP-2		Weight / Volume:	5.220	g
			Solids / Lipids:	83.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17287	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-2F		Filename:	a10sep09d-5	
Collection Date/Time:	08/11/09		Retchk:	a10sep09d-1	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a10sep09d-1	
Extraction Date:	09/09/09		End ConCal:	a10sep09d-14	
Analysis Date/Time:	09/10/09	20:44	Initial Cal:	m8290-100708a	

Form Version:[8290]Report

Analyzed by: DS
Date: 9-11-09

Reviewed by: CM
Date: 9-11-09

$[TCDD] = \frac{1.21e5 + 1.53e5}{3.60e7 + 4.58e7} \left(\frac{20000\,pg}{5.22g \times 0.837} \right) \left(\frac{1}{1.0087} \right) = 1.52\,pg/g$

Filename ; al0sep09d
Sample ; 5
Acquired ; 10-SEP-09 20:44:21
Processed ; 11-SEP-09 06:16:19
Sample ID ; G296-641-2F
Cal Table ; m8290-100708a
Results Table ; m8290-091009d
Comments ;

;*8290*
;INST: HRMS2

Ent;	Name;	Resp;	Ion 1;	Ion 2;	RA;?;	RT;	Conc;	EDL;	S/N1;?;	S/N2;?;M; Signal1; Noise 1; Signal2; Noise 2
1 ;	2,3,7,8-TCDD;	2.75e+05;	1.21e+05;	1.53e+05;	0.79;y;	28:22;	0.333;	0.2116;	4;y;	6;y;y;2.06e+04;5.10e+03;3.08e+04;5.14e+03
2 ;	1,2,3,7,8-PeCDD;	1.27e+06;	7.73e+05;	4.99e+05;	1.55;y;	32:47;	1.766;	0.1117;	51;y;	25;y;y;2.39e+05;4.71e+03;1.44e+05;5.71e+03
3 ;	1,2,3,4,7,8-HxCDD;	1.09e+06;	6.35e+05;	4.52e+05;	1.40;y;	35:04;	1.624;	0.1869;	35;y;	22;y;y;2.19e+05;6.25e+03;1.65e+05;7.53e+03
4 ;	1,2,3,6,7,8-HxCDD;	2.70e+06;	1.46e+06;	1.24e+06;	1.18;y;	35:08;	3.855;	0.1789;	75;y;	54;y;y;4.71e+05;6.25e+03;4.06e+05;7.53e+03
5 ;	1,2,3,7,8,9-HxCDD;	2.82e+06;	1.56e+06;	1.26e+06;	1.23;y;	35:22;	4.142;	0.1838;	78;y;	51;y;n;4.89e+05;6.25e+03;3.84e+05;7.53e+03
6 ;	1,2,3,4,6,7,8-HpCDD;	4.54e+07;	2.32e+07;	2.22e+07;	1.04;y;	38:00;	76.066;	0.3800;	569;y;	638;y;n;5.44e+06;9.57e+03;5.32e+06;8.35e+03
7 ;	OCDD;	3.12e+08;	1.47e+08;	1.65e+08;	0.89;y;	41:37;	615.247;	0.3739;	5114;y;	4975;y;n;2.51e+07;4.90e+03;2.82e+07;5.66e+03
8 ;	2,3,7,8-TCDF;	2.66e+06;	1.10e+06;	1.56e+06;	0.71;y;	27:27;	1.835;	0.1589;	31;y;	32;y;y;2.08e+05;6.62e+03;2.25e+05;7.12e+03
9 ;	1,2,3,7,8-PeCDF;	1.55e+06;	9.56e+05;	5.92e+05;	1.61;y;	32:01;	1.333;	0.0912;	58;y;	31;y;y;3.63e+05;6.30e+03;2.22e+05;7.14e+03
10 ;	2,3,4,7,8-PeCDF;	2.95e+06;	1.81e+06;	1.14e+06;	1.59;y;	32:36;	2.467;	0.0887;	106;y;	61;y;n;6.70e+05;6.30e+03;4.38e+05;7.14e+03
11 ;	1,2,3,4,7,8-HxCDF;	3.44e+06;	1.95e+06;	1.49e+06;	1.31;y;	34:27;	3.622;	0.5167;	21;y;	21;y;y;6.75e+05;3.15e+04;5.55e+05;2.65e+04
12 ;	1,2,3,6,7,8-HxCDF;	3.23e+06;	1.79e+06;	1.44e+06;	1.24;y;	34:32;	3.150;	0.4783;	19;y;	19;y;y;5.88e+05;3.15e+04;5.09e+05;2.65e+04
13 ;	2,3,4,6,7,8-HxCDF;	3.12e+06;	1.77e+06;	1.35e+06;	1.31;y;	34:58;	3.236;	0.5079;	16;y;	16;y;y;5.11e+05;3.15e+04;4.15e+05;2.65e+04
14 ;	1,2,3,7,8,9-HxCDF;	8.99e+05;	4.71e+05;	4.28e+05;	1.10;y;	35:37;	1.077;	0.5867;	4;y;	5;y;y;1.33e+05;3.15e+04;1.26e+05;2.65e+04
15 ;	1,2,3,4,6,7,8-HpCDF;	1.97e+07;	9.93e+06;	9.79e+06;	1.01;y;	36:57;	21.567;	0.1656;	395;y;	395;y;n;2.69e+06;6.81e+03;2.67e+06;6.75e+03
16 ;	1,2,3,4,7,8,9-HpCDF;	1.21e+06;	6.30e+05;	5.80e+05;	1.09;y;	38:32;	1.696;	0.2123;	22;y;	19;y;n;1.48e+05;6.81e+03;1.28e+05;6.75e+03
17 ;	OCDF;	2.07e+07;	9.69e+06;	1.10e+07;	0.88;y;	41:49;	34.343;	0.3154;	277;y;	391;y;n;1.62e+06;5.84e+03;1.86e+06;4.76e+03
Extraction Standards										
18 ;	13C-2,3,7,8-TCDD;	8.18e+07;	3.60e+07;	4.58e+07;	0.79;y;	28:21;	81.103;	0.1887;	872;y;	1743;y;n;6.28e+06;7.21e+03;8.12e+06;4.66e+03
19 ;	13C-1,2,3,7,8-PeCDD;	6.85e+07;	4.20e+07;	2.65e+07;	1.58;y;	32:46;	92.835;	0.2208;	3679;y;	1801;y;n;1.63e+07;4.43e+03;1.03e+07;5.72e+03
20 ;	13C-1,2,3,6,7,8-HxCDD;	7.06e+07;	3.94e+07;	3.12e+07;	1.26;y;	35:08;	84.286;	0.1426;	2139;y;	1710;y;n;1.29e+07;6.05e+03;1.04e+07;6.06e+03
21 ;	13C-1,2,3,4,6,7,8-HpCDD;	5.62e+07;	2.89e+07;	2.73e+07;	1.06;y;	37:59;	88.995;	0.1629;	1293;y;	1262;y;n;6.84e+06;5.29e+03;6.49e+06;5.14e+03
22 ;	13C-OCDD;	9.53e+07;	4.52e+07;	5.01e+07;	0.90;y;	41:36;	189.535;	0.2212;	1326;y;	1505;y;n;7.62e+06;5.74e+03;8.31e+06;5.52e+03
23 ;	13C-2,3,7,8-TCDF;	1.40e+08;	6.15e+07;	7.84e+07;	0.78;y;	27:27;	93.555;	0.1164;	1923;y;	2734;y;n;1.11e+07;5.75e+03;1.39e+07;5.09e+03
24 ;	13C-1,2,3,7,8-PeCDF;	1.18e+08;	7.25e+07;	4.52e+07;	1.60;y;	32:01;	97.334;	0.2166;	4921;y;	1608;y;n;2.75e+07;5.59e+03;1.72e+07;1.07e+04
25 ;	13C-1,2,3,6,7,8-HxCDF;	9.06e+07;	3.11e+07;	5.95e+07;	0.52;y;	34:31;	82.491;	0.1088;	2000;y;	3205;y;n;1.10e+07;5.49e+03;2.12e+07;6.62e+03
26 ;	13C-1,2,3,4,6,7,8-HpCDF;	6.65e+07;	2.06e+07;	4.59e+07;	0.45;y;	36:56;	84.362;	0.2089;	781;y;	1283;y;n;5.52e+06;7.07e+03;1.24e+07;9.62e+03
Injection Standards										
27 ;	13C-1,2,3,4-TCDD;	9.05e+07;	4.01e+07;	5.04e+07;	0.80;y;	27:34;	66.574;	-;	1040;y;	2023;y;n;7.49e+06;7.21e+03;9.42e+06;4.66e+03
28 ;	13C-1,2,3,7,8,9-HxCDD;	8.02e+07;	4.45e+07;	3.57e+07;	1.25;y;	35:21;	74.280;	-;	2247;y;	1784;y;n;1.36e+07;6.05e+03;1.08e+07;6.06e+03
Cleanup Standards										
29 ;	37Cl-2,3,7,8-TCDD;	2.03e+07;	2.03e+07;	-;	-;-;	28:23;	18.855;	0.0898;	588;y;	-;-;n;3.54e+06;6.02e+03; -; -
30 ;	13C-2,3,4,7,8-PeCDF;	2.42e+07;	1.47e+07;	9.55e+06;	1.54;y;	32:36;	20.470;	0.2213;	1078;y;	363;y;n;6.02e+06;5.59e+03;3.90e+06;1.07e+04
31 ;	13C-1,2,3,4,7,8-HxCDD;	1.29e+07;	7.23e+06;	5.71e+06;	1.26;y;	35:03;	16.790;	0.1550;	442;y;	343;y;n;2.68e+06;6.05e+03;2.08e+06;6.06e+03
32 ;	13C-1,2,3,4,7,8-HxCDF;	1.63e+07;	5.53e+06;	1.07e+07;	0.52;y;	34:26;	16.337;	0.1201;	396;y;	659;y;n;2.17e+06;5.49e+03;4.36e+06;6.62e+03
33 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.09e+07;	3.34e+06;	7.59e+06;	0.44;y;	38:31;	17.594;	0.2652;	104;y;	177;y;n;7.37e+05;7.07e+03;1.70e+06;9.62e+03
Sampling Standards										
34 ;	37Cl-2,3,7,8-TCDD;	2.03e+07;	2.03e+07;	-;	-;-;	28:23;	23.249;	0.1178;	588;y;	-;-;n;3.54e+06;6.02e+03; -; -
35 ;	13C-2,3,4,7,8-PeCDF;	2.42e+07;	1.47e+07;	9.55e+06;	1.54;y;	32:36;	21.036;	0.1117;	1078;y;	363;y;n;6.02e+06;5.59e+03;3.90e+06;1.07e+04
36 ;	13C-1,2,3,4,7,8-HxCDD;	1.29e+07;	7.23e+06;	5.71e+06;	1.26;y;	35:03;	19.882;	0.1690;	442;y;	343;y;n;2.68e+06;6.05e+03;2.08e+06;6.06e+03
37 ;	13C-1,2,3,4,7,8-HxCDF;	1.63e+07;	5.53e+06;	1.07e+07;	0.52;y;	34:26;	19.804;	0.1247;	396;y;	659;y;n;2.17e+06;5.49e+03;4.36e+06;6.62e+03
38 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.09e+07;	3.34e+06;	7.59e+06;	0.44;y;	38:31;	20.856;	0.3558;	104;y;	177;y;n;7.37e+05;7.07e+03;1.70e+06;9.62e+03

Totals Report

SGS North America, Inc.	Fri Sep 11 07:11:42 EDT 2009	
Filename: a10sep09d-5	Acquired: 2009-09-10 20:44:21	Processed: 2009-09-11 06:16:19
Results:	Cal: m8290-100708a	
Sample Text: G296-641-2F		

Total Tetra-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Tetradioxins	1.31E+06	5.87E+05	7.20E+05	0.81	Y	24:55	1.583	0.2116	RT	1.05E+05	5104	20.6	1.33E+05	5136	26	y
		Tetradioxins	7.48E+05	3.37E+05	4.11E+05	0.82	Y	25:13	0.907	0.2116	OK	5.94E+04	5104	11.6	8.07E+04	5136	15.7	y
		Tetradioxins	4.04E+05	1.77E+05	2.27E+05	0.78	Y	25:34	0.49	0.2116	OK	3.06E+04	5104	6	3.87E+04	5136	7.5	y
		Tetradioxins	1.54E+05	6.57E+04	8.79E+04	0.75	Y	26:15	0.186	0.2116	OK	1.95E+04	5104	3.8	2.02E+04	5136	3.9	y
		Tetradioxins	7.95E+05	3.55E+05	4.40E+05	0.81	Y	26:30	0.964	0.2116	OK	5.65E+04	5104	11.1	7.16E+04	5136	13.9	y
		Tetradioxins	6.38E+05	2.71E+05	3.67E+05	0.74	Y	26:42	0.773	0.2116	OK	4.67E+04	5104	9.1	6.41E+04	5136	12.5	y
		Tetradioxins	3.02E+05	1.43E+05	1.59E+05	0.9	N	26:52	0.365	0.2116	EMPC	2.40E+04	5104	4.7	2.83E+04	5136	5.5	y
		Tetradioxins	1.54E+05	7.30E+04	8.13E+04	0.9	N	27:07	0.187	0.2116	EMPC	1.49E+04	5104	2.9	1.75E+04	5136	3.4	y
		Tetradioxins	3.38E+05	1.43E+05	1.95E+05	0.74	Y	27:16	0.41	0.2116	OK	3.25E+04	5104	6.4	4.11E+04	5136	8	y
		Tetradioxins	4.52E+05	2.08E+05	2.44E+05	0.85	Y	27:36	0.548	0.2116	OK	3.70E+04	5104	7.2	4.90E+04	5136	9.5	y
		Tetradioxins	1.06E+05	5.81E+04	4.81E+04	1.21	N	27:43	0.129	0.2116	EMPC	1.46E+04	5104	2.9	1.31E+04	5136	2.6	y
		Tetradioxins	5.79E+05	2.73E+05	3.06E+05	0.89	N	28:04	0.701	0.2116	EMPC	3.39E+04	5104	6.6	3.35E+04	5136	6.5	y
		2378-TCDD	2.75E+05	1.21E+05	1.53E+05	0.79	Y	28:22	0.333	0.2116	OK	2.06E+04	5100	4	3.08E+04	5140	6	y
		Tetradioxins	3.04E+05	1.30E+05	1.74E+05	0.75	Y	28:43	0.368	0.2116	OK	2.44E+04	5104	4.8	3.39E+04	5136	6.6	y
		Tetradioxins	6.84E+04	3.12E+04	3.73E+04	0.84	Y	28:51	0.083	0.2116	S2N	8.75E+03	5104	1.7	1.13E+04	5136	2.2	y
		Tetradioxins	1.44E+05	6.50E+04	7.85E+04	0.83	Y	29:24	0.174	0.2116	S2N	1.12E+04	5104	2.2	1.59E+04	5136	3.1	y
									EDL	0.2116								
									Total Tetra-Dioxins	4.979	Peaks	9						
									Total EMPC Tetra-Dioxins	0.361	Peaks	3						

Total Tetra-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Tetrafurans	2.66E+04	1.11E+04	1.55E+04	0.71	Y	22:55	0.018	0.1589	S2N	8.24E+03	6616	1.2	1.10E+04	7116	1.6	n
		Tetrafurans	6.63E+05	2.80E+05	3.84E+05	0.73	Y	23:15	0.457	0.1589	RT	5.39E+04	6616	8.1	7.22E+04	7116	10.2	y
		Tetrafurans	8.23E+05	3.67E+05	4.56E+05	0.8	Y	23:39	0.567	0.1589	OK	7.16E+04	6616	10.8	8.76E+04	7116	12.3	y
		Tetrafurans	8.57E+05	3.77E+05	4.80E+05	0.79	Y	24:12	0.591	0.1589	OK	7.34E+04	6616	11.1	8.15E+04	7116	11.5	y
		Tetrafurans	4.50E+06	2.01E+06	2.49E+06	0.81	Y	24:28	3.104	0.1589	OK	1.87E+05	6616	28.2	2.28E+05	7116	32.1	y
		Tetrafurans	2.77E+06	1.22E+06	1.55E+06	0.79	Y	24:48	1.907	0.1589	OK	1.57E+05	6616	23.7	1.99E+05	7116	28	y
		Tetrafurans	2.43E+06	1.07E+06	1.36E+06	0.79	Y	25:13	1.674	0.1589	OK	1.11E+05	6616	16.8	1.47E+05	7116	20.7	y
		Tetrafurans	1.48E+06	6.60E+05	8.20E+05	0.8	Y	25:25	1.02	0.1589	OK	1.16E+05	6616	17.6	1.45E+05	7116	20.4	y
		Tetrafurans	8.56E+05	3.70E+05	4.86E+05	0.76	Y	25:45	0.59	0.1589	OK	5.96E+04	6616	9	8.71E+04	7116	12.2	n
		Tetrafurans	6.85E+06	2.96E+06	3.89E+06	0.76	Y	26:01	4.727	0.1589	OK	2.97E+05	6616	44.9	3.88E+05	7116	54.6	y
		Tetrafurans	2.66E+06	1.17E+06	1.49E+06	0.78	Y	26:31	1.834	0.1589	OK	1.73E+05	6616	26.1	2.17E+05	7116	30.5	y
		Tetrafurans	1.78E+06	7.76E+05	1.00E+06	0.78	Y	26:45	1.225	0.1589	OK	1.27E+05	6616	19.2	1.76E+05	7116	24.7	y
		Tetrafurans	2.02E+06	8.77E+05	1.14E+06	0.77	Y	26:58	1.391	0.1589	OK	1.53E+05	6616	23.1	1.93E+05	7116	27.1	y
		Tetrafurans	1.48E+06	6.55E+05	8.28E+05	0.79	Y	27:12	1.023	0.1589	OK	1.15E+05	6616	17.3	1.32E+05	7116	18.6	y
		Tetrafurans	1.43E+06	6.77E+05	7.55E+05	0.9	N	27:19	0.987	0.1589	EMPC	1.44E+05	6616	21.7	1.74E+05	7116	24.5	y
		2378-TCDF	2.66E+06	1.10E+06	1.56E+06	0.71	Y	27:27	1.835	0.1589	OK	2.08E+05	6620	31	2.25E+05	7120	32	y
		Tetrafurans	4.28E+06	1.84E+06	2.43E+06	0.76	Y	27:49	2.95	0.1589	OK	3.11E+05	6616	47	4.06E+05	7116	57.1	y
		Tetrafurans	3.59E+05	1.69E+05	1.90E+05	0.89	N	27:58	0.248	0.1589	EMPC	2.94E+04	6616	4.4	3.45E+04	7116	4.8	y
		Tetrafurans	1.71E+05	7.49E+04	9.59E+04	0.78	Y	28:15	0.118	0.1589	S2N	1.14E+04	6616	1.7	2.07E+04	7116	2.9	y
		Tetrafurans	5.53E+05	2.75E+05	2.79E+05	0.99	N	28:28	0.381	0.1589	EMPC	5.77E+04	6616	8.7	6.57E+04	7116	9.2	y
									EDL	0.1589								

Totals Report

Total EMPC Tetra-Furans	26.054	Peaks	17
Total Tetra-Furans	24.438	Peaks	14

MG-11-09

Total Penta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Pentadioxins	2.30E+06	1.39E+06	9.13E+05	1.52	Y	31:24	3.194	0.1117	OK	3.44E+05	4708	73.1	2.11E+05	5712	37	n
		Pentadioxins	6.33E+05	3.86E+05	2.47E+05	1.56	Y	31:43	0.879	0.1117	OK	1.42E+05	4708	30.2	8.63E+04	5712	15.1	n
		Pentadioxins	1.42E+06	8.66E+05	5.56E+05	1.56	Y	32:03	1.975	0.1117	OK	3.48E+05	4708	73.9	2.13E+05	5712	37.3	n
		Pentadioxins	8.58E+05	5.10E+05	3.48E+05	1.47	Y	32:09	1.191	0.1117	OK	2.08E+05	4708	44.1	1.39E+05	5712	24.3	n
		Pentadioxins	1.15E+06	7.19E+05	4.32E+05	1.67	Y	32:13	1.598	0.1117	OK	2.80E+05	4708	59.4	1.73E+05	5712	30.2	n
		Pentadioxins	1.37E+06	8.33E+05	5.39E+05	1.55	Y	32:19	1.906	0.1117	OK	2.52E+05	4708	53.5	1.75E+05	5712	30.6	n
		Pentadioxins	7.61E+05	4.54E+05	3.07E+05	1.48	Y	32:30	1.057	0.1117	OK	2.06E+05	4708	43.7	1.35E+05	5712	23.7	n
		12378-PeCDD	1.27E+06	7.73E+05	4.99E+05	1.55	Y	32:46	1.766	0.1117	OK	2.39E+05	4710	51	1.44E+05	5710	25	y
		Pentadioxins	4.72E+05	2.92E+05	1.80E+05	1.62	Y	32:58	0.655	0.1117	OK	1.11E+05	4708	23.6	7.25E+04	5712	12.7	y

EDL	0.1117		
Total EMPC Penta-Dioxins	14.221	Peaks	9
Total Penta-Dioxins	14.221	Peaks	9

Total Penta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Pentafurans	1.11E+05	6.38E+04	4.72E+04	1.35	N	25:16	0.094	0.0689	RT	1.69E+04	5872	2.9	2.35E+04	4428	5.3	n
		Pentafurans	4.02E+06	1.54E+06	2.48E+06	0.62	Y	29:37	3.413	0.0689	RT	2.29E+05	5872	39	3.60E+05	4428	81.2	y
		Pentafurans	6.05E+04	3.41E+04	2.64E+04	1.29	N	31:04	0.051	0.0899	S2N	1.53E+04	6300	2.4	1.59E+04	7136	2.2	n
		Pentafurans	4.00E+06	2.48E+06	1.52E+06	1.64	Y	31:13	3.394	0.0899	OK	5.63E+05	6300	89.4	3.56E+05	7136	49.9	y
		Pentafurans	6.38E+06	3.83E+06	2.55E+06	1.5	Y	31:22	5.416	0.0899	OK	7.40E+05	6300	117.5	4.84E+05	7136	67.8	y
		Pentafurans	4.42E+05	2.93E+05	1.49E+05	1.96	N	31:36	0.375	0.0899	EMPC	7.59E+04	6300	12	4.79E+04	7136	6.7	n
		Pentafurans	1.23E+06	7.59E+05	4.75E+05	1.6	Y	31:40	1.048	0.0899	OK	2.48E+05	6300	39.4	1.62E+05	7136	22.6	n
		Pentafurans	2.92E+06	1.82E+06	1.10E+06	1.65	Y	31:48	2.477	0.0899	OK	5.52E+05	6300	87.6	3.55E+05	7136	49.7	n
		Pentafurans	1.19E+06	7.17E+05	4.72E+05	1.52	Y	31:54	1.009	0.0899	OK	2.44E+05	6300	38.7	1.59E+05	7136	22.3	n
		12378-PeCDF	1.55E+06	9.56E+05	5.92E+05	1.61	Y	32:01	1.333	0.0912	OK	3.63E+05	6300	58	2.22E+05	7140	31	y
		Pentafurans	3.30E+06	2.02E+06	1.28E+06	1.58	Y	32:09	2.798	0.0899	OK	6.19E+05	6300	98.3	3.97E+05	7136	55.6	n
		Pentafurans	1.71E+05	1.16E+05	5.53E+04	2.09	N	32:13	0.145	0.0899	EMPC	4.03E+04	6300	6.4	2.47E+04	7136	3.5	n
		Pentafurans	5.65E+04	2.67E+04	2.98E+04	0.9	N	32:22	0.048	0.0899	S2N	1.66E+04	6300	2.6	1.16E+04	7136	1.6	n
		Pentafurans	5.49E+05	3.28E+05	2.21E+05	1.48	Y	32:25	0.466	0.0899	OK	1.37E+05	6300	21.8	9.08E+04	7136	12.7	n
		Pentafurans	3.23E+06	1.96E+06	1.27E+06	1.54	Y	32:31	2.741	0.0899	OK	7.25E+05	6300	115.1	4.72E+05	7136	66.1	n
		23478-PeCDF	2.95E+06	1.81E+06	1.14E+06	1.59	Y	32:36	2.467	0.0887	OK	6.70E+05	6300	106	4.38E+05	7140	61	n
		Pentafurans	1.25E+06	7.50E+05	5.01E+05	1.5	Y	32:40	1.062	0.0899	OK	2.36E+05	6300	37.5	1.56E+05	7136	21.9	n
		Pentafurans	2.17E+05	1.35E+05	8.17E+04	1.65	Y	33:07	0.184	0.0899	OK	4.58E+04	6300	7.3	3.38E+04	7136	4.7	n

EDL	0.0912		
Total EMPC Penta-Furans	24.915	Peaks	14
Total Penta-Furans	24.395	Peaks	12

MG-11-09

Total Hexa-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Hexadioxins	4.71E+06	2.60E+06	2.11E+06	1.23	Y	34:00	6.89	0.1832	OK	1.02E+06	6252	163.8	7.96E+05	7528	105.8	n
		Hexadioxins	4.34E+06	2.45E+06	1.89E+06	1.29	Y	34:22	6.355	0.1832	OK	9.24E+05	6252	147.8	7.07E+05	7528	93.9	n
		Hexadioxins	9.34E+06	5.19E+06	4.15E+06	1.25	Y	34:34	13.666	0.1832	OK	1.42E+06	6252	227.3	1.16E+06	7528	153.5	n
		123478-HxCDD	1.09E+06	6.35E+05	4.52E+05	1.4	Y	35:04	1.624	0.1869	OK	2.19E+05	6250	35	1.65E+05	7530	22	y
		123678-HxCDD	2.70E+06	1.46E+06	1.24E+06	1.18	Y	35:07	3.855	0.1789	OK	4.71E+05	6250	75	4.06E+05	7530	54	y

Hexadioxins	1.22E+06	6.88E+05	5.34E+05	1.29	Y	35:16	1.788	0.1832	OK	2.37E+05	6252	37.9	1.85E+05	7528	24.5	n
123789-HxCDD	2.82E+06	1.56E+06	1.26E+06	1.23	Y	35:22	4.142	0.1838	OK	4.89E+05	6250	78	3.84E+05	7530	51	n
Hexadioxins	2.93E+04	1.16E+04	1.76E+04	0.66	N	35:28	0.043	0.1832	S2N	8.30E+03	6252	1.3	8.57E+03	7528	1.1	n
							EDL	0.1869								
							Total Hexa-Dioxins	38.32	Peaks	7						
							Total EMPC Hexa-Dioxins	38.32	Peaks	7						

Total Hexa-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Hexafurans	3.22E+06	1.77E+06	1.45E+06	1.22	Y	33:37	3.417	0.5195	OK	7.15E+05	31528	22.7	5.78E+05	26452	21.9	n
		Hexafurans	1.12E+07	6.19E+06	5.02E+06	1.23	Y	33:45	11.883	0.5195	OK	2.41E+06	31528	76.6	1.99E+06	26452	75.2	n
		Hexafurans	3.73E+05	2.40E+05	1.33E+05	1.81	N	33:51	0.395	0.5195	S2N	8.09E+04	31528	2.6	5.00E+04	26452	1.9	y
		Hexafurans	4.74E+05	2.66E+05	2.07E+05	1.28	Y	33:58	0.502	0.5195	OK	9.95E+04	31528	3.2	8.70E+04	26452	3.3	n
		Hexafurans	4.74E+06	2.63E+06	2.11E+06	1.25	Y	34:06	5.02	0.5195	OK	9.62E+05	31528	30.5	7.55E+05	26452	28.6	y
		Hexafurans	3.43E+06	1.85E+06	1.57E+06	1.18	Y	34:22	3.633	0.5195	OK	7.54E+05	31528	23.9	5.77E+05	26452	21.8	n
		123478-HxCDF	3.44E+06	1.95E+06	1.49E+06	1.31	Y	34:27	3.622	0.5167	OK	6.75E+05	31500	21	5.55E+05	26500	21	y
		123678-HxCDF	3.23E+06	1.79E+06	1.44E+06	1.24	Y	34:31	3.15	0.4783	OK	5.88E+05	31500	19	5.09E+05	26500	19	y
		Hexafurans	3.71E+05	2.04E+05	1.66E+05	1.23	Y	34:42	0.393	0.5195	OK	7.82E+04	31528	2.5	7.22E+04	26452	2.7	n
		Hexafurans	2.24E+05	1.15E+05	1.09E+05	1.05	N	34:46	0.237	0.5195	S2N	4.93E+04	31528	1.6	4.42E+04	26452	1.7	n
		234678-HxCDF	3.12E+06	1.77E+06	1.35E+06	1.31	Y	34:58	3.236	0.5079	OK	5.11E+05	31500	16	4.15E+05	26500	16	y
		123789-HxCDF	8.99E+05	4.71E+05	4.28E+05	1.1	Y	35:37	1.077	0.5867	OK	1.33E+05	31500	4	1.26E+05	26500	5	y
									EDL	0.5867								
									Total Hexa-Furans	35.933	Peaks	10						
									Total EMPC Hexa-Furans	35.933	Peaks	10						

Total Hepta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Heptadioxins	4.01E+07	2.04E+07	1.97E+07	1.04	Y	37:13	67.175	0.38	OK	5.29E+06	9568	552.8	5.10E+06	8348	611.3	n
		1234678-HpCDD	4.54E+07	2.32E+07	2.22E+07	1.04	Y	38:00	76.066	0.38	OK	5.44E+06	9570	569	5.32E+06	8350	638	n
									EDL	0.38								
									Total EMPC Hepta-Dioxins	143.241	Peaks	2						
									Total Hepta-Dioxins	143.241	Peaks	2						

Total Hepta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		1234678-HpCDF	1.97E+07	9.93E+06	9.79E+06	1.01	Y	36:57	21.567	0.1656	OK	2.69E+06	6810	395	2.67E+06	6750	395	n
		Heptafurans	1.52E+06	7.19E+05	7.99E+05	0.9	Y	37:12	1.865	0.1861	OK	1.94E+05	6812	28.5	2.19E+05	6752	32.5	n
		Heptafurans	1.82E+07	9.15E+06	9.05E+06	1.01	Y	37:22	22.355	0.1861	OK	2.32E+06	6812	340.3	2.32E+06	6752	343.5	n
		Heptafurans	2.40E+04	1.52E+04	8.73E+03	1.74	N	37:37	0.029	0.1861	S2N	6.30E+03	6812	0.9	1.00E+04	6752	1.5	n
		1234789-HpCDF	1.21E+06	6.30E+05	5.80E+05	1.09	Y	38:31	1.696	0.2123	OK	1.48E+05	6810	22	1.28E+05	6750	19	n
									EDL	0.2123								
									Total EMPC Hepta-Furans	47.483	Peaks	4						
									Total Hepta-Furans	47.483	Peaks	4						

TCDF Confirmation - Method 8290

DUP-2

URS

Analytical Data Summary Sheet

Analyte	Amount (pg/g)	EDL (pg/g)	EMPC (pg/g)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDF	6.95	0.343		20.02	0.76	

Labeled Standard	Spiked Amount (ng)	RT (min.)	Ratio	Qualifier
Extraction Standards				
$^{13}C_{12}$-2,3,7,8-TCDF	2.00	20.02	0.75	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	DUP-2		Weight / Volume:	5.22	g
			Solids / Lipids:	83.69	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17287	
Project ID:	G296-641		Instrument:	hrms3	
Sample ID:	G296-641-2F		Filename:	c11sep09b-8	
Collection Date/Time:	08/11/09		Retchk:	c11sep09b-2	
Receipt Date:	08/12/09	9:45	Begin ConCal:	c11sep09b-1	
Extraction Date:	09/09/09		End ConCal:	c11sep09b-9	
Analysis Date/Time:	09/11/09	13:22	Initial Cal:	mcf-c042709a	

Analyzed by: DS
Date: 9-11-09

Reviewed by: [signature]
Date: 9-11-09

Quantify Sample Summary Report **MassLynx 4.1**
Confirms Sample Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c091109b.qld

Last Altered: Friday, September 11, 2009 13:58:12 Eastern Standard Time
Printed: Friday, September 11, 2009 13:59:00 Eastern Standard Time

Name: c11sep09b-8
Date: 11-Sep-2009
Time: 13:22:47
ID: G296-641-2F
User: JWP
Submitter: mcf-c042709a
Task: HRMS3

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RRT	RT	pg/µL	EDL	SN1	SN2	M	Height1	Noise1	Height2	Noise2
1	2378-TCDF	5.946e4	2.564e4	3.382e4	0.76	NO	1.0004	20.02	1.518	0.0750	52.2	69.0	dd	4.599e5	8812	6.240e5	9039
2	ES:13C-2378-TCDF	3.186e6	1.369e6	1.817e6	0.75	NO	1.0468	20.02	107.045	0.1197	2621.5	2614.1	bs	2.495e7	9519	3.306e7	12645
3	JS:13C-1234-TCDD	2.014e6	9.076e5	1.106e6	0.82	NO	0.0000	19.12	132.649	0.1620	2004.5	3010.7	db	1.694e7	8449	2.062e7	6848
4	Hexa Ether	6.116e2	6.116e2	-	-	-	0.0000	16.08	-	-	0.0	-	bb	1.050e4	0	-	-
5	F1 Lock Mass	3.079e5	3.079e5	-	-	-	0.0000	15.35	-	-	0.0	-	bb	8.359e5	0	-	-

$$[TCDF] = \frac{2.564e4 + 3.382e4}{1.369e4 + 1.817e4}\left(\frac{2000\,pg}{5.22g \times 0.8369}\right)\left(\frac{1}{1.22917}\right) = 6.95\,pg/g$$

JMG-11-09

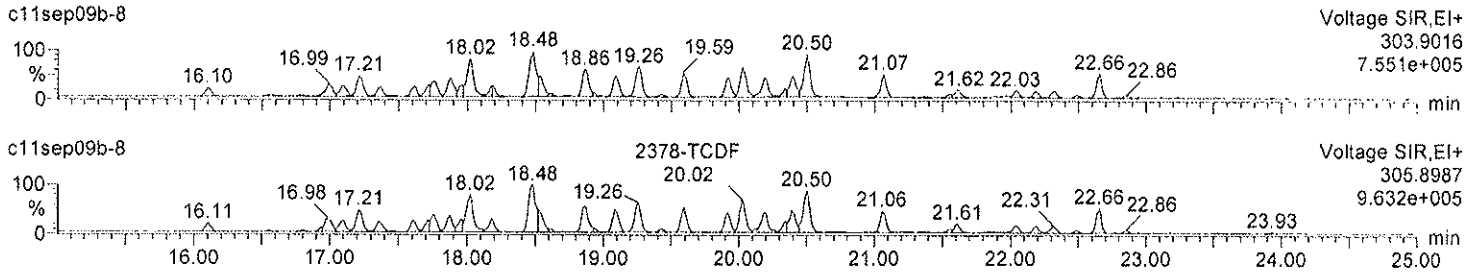
Quantify Sample Report **MassLynx 4.1**
Confirms Sample Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c091109b.qld

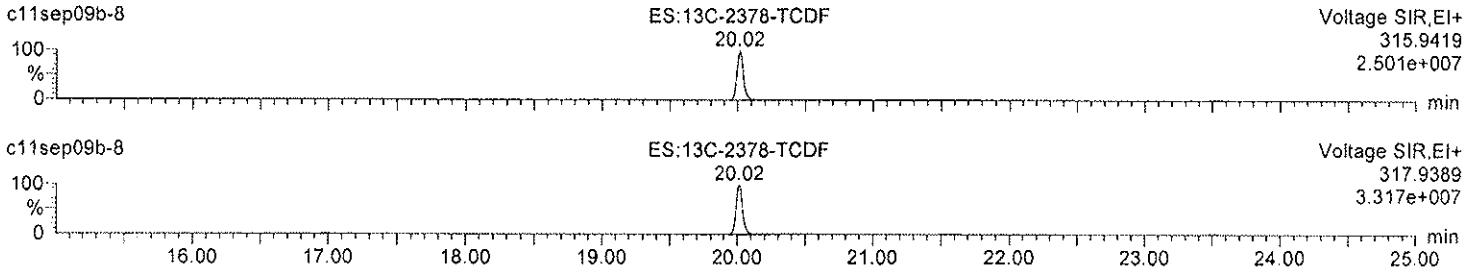
Last Altered: Friday, September 11, 2009 13:58:12 Eastern Standard Time
Printed: Friday, September 11, 2009 13:59:00 Eastern Standard Time

Name: c11sep09b-8, ID: G296-641-2F

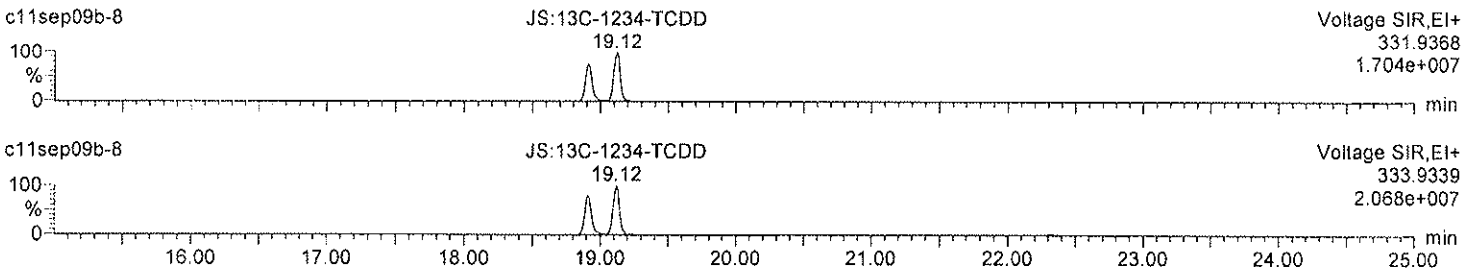
2378-TCDF



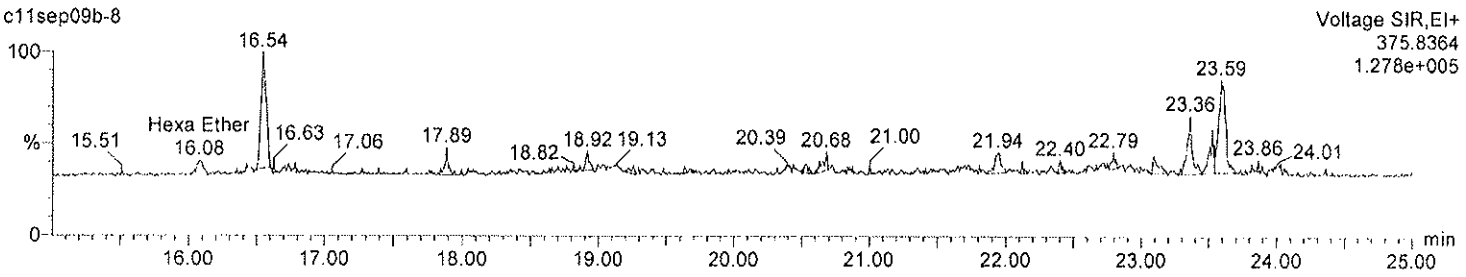
ES:13C-2378-TCDF



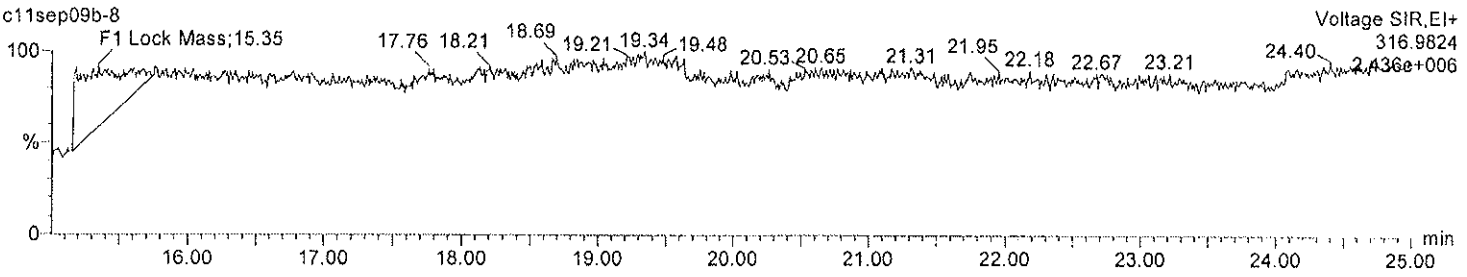
JS:13C-1234-TCDD



Hexa Ether



F1 Lock Mass



Method 8290
77SB2A
URS

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.74	86.9	28:22	0.78	
13C12-1,2,3,7,8-PeCDD	2	2.17	108	32:46	1.58	
13C12-1,2,3,6,7,8-HxCDD	2	1.90	94.8	35:09	1.25	
13C12-1,2,3,4,6,7,8-HpCDD	2	2.08	104	38:00	1.06	
13C12-OCDD	4.0	4.15	104	41:40	0.90	
13C12-2,3,7,8-TCDF	2	1.58	79.0	27:28	0.79	
13C12-1,2,3,7,8-PeCDF	2	2.14	107	32:01	1.57	
13C12-1,2,3,6,7,8-HxCDF	2	1.86	93.2	34:33	0.53	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.94	96.8	36:58	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.383	95.7	28:24	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.446	112	32:36	1.56	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.420	105	35:04	1.27	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.423	106	34:28	0.52	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.429	107	38:31	0.45	
Injection Standards						
13C12-1,2,3,4-TCDD	2.0	-	-	27:36	0.79	
13C12-1,2,3,7,8,9-HxCDD	2.0	-	-	35:22	1.25	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB2A		Weight / Volume:	11.17	g
			Solids / Lipids:	84.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-3D		Filename:	a02sep09c_2-4	
Collection Date/Time:	08/11/09	14:15	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	16:38	Initial Cal:	m8290-100708a	

Form Version:[8290]Report

Analyzed by: DS
Date: 9-10-09

Reviewed by: [signature]
Date: 9/10/09

Filename ; a02sep09c_2
Sample ; 4
Acquired ; 2-SEP-09 16:38:11
Processed ; 3-SEP-09 06:07:39
Sample ID ; G296-641-3D
Cal Table ; m8290-100708a
Results Table ; m8290-090209c_2
Comments ;

;*8290*
;INST: HRMS2

$$\frac{(32.1)(4885)}{(4.42)/(1.0613)(11.17)/(.847)} = 1446.1$$

Ent	Name	Resp	Ion 1	Ion 2	RA;?;	RT	Conc	EDL	S/N1;?;	S/N2;?;M; Signal1; Noise 1; Signal2; Noise 2
1	2,3,7,8-TCDD	1.67e+06	7.45e+05	9.27e+05	0.80;y;	28:24	2.806	0.3625	21;y;	29;y;y;1.54e+05;7.44e+03;1.88e+05;6.56e+03
2	1,2,3,7,8-PeCDD	6.23e+06	3.78e+06	2.45e+06	1.54;y;	32:47	11.018	0.1347	272;y;	208;y;y;1.89e+06;6.95e+03;1.21e+06;5.79e+03
3	1,2,3,4,7,8-HxCDD	8.89e+06	4.93e+06	3.96e+06	1.24;y;	35:05	17.499	0.3386	245;y;	120;y;n;2.15e+06;8.78e+03;1.63e+06;1.36e+04
4	1,2,3,6,7,8-HxCDD	2.18e+07	1.21e+07	9.66e+06	1.26;y;	35:10	41.069	0.3240	516;y;	268;y;n;4.53e+06;8.78e+03;3.64e+06;1.36e+04
5	1,2,3,7,8,9-HxCDD	1.57e+07	8.82e+06	6.89e+06	1.28;y;	35:22	30.439	0.3330	383;y;	193;y;n;3.36e+06;8.78e+03;2.62e+06;1.36e+04
6	1,2,3,4,6,7,8-HpCDD	3.21e+08	1.63e+08	1.57e+08	1.04;y;	38:01	684.158	0.4331	3247;y;	8513;y;n;4.53e+07;1.40e+04;4.34e+07;5.10e+03
7	OCDD	2.14e+09	1.01e+09	1.13e+09	0.89;y;	41:42	5736.961	0.3941	41067;y;	46681;y;n;1.98e+08;4.82e+03;2.21e+08;4.74e+03
8	2,3,7,8-TCDF	1.32e+07	5.84e+06	7.33e+06	0.80;y;	27:30	15.974	0.3112	147;y;	157;y;n;1.14e+06;7.73e+03;1.42e+06;9.05e+03
9	1,2,3,7,8-PeCDF	1.43e+07	8.74e+06	5.58e+06	1.56;y;	32:02	16.646	0.1790	334;y;	222;y;n;3.73e+06;1.12e+04;2.33e+06;1.05e+04
10	2,3,4,7,8-PeCDF	2.79e+07	1.70e+07	1.09e+07	1.57;y;	32:36	31.515	0.1741	617;y;	430;y;n;6.90e+06;1.12e+04;4.52e+06;1.05e+04
11	1,2,3,4,7,8-HxCDF	3.35e+07	1.85e+07	1.50e+07	1.24;y;	34:28	46.378	1.7577	53;y;	199;y;n;7.40e+06;1.40e+05;6.08e+06;3.05e+04
12	1,2,3,6,7,8-HxCDF	3.15e+07	1.74e+07	1.41e+07	1.24;y;	34:33	40.429	1.6272	47;y;	171;y;n;6.56e+06;1.40e+05;5.24e+06;3.05e+04
13	2,3,4,6,7,8-HxCDF	3.57e+07	1.97e+07	1.60e+07	1.23;y;	35:00	48.573	1.7280	48;y;	176;y;n;6.68e+06;1.40e+05;5.37e+06;3.05e+04
14	1,2,3,7,8,9-HxCDF	8.75e+06	4.78e+06	3.97e+06	1.21;y;	35:38	13.768	1.9960	13;y;	46;y;n;1.75e+06;1.40e+05;1.42e+06;3.05e+04
15	1,2,3,4,6,7,8-HpCDF	2.18e+08	1.11e+08	1.07e+08	1.04;y;	36:59	308.479	0.5442	1612;y;	1831;y;n;3.51e+07;2.18e+04;3.35e+07;1.83e+04
16	1,2,3,4,7,8,9-HpCDF	1.35e+07	6.85e+06	6.65e+06	1.03;y;	38:33	24.484	0.6976	86;y;	96;y;n;1.86e+06;2.18e+04;1.77e+06;1.83e+04
17	OCDF	1.95e+08	9.17e+07	1.04e+08	0.89;y;	41:53	439.363	0.3812	3291;y;	4149;y;n;1.91e+07;5.80e+03;2.15e+07;5.18e+03
	Extraction Standards									
18	13C-2,3,7,8-TCDD	5.91e+07	2.60e+07	3.31e+07	0.78;y;	28:23	86.938	0.3061	724;y;	995;y;n;5.08e+06;7.02e+03;6.41e+06;6.44e+03
19	13C-1,2,3,7,8-PeCDD	5.38e+07	3.29e+07	2.08e+07	1.58;y;	32:46	108.273	0.3534	2546;y;	2151;y;n;1.66e+07;6.53e+03;1.04e+07;4.83e+03
20	13C-1,2,3,6,7,8-HxCDD	5.35e+07	2.97e+07	2.38e+07	1.25;y;	35:09	94.850	0.1426	2495;y;	1706;y;n;1.16e+07;4.65e+03;9.27e+06;5.43e+03
21	13C-1,2,3,4,6,7,8-HpCDD	4.42e+07	2.27e+07	2.14e+07	1.06;y;	38:00	103.803	0.1675	1634;y;	1205;y;n;6.38e+06;3.91e+03;6.06e+06;5.03e+03
22	13C-OCDD	7.02e+07	3.33e+07	3.69e+07	0.90;y;	41:41	207.378	0.2576	1167;y;	1337;y;n;6.48e+06;5.56e+03;7.19e+06;5.38e+03
23	13C-2,3,7,8-TCDF	7.95e+07	3.52e+07	4.44e+07	0.79;y;	27:28	79.008	0.2810	939;y;	796;y;n;6.86e+06;7.31e+03;8.76e+06;1.10e+04
24	13C-1,2,3,7,8-PeCDF	8.71e+07	5.32e+07	3.39e+07	1.57;y;	32:02	107.119	0.2896	3017;y;	1837;y;n;2.25e+07;7.44e+03;1.43e+07;7.80e+03
25	13C-1,2,3,6,7,8-HxCDF	6.89e+07	2.39e+07	4.51e+07	0.53;y;	34:33	93.150	0.1929	1344;y;	1687;y;n;9.60e+06;7.14e+03;1.81e+07;1.07e+04
26	13C-1,2,3,4,6,7,8-HpCDF	5.14e+07	1.60e+07	3.55e+07	0.45;y;	36:58	96.818	0.3019	679;y;	868;y;n;4.99e+06;7.35e+03;1.11e+07;1.28e+04
	Injection Standards									
27	13C-1,2,3,4-TCDD	6.09e+07	2.70e+07	3.39e+07	0.79;y;	27:36	44.822	-;	745;y;	1025;y;n;5.23e+06;7.02e+03;6.60e+06;6.44e+03
28	13C-1,2,3,7,8,9-HxCDD	5.40e+07	3.00e+07	2.40e+07	1.25;y;	35:22	50.049	-;	2428;y;	1662;y;n;1.13e+07;4.65e+03;9.03e+06;5.43e+03
	Cleanup Standards									
29	37Cl-2,3,7,8-TCDD	1.39e+07	1.39e+07	-;	-;-;	28:24	19.138	0.1105	531;y;	-;-;n;2.75e+06;5.18e+03; -; -
30	13C-2,3,4,7,8-PeCDF	1.78e+07	1.08e+07	6.93e+06	1.56;y;	32:36	22.307	0.2958	698;y;	417;y;n;5.19e+06;7.44e+03;3.25e+06;7.80e+03
31	13C-1,2,3,4,7,8-HxCDD	1.09e+07	6.10e+06	4.79e+06	1.27;y;	35:05	20.978	0.1549	517;y;	341;y;n;2.40e+06;4.65e+03;1.85e+06;5.43e+03
32	13C-1,2,3,4,7,8-HxCDF	1.42e+07	4.86e+06	9.30e+06	0.52;y;	34:28	21.129	0.2129	280;y;	358;y;n;2.00e+06;7.14e+03;3.84e+06;1.07e+04
33	13C-1,2,3,4,7,8,9-HpCDF	8.97e+06	2.80e+06	6.17e+06	0.45;y;	38:32	21.429	0.3833	98;y;	129;y;n;7.22e+05;7.35e+03;1.64e+06;1.28e+04
	Sampling Standards									
34	37Cl-2,3,7,8-TCDD	1.39e+07	1.39e+07	-;	-;-;	28:24	22.013	0.1269	531;y;	-;-;n;2.75e+06;5.18e+03; -; -
35	13C-2,3,4,7,8-PeCDF	1.78e+07	1.08e+07	6.93e+06	1.56;y;	32:36	20.829	0.1270	698;y;	417;y;n;5.19e+06;7.44e+03;3.25e+06;7.80e+03
36	13C-1,2,3,4,7,8-HxCDD	1.09e+07	6.10e+06	4.79e+06	1.27;y;	35:05	22.075	0.1572	517;y;	341;y;n;2.40e+06;4.65e+03;1.85e+06;5.43e+03
37	13C-1,2,3,4,7,8-HxCDF	1.42e+07	4.86e+06	9.30e+06	0.52;y;	34:28	22.681	0.2136	280;y;	358;y;n;2.00e+06;7.14e+03;3.84e+06;1.07e+04
38	13C-1,2,3,4,7,8,9-HpCDF	8.97e+06	2.80e+06	6.17e+06	0.45;y;	38:32	22.134	0.4764	98;y;	129;y;n;7.22e+05;7.35e+03;1.64e+06;1.28e+04

Totals Report

SGS North America, Inc.	Wed Sep 9 14:44:36 EDT 2009	
Filename: a02sep09c_2-4	Acquired: 2009-09-02 16:38:11	Processed: 2009-09-03 06:07:39
Results:	Cal: m8290-100708a	
Sample Text: G296-641-3D		

Total Tetra-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Tetradioxins	5.15E+06	2.24E+06	2.91E+06	0.77	Y	24:55	8.644	0.3625	RT	4.57E+05	7444	61.4	5.71E+05	6564	87	y
		Tetradioxins	4.80E+06	2.09E+06	2.71E+06	0.77	Y	25:13	8.054	0.3625	OK	4.34E+05	7444	58.3	5.57E+05	6564	84.8	y
		Tetradioxins	1.93E+06	8.25E+05	1.11E+06	0.74	Y	25:34	3.244	0.3625	OK	1.76E+05	7444	23.6	2.13E+05	6564	32.5	n
		Tetradioxins	9.99E+05	4.33E+05	5.66E+05	0.77	Y	26:16	1.677	0.3625	OK	1.02E+05	7444	13.8	1.12E+05	6564	17.1	y
		Tetradioxins	3.38E+06	1.47E+06	1.91E+06	0.77	Y	26:30	5.672	0.3625	OK	2.45E+05	7444	32.9	3.31E+05	6564	50.5	n
		Tetradioxins	2.85E+06	1.23E+06	1.62E+06	0.76	Y	26:43	4.776	0.3625	OK	2.25E+05	7444	30.2	2.98E+05	6564	45.4	n
		Tetradioxins	1.40E+06	6.14E+05	7.91E+05	0.78	Y	26:52	2.358	0.3625	OK	1.23E+05	7444	16.5	1.61E+05	6564	24.5	n
		Tetradioxins	2.92E+05	1.06E+05	1.86E+05	0.57	N	27:07	0.49	0.3625	EMPC	2.31E+04	7444	3.1	3.93E+04	6564	6	y
		Tetradioxins	2.10E+06	9.13E+05	1.19E+06	0.77	Y	27:18	3.525	0.3625	OK	1.91E+05	7444	25.7	2.28E+05	6564	34.7	y
		Tetradioxins	1.84E+04	6.96E+03	1.14E+04	0.61	N	27:25	0.031	0.3625	S2N	6.29E+03	7444	0.8	5.37E+03	6564	0.8	n
		Tetradioxins	2.03E+04	8.84E+03	1.14E+04	0.77	Y	27:28	0.034	0.3625	S2N	8.01E+03	7444	1.1	5.37E+03	6564	0.8	n
		Tetradioxins	1.39E+06	6.18E+05	7.69E+05	0.8	Y	27:37	2.33	0.3625	OK	1.25E+05	7444	16.7	1.64E+05	6564	25	y
		Tetradioxins	4.17E+05	1.93E+05	2.24E+05	0.86	Y	27:46	0.7	0.3625	OK	3.81E+04	7444	5.1	4.47E+04	6564	6.8	y
		Tetradioxins	3.78E+06	1.68E+06	2.10E+06	0.8	Y	28:04	6.34	0.3625	OK	1.86E+05	7444	25	2.50E+05	6564	38.1	y
		2378-TCDD	1.67E+06	7.45E+05	9.27E+05	0.8	Y	28:24	2.806	0.3625	OK	1.54E+05	7440	21	1.88E+05	6560	29	y
		Tetradioxins	1.75E+06	8.19E+05	9.28E+05	0.88	Y	28:43	2.932	0.3625	OK	1.47E+05	7444	19.7	1.71E+05	6564	26	y
		Tetradioxins	4.68E+05	2.38E+05	2.30E+05	1.03	N	28:52	0.785	0.3625	EMPC	5.37E+04	7444	7.2	5.10E+04	6564	7.8	y
		Tetradioxins	6.08E+05	2.94E+05	3.14E+05	0.93	N	29:25	1.02	0.3625	EMPC	5.69E+04	7444	7.6	7.03E+04	6564	10.7	y
									EDL	0.3625								
									Total Tetra-Dioxins	44.414	Peaks	12						
									Total EMPC Tetra-Dioxins	46.709	Peaks	15						

Total Tetra-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Tetrafurans	2.43E+06	1.09E+06	1.34E+06	0.81	Y	23:16	2.95	0.3112	RT	2.34E+05	7732	30.2	3.07E+05	9048	33.9	n
		Tetrafurans	4.59E+06	2.00E+06	2.60E+06	0.77	Y	23:40	5.572	0.3112	OK	4.24E+05	7732	54.8	5.72E+05	9048	63.2	n
		Tetrafurans	5.24E+06	2.30E+06	2.95E+06	0.78	Y	24:13	6.359	0.3112	OK	4.59E+05	7732	59.3	5.76E+05	9048	63.6	n
		Tetrafurans	9.17E+06	4.02E+06	5.15E+06	0.78	Y	24:25	11.124	0.3112	OK	5.31E+05	7732	68.7	6.73E+05	9048	74.4	n
		Tetrafurans	9.29E+06	4.13E+06	5.16E+06	0.8	Y	24:34	11.265	0.3112	OK	7.52E+05	7732	97.2	9.70E+05	9048	107.2	n
		Tetrafurans	3.57E+06	1.55E+06	2.02E+06	0.77	Y	24:46	4.333	0.3112	OK	3.40E+05	7732	44	4.09E+05	9048	45.2	n
		Tetrafurans	5.43E+06	2.42E+06	3.01E+06	0.81	Y	24:52	6.587	0.3112	OK	5.09E+05	7732	65.8	6.40E+05	9048	70.7	n
		Tetrafurans	3.00E+06	1.31E+06	1.69E+06	0.78	Y	25:10	3.637	0.3112	OK	3.38E+05	7732	43.8	4.48E+05	9048	49.5	n
		Tetrafurans	7.54E+06	3.35E+06	4.19E+06	0.8	Y	25:16	9.143	0.3112	OK	6.37E+05	7732	82.3	8.17E+05	9048	90.3	n
		Tetrafurans	4.29E+06	1.92E+06	2.37E+06	0.81	Y	25:27	5.202	0.3112	OK	3.80E+05	7732	49.1	4.82E+05	9048	53.2	n
		Tetrafurans	3.46E+06	1.53E+06	1.93E+06	0.79	Y	25:46	4.196	0.3112	OK	3.07E+05	7732	39.7	3.96E+05	9048	43.8	n
		Tetrafurans	1.12E+07	5.17E+06	6.06E+06	0.85	Y	25:58	13.622	0.3112	OK	9.90E+05	7732	128	1.21E+06	9048	133.2	n
		Tetrafurans	1.60E+07	6.87E+06	9.17E+06	0.75	Y	26:06	19.457	0.3112	OK	1.22E+06	7732	157.5	1.62E+06	9048	178.5	n
		Tetrafurans	1.13E+07	4.95E+06	6.34E+06	0.78	Y	26:33	13.697	0.3112	OK	1.00E+06	7732	129.8	1.28E+06	9048	141.1	n
		Tetrafurans	6.36E+06	2.80E+06	3.55E+06	0.79	Y	26:46	7.708	0.3112	OK	5.34E+05	7732	69	7.00E+05	9048	77.4	n
		Tetrafurans	1.11E+07	4.85E+06	6.27E+06	0.77	Y	27:00	13.488	0.3112	OK	9.58E+05	7732	123.9	1.23E+06	9048	136.1	n
		Tetrafurans	1.08E+07	4.78E+06	6.05E+06	0.79	Y	27:13	13.136	0.3112	OK	9.18E+05	7732	118.7	1.13E+06	9048	125.4	n
		Tetrafurans	5.66E+06	2.50E+06	3.15E+06	0.79	Y	27:21	6.859	0.3112	OK	5.13E+05	7732	66.3	6.71E+05	9048	74.2	n
		2378-TCDF	1.32E+07	5.84E+06	7.33E+06	0.8	Y	27:30	15.974	0.3112	OK	1.14E+06	7730	147	1.42E+06	9050	157	n
		Tetrafurans	3.31E+07	1.45E+07	1.86E+07	0.78	Y	27:49	40.144	0.3112	OK	2.85E+06	7732	368.2	3.64E+06	9048	401.9	n

Tetrafurans	1.16E+06	4.59E+05	7.04E+05	0.65	N	28:01	1.41	0.3112	EMPC	9.17E+04	7732	11.9	1.42E+05	9048	15.7	n
Tetrafurans	8.13E+05	3.45E+05	4.68E+05	0.74	Y	28:16	0.986	0.3112	OK	7.65E+04	7732	9.9	1.01E+05	9048	11.2	n
Tetrafurans	1.83E+06	9.15E+05	9.18E+05	1	N	29:34	2.222	0.3112	RT	1.65E+05	7732	21.3	1.73E+05	9048	19.1	n
Tetrafurans	6.15E+05	2.76E+05	3.39E+05	0.82	Y	29:42	0.746	0.3112	RT	6.98E+04	7732	9	6.83E+04	9048	7.6	n
							EDL	0.3112								
							Total Tetra-Furans	212.489	Peaks	20						
							Total EMPC Tetra-Furans	213.899	Peaks	21						

Total Penta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Pentadioxins	2.17E+07	1.33E+07	8.42E+06	1.58	Y	31:25	38.399	0.1347	OK	3.62E+06	6952	520	2.31E+06	5788	399.2	n
		Pentadioxins	6.94E+06	4.27E+06	2.66E+06	1.61	Y	31:45	12.265	0.1347	OK	1.76E+06	6952	253.2	1.12E+06	5788	193.2	n
		Pentadioxins	1.36E+07	8.29E+06	5.31E+06	1.56	Y	32:04	24.04	0.1347	OK	3.85E+06	6952	554.4	2.45E+06	5788	423	n
		Pentadioxins	6.17E+06	3.75E+06	2.43E+06	1.54	Y	32:09	10.914	0.1347	OK	1.92E+06	6952	275.8	1.20E+06	5788	207.5	n
		Pentadioxins	9.23E+06	5.68E+06	3.55E+06	1.6	Y	32:13	16.319	0.1347	OK	2.71E+06	6952	389.8	1.72E+06	5788	296.6	n
		Pentadioxins	9.59E+06	5.85E+06	3.74E+06	1.56	Y	32:19	16.948	0.1347	OK	2.02E+06	6952	290.3	1.29E+06	5788	223.4	n
		Pentadioxins	6.53E+06	3.97E+06	2.56E+06	1.55	Y	32:31	11.553	0.1347	OK	2.05E+06	6952	294.9	1.29E+06	5788	222.3	n
		12378-PeCDD	6.23E+06	3.78E+06	2.45E+06	1.54	Y	32:46	11.018	0.1347	OK	1.89E+06	6950	272	1.21E+06	5790	208	y
		Pentadioxins	3.24E+06	2.02E+06	1.22E+06	1.66	Y	32:49	5.725	0.1347	OK	1.16E+06	6952	166.5	7.08E+05	5788	122.3	y
		Pentadioxins	3.33E+06	2.02E+06	1.31E+06	1.55	Y	33:00	5.891	0.1347	OK	1.02E+06	6952	146.2	6.73E+05	5788	116.3	n
									EDL	0.1347								
									Total Penta-Dioxins	153.072	Peaks	10						
									Total EMPC Penta-Dioxins	153.072	Peaks	10						

Total Penta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Pentafurans	3.09E+07	1.21E+07	1.89E+07	0.64	Y	29:40	35.422	0.0964	RT	1.98E+06	6712	295	3.16E+06	5128	615.7	n
		Pentafurans	3.49E+07	2.13E+07	1.36E+07	1.56	Y	31:13	40.02	0.1765	OK	5.53E+06	11168	495.2	3.49E+06	10520	331.7	n
		Pentafurans	5.37E+07	3.27E+07	2.10E+07	1.56	Y	31:22	61.528	0.1765	OK	5.88E+06	11168	526.2	3.79E+06	10520	360.7	n
		Pentafurans	4.48E+06	2.75E+06	1.73E+06	1.59	Y	31:37	5.132	0.1765	OK	8.01E+05	11168	71.7	5.17E+05	10520	49.1	n
		Pentafurans	1.47E+07	9.01E+06	5.72E+06	1.58	Y	31:43	16.876	0.1765	OK	3.56E+06	11168	318.7	2.23E+06	10520	211.7	n
		Pentafurans	3.36E+07	2.06E+07	1.30E+07	1.58	Y	31:48	38.505	0.1765	OK	7.54E+06	11168	675.1	4.70E+06	10520	446.3	n
		Pentafurans	1.22E+07	7.48E+06	4.76E+06	1.57	Y	31:55	14.033	0.1765	OK	3.25E+06	11168	291.2	2.11E+06	10520	200.4	n
		12378-PeCDF	1.43E+07	8.74E+06	5.58E+06	1.56	Y	32:01	16.646	0.179	OK	3.73E+06	11200	334	2.33E+06	10500	222	n
		Pentafurans	3.17E+07	1.93E+07	1.24E+07	1.56	Y	32:10	36.305	0.1765	OK	6.77E+06	11168	606.2	4.23E+06	10520	402.4	n
		Pentafurans	1.41E+06	8.69E+05	5.44E+05	1.6	Y	32:15	1.618	0.1765	OK	3.77E+05	11168	33.8	2.20E+05	10520	20.9	n
		Pentafurans	1.26E+05	8.89E+04	3.70E+04	2.4	N	32:19	0.144	0.1765	S2N	5.06E+04	11168	4.5	2.10E+04	10520	2	n
		Pentafurans	3.10E+06	1.93E+06	1.18E+06	1.64	Y	32:27	3.556	0.1765	OK	9.62E+05	11168	86.1	5.54E+05	10520	52.6	n
		Pentafurans	3.08E+07	1.87E+07	1.21E+07	1.54	Y	32:33	35.349	0.1765	OK	9.28E+06	11168	830.7	6.12E+06	10520	581.5	n
		23478-PeCDF	2.79E+07	1.70E+07	1.09E+07	1.57	Y	32:36	31.515	0.1741	OK	6.90E+06	11200	617	4.52E+06	10500	430	n
		Pentafurans	5.96E+06	3.69E+06	2.27E+06	1.63	Y	32:43	6.829	0.1765	OK	1.58E+06	11168	141.1	9.40E+05	10520	89.3	n
		Pentafurans	1.67E+05	1.28E+05	3.94E+04	3.25	N	32:49	0.192	0.1765	S2N	4.09E+04	11168	3.7	1.64E+04	10520	1.6	n
		Pentafurans	4.08E+04	2.49E+04	1.59E+04	1.56	Y	33:03	0.047	0.1765	S2N	1.90E+04	11168	1.7	1.12E+04	10520	1.1	n
		Pentafurans	2.67E+06	1.61E+06	1.07E+06	1.51	Y	33:07	3.064	0.1765	OK	7.49E+05	11168	67.1	4.82E+05	10520	45.8	n
									EDL	0.179								
									Total Penta-Furans	310.976	Peaks	14						
									Total EMPC Penta-Furans	310.976	Peaks	14						

Totals Report

Total Hexa-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Hexadioxins	2.12E+05	1.24E+05	8.81E+04	1.41	Y	33:55	0.41	0.3318	OK	6.58E+04	8780	7.5	4.65E+04	13564	3.4	n
		Hexadioxins	3.86E+07	2.15E+07	1.71E+07	1.25	Y	34:01	74.443	0.3318	OK	9.41E+06	8780	1072.1	7.45E+06	13564	549.6	n
		Hexadioxins	4.55E+07	2.54E+07	2.01E+07	1.26	Y	34:24	87.779	0.3318	OK	1.09E+07	8780	1241.8	8.46E+06	13564	623.6	n
		Hexadioxins	2.54E+06	1.46E+06	1.08E+06	1.35	Y	34:31	4.901	0.3318	OK	5.92E+05	8780	67.4	4.70E+05	13564	34.7	n
		Hexadioxins	6.78E+07	3.77E+07	3.01E+07	1.25	Y	34:36	130.83	0.3318	OK	1.16E+07	8780	1320.4	9.23E+06	13564	680.8	n
		Hexadioxins	5.22E+06	2.94E+06	2.28E+06	1.29	Y	34:40	10.069	0.3318	OK	1.31E+06	8780	149.6	1.03E+06	13564	76.1	n
		123478-HxCDD	8.89E+06	4.93E+06	3.96E+06	1.24	Y	35:04	17.499	0.3386	OK	2.15E+06	8780	245	1.63E+06	13600	120	n
		123678-HxCDD	2.18E+07	1.21E+07	9.66E+06	1.26	Y	35:10	41.069	0.324	OK	4.53E+06	8780	516	3.64E+06	13600	268	n
		Hexadioxins	9.68E+06	5.44E+06	4.23E+06	1.29	Y	35:16	18.671	0.3318	OK	2.23E+06	8780	254	1.69E+06	13564	124.6	n
		123789-HxCDD	1.57E+07	8.82E+06	6.89E+06	1.28	Y	35:22	30.439	0.333	OK	3.36E+06	8780	383	2.62E+06	13600	193	n
		Hexadioxins	2.52E+05	5.19E+04	2.00E+05	0.26	N	35:39	0.486	0.3318	RT	2.70E+04	8780	3.1	6.93E+04	13564	5.1	n
									EDL	0.3386								
									Total Hexa-Dioxins	416.114	Peaks	10						
									Total EMPC Hexa-Dioxins	416.114	Peaks	10						

Total Hexa-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Hexafurans	3.81E+07	2.11E+07	1.70E+07	1.24	Y	33:39	53.118	1.7674	OK	9.74E+06	13955	69.8	7.73E+06	30540	253	n
		Hexafurans	1.13E+08	6.22E+07	5.05E+07	1.23	Y	33:46	156.91	1.7674	OK	2.70E+07	13955	193.6	2.19E+07	30540	717.8	n
		Hexafurans	3.46E+06	1.84E+06	1.63E+06	1.13	Y	33:52	4.827	1.7674	OK	7.75E+05	13955	5.5	5.99E+05	30540	19.6	n
		Hexafurans	5.54E+06	2.98E+06	2.55E+06	1.17	Y	33:58	7.714	1.7674	OK	1.26E+06	13955	9	1.04E+06	30540	34	n
		Hexafurans	2.66E+07	1.46E+07	1.20E+07	1.22	Y	34:07	37.115	1.7674	OK	6.14E+06	13955	44	4.93E+06	30540	161.4	n
		Hexafurans	3.81E+07	2.11E+07	1.70E+07	1.24	Y	34:22	53.033	1.7674	OK	9.07E+06	13955	65	7.41E+06	30540	242.7	n
		123478-HxCDF	3.35E+07	1.85E+07	1.50E+07	1.24	Y	34:28	46.378	1.7577	OK	7.40E+06	140000	53	6.08E+06	30500	199	n
		123678-HxCDF	3.15E+07	1.74E+07	1.41E+07	1.24	Y	34:33	40.429	1.6272	OK	6.56E+06	140000	47	5.24E+06	30500	171	n
		Hexafurans	2.61E+06	1.42E+06	1.19E+06	1.19	Y	34:37	3.637	1.7674	OK	6.31E+05	13955	4.5	5.23E+05	30540	17.1	n
		Hexafurans	6.60E+06	3.57E+06	3.03E+06	1.18	Y	34:43	9.197	1.7674	OK	1.49E+06	13955	10.7	1.20E+06	30540	39.3	n
		Hexafurans	3.26E+06	1.76E+06	1.50E+06	1.17	Y	34:49	4.538	1.7674	OK	7.40E+05	13955	5.3	6.16E+05	30540	20.2	n
		234678-HxCDF	3.57E+07	1.97E+07	1.60E+07	1.23	Y	35:00	48.573	1.728	OK	6.68E+06	140000	48	5.37E+06	30500	176	n
		123789-HxCDF	8.75E+06	4.78E+06	3.97E+06	1.21	Y	35:37	13.768	1.996	OK	1.75E+06	140000	13	1.42E+06	30500	46	n
									EDL	1.996								
									Total EMPC Hexa-Furans	479.235	Peaks	13						
									Total Hexa-Furans	479.235	Peaks	13						

Total Hepta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Heptadioxins	1.12E+07	5.72E+06	5.51E+06	1.04	Y	37:03	23.951	0.4331	OK	2.02E+06	13956	145	1.90E+06	5104	372.2	n
		Heptadioxins	2.90E+08	1.48E+08	1.42E+08	1.04	Y	37:15	617.73	0.4331	OK	4.51E+07	13956	3231.9	4.39E+07	5104	8603.6	n
		Heptadioxins	1.93E+05	8.35E+04	1.09E+05	0.77	N	37:30	0.411	0.4331	EMPC	5.98E+04	13956	4.3	4.86E+04	5104	9.5	n
		Heptadioxins	2.04E+05	9.51E+04	1.09E+05	0.87	N	37:33	0.435	0.4331	S2N	3.41E+04	13956	2.4	4.86E+04	5104	9.5	n
		Heptadioxins	9.96E+04	2.80E+04	7.16E+04	0.39	N	37:36	0.212	0.4331	S2N	2.10E+04	13956	1.5	2.97E+04	5104	5.8	n
		1234678-HpCDD	3.21E+08	1.63E+08	1.57E+08	1.04	Y	38:01	684.16	0.4331	OK	4.53E+07	14000	3247	4.34E+07	5100	8513	n
									EDL	0.4331								
									Total EMPC Hepta-Dioxins	1326.25	Peaks	4						
									Total Hepta-Dioxins	1325.83	Peaks	3						

Totals Report

Total Hepta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		1234678-HpCDF	2.18E+08	1.11E+08	1.07E+08	1.04	Y	36:58	308.48	0.5442	OK	3.51E+07	21800	1612	3.35E+07	18300	1831	n
		Heptafurans	1.74E+07	8.84E+06	8.55E+06	1.03	Y	37:13	27.619	0.6114	OK	2.58E+06	21756	118.6	2.48E+06	18324	135.2	n
		Heptafurans	1.43E+08	7.25E+07	7.02E+07	1.03	Y	37:22	226.83	0.6114	OK	2.30E+07	21756	1055.5	2.23E+07	18324	1214.5	n
		1234789-HpCDF	1.35E+07	6.85E+06	6.65E+06	1.03	Y	38:33	24.484	0.6976	OK	1.86E+06	21800	86	1.77E+06	18300	96	n
									EDL	0.6976								
									Total EMPC Hepta-Furans	587.408	Peaks	4						
									Total Hepta-Furans	587.408	Peaks	4						

TCDF Confirmation - Method 8290
77SB2A
URS

Analytical Data Summary Sheet

Analyte	Amount (pg/g)	EDL (pg/g)	EMPC (pg/g)	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDF	29.9	0.508		19.91	0.75	

Labeled Standard	Spiked Amount (ng)	RT (min.)	Ratio	Qualifier
Extraction Standards				
$^{13}C_{12}$-2,3,7,8-TCDF	2.00	19.89	0.74	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB2A		Weight / Volume:	11.17	g
			Solids / Lipids:	84.73	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	hrms3	
Sample ID:	G296-641-3D		Filename:	c04sep09a-9	
Collection Date/Time:	08/11/09	14:15	Retchk:	c04sep09a-2	
Receipt Date:	08/12/09	9:45	Begin ConCal:	c04sep09a-1	
Extraction Date:	08/30/09		End ConCal:	c04sep09a-12	
Analysis Date/Time:	09/04/09	9:50	Initial Cal:	mcf-c042709a	

Analyzed by: DS
Date: 9-4-09

Reviewed by: TM
Date: 9-4-09

Quantify Sample Summary Report **MassLynx 4.1**
Confirms Sample Summary

Dataset: C:\MassLynx\Default.pro\Results\mcf-c090409a.qld

Last Altered: Friday, September 04, 2009 13:33:02 Eastern Standard Time
Printed: Friday, September 04, 2009 13:33:52 Eastern Standard Time

Name: c04sep09a-9
Date: 04-Sep-2009
Time: 09:50:32
ID: G296-641-3D
User: JWP
Submitter: mcf-c042709a
Task: HRMS3

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RRT	RT	pg/µL	EDL	SN1	SN2	M	Height1	Noise1	Height2	Noise2
1	2378-TCDF	2.408e5	1.032e5	1.376e5	0.75	NO	1.0009	19.91	14.158	0.2404	177.4	189.4	dd	1.988e6	11206	2.556e6	13493
2	ES:13C-2378-TCDF	1.384e6	5.896e5	7.942e5	0.74	NO	1.0466	19.89	94.697	0.2368	930.9	1368.7	bd	1.068e7	11476	1.438e7	10505
3	JS:13C-1234-TCDD	9.889e5	4.455e5	5.434e5	0.82	NO	0.0000	19.00	65.133	0.1615	1042.1	1375.4	db	8.489e6	8146	1.022e7	7430
4	Hexa Ether	1.342e2	1.342e2	-	-	-	0.0000	15.80	-	-	0.0	-	bb	8.405e3	0	-	-
5	F1 Lock Mass	1.042e5	1.042e5	-	-	-	0.0000	15.18	-	-	0.0	-	bd	1.211e6	0	-	-

$$[TCDF] = \frac{1.032e5 + 1.376e5}{5.896e5 + 7.942e5}\left(\frac{20000pg}{11.17g \times 0.8473}\right)\left(\frac{1}{1.22917}\right) = 29.9\,pg/g$$

ym 9-4-09

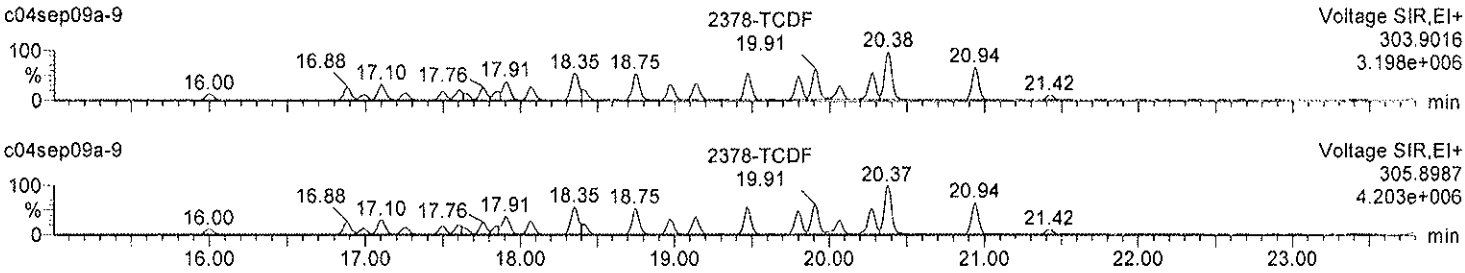
Quantify Sample Report **MassLynx 4.1**
Confirms Sample Summary

Dataset: C:\MassLynx\Default.pro\Results\mcf-c090409a.qld

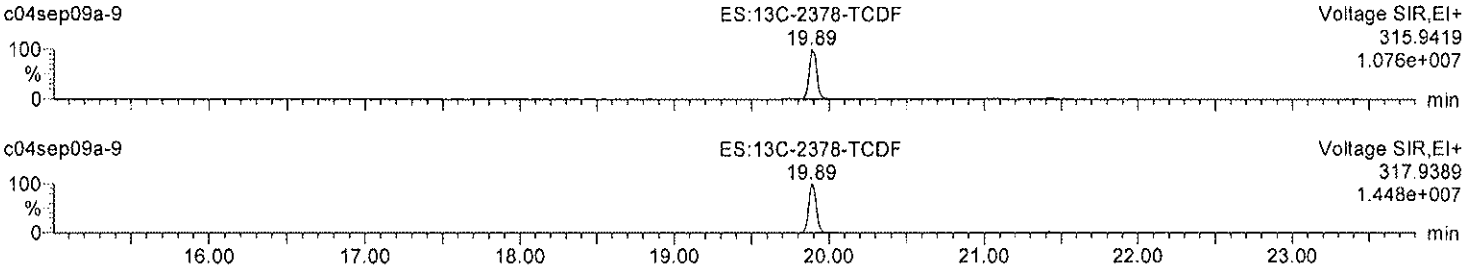
Last Altered: Friday, September 04, 2009 13:33:02 Eastern Standard Time
Printed: Friday, September 04, 2009 13:33:52 Eastern Standard Time

Name: c04sep09a-9, ID: G296-641-3D

2378-TCDF



ES:13C-2378-TCDF



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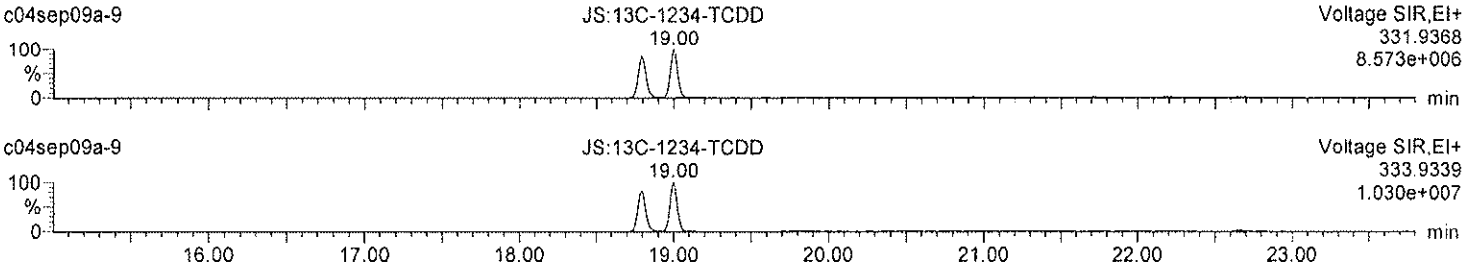
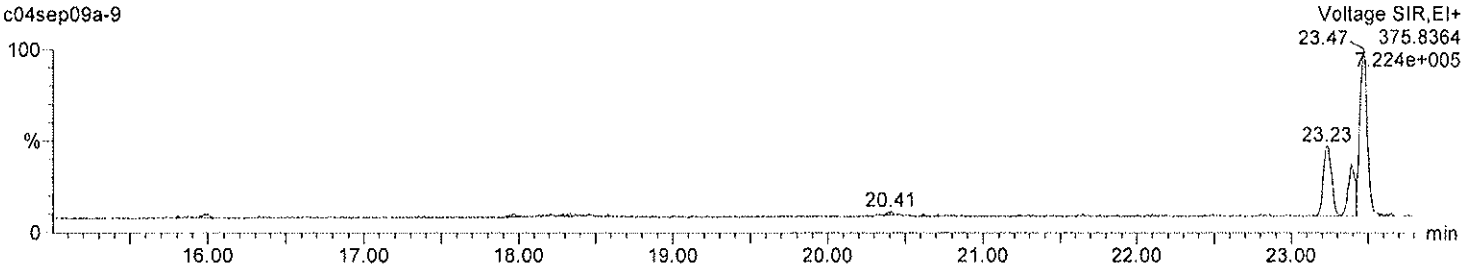
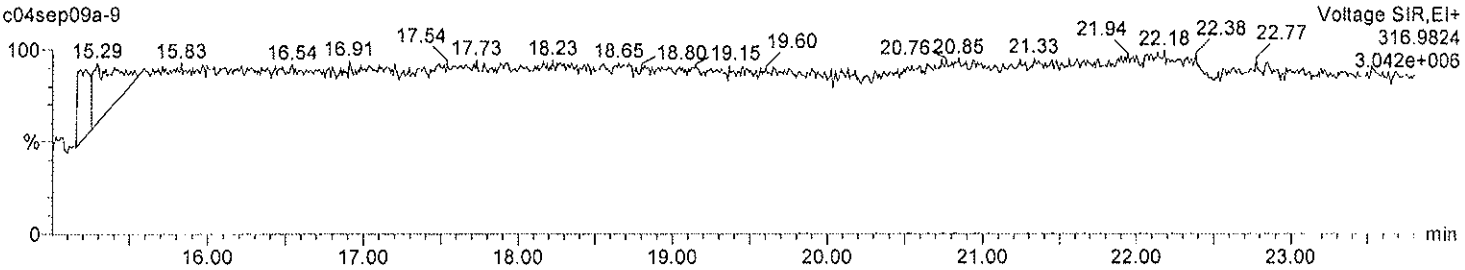


Hexa Ether



F1 Lock Mass



Method 8290
Lab Method Blank

Analytical Data Summary Sheet

Analyte	Amount pg/g	EDL pg/g	EMPC pg/g	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	**0.482**			28:22	0.67	A
1,2,3,7,8-PeCDD	ND	0.500				
1,2,3,4,7,8-HxCDD	ND	0.500				
1,2,3,6,7,8-HxCDD	ND	0.500				
1,2,3,7,8,9-HxCDD	ND	0.500				
1,2,3,4,6,7,8-HpCDD	**0.318**			37:57	1.14	A
OCDD	**2.07**			41:33	0.86	A
2,3,7,8-TCDF	**0.268**			27:27	0.79	A
1,2,3,7,8-PeCDF	ND	0.500				
2,3,4,7,8-PeCDF	ND	0.500				
1,2,3,4,7,8-HxCDF	ND	0.500				
1,2,3,6,7,8-HxCDF	ND	0.500				
2,3,4,6,7,8-HxCDF	ND	0.500				
1,2,3,7,8,9-HxCDF	ND	0.500				
1,2,3,4,6,7,8-HpCDF	ND	0.500				
1,2,3,4,7,8,9-HpCDF	ND	0.500				
OCDF	EMPC	1.00	0.444	41:46	0.71 *	A
Total TCDDs	**0.482**					
Total PeCDDs	ND	0.500				
Total HxCDDs	ND	0.500				
Total HpCDDs	**0.658**					
Total TCDFs	**0.268**					
Total PeCDFs	ND	0.500				
Total HxCDFs	ND	0.500				
Total HpCDFs	ND	0.500	0.230			
WHO-2005 TEQ (ND=0)	**0.513**		0.513			
WHO-2005 TEQ (ND=½)	**1.03**		1.03			

Client Information			**Sample Information**		
Project Name:			Report Basis:	Wet	
			Matrix:	Soil	
Sample ID:	Lab Method Blank		Weight / Volume:	10.00	g
			Solids / Lipids:	NA	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:			Instrument:	HRMS1	
Sample ID:			Filename:	a31aug09a-4	
Collection Date/Time:			Retchk:	a31aug09a-1	
Receipt Date/Time:			Begin ConCal:	a31aug09a-1	
Extraction Date:	08/30/09		End ConCal:	a31aug09a-15	
Analysis Date/Time:	08/31/09	22:30	Initial Cal:	m8290-100708a	

Method 8290
Lab Method Blank

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.76	87.8	28:19	0.79	
13C12-1,2,3,7,8-PeCDD	2	2.04	102	32:45	1.57	
13C12-1,2,3,6,7,8-HxCDD	2	1.93	96.4	35:07	1.24	
13C12-1,2,3,4,6,7,8-HpCDD	2	2.09	104	37:57	1.05	
13C12-OCDD	4.0	4.58	115	41:33	0.90	
13C12-2,3,7,8-TCDF	2	1.82	90.8	27:25	0.79	
13C12-1,2,3,7,8-PeCDF	2	1.86	92.8	32:01	1.54	
13C12-1,2,3,6,7,8-HxCDF	2	1.71	85.7	34:30	0.53	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.84	92.0	36:54	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.397	99.3	28:22	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.409	102	32:34	1.54	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.350	87.4	35:01	1.26	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.343	85.8	34:25	0.47	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.417	104	38:30	0.45	
Injection Standards						
13C12-1,2,3,4-TCDD	2.0	-	-	27:34	0.79	
13C12-1,2,3,7,8,9-HxCDD	2.0	-	-	35:19	1.24	

Client Information			**Sample Information**		
Project Name:			Report Basis:	Wet	
			Matrix:	Soil	
Sample ID:	Lab Method Blank		Weight / Volume:	10.00	g
			Solids / Lipids:	NA	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:			Instrument:	HRMS1	
Sample ID:			Filename:	a31aug09a-4	
Collection Date/Time:			Retchk:	a31aug09a-1	
Receipt Date/Time:			Begin ConCal:	a31aug09a-1	
Extraction Date:	08/30/09		End ConCal:	a31aug09a-15	
Analysis Date/Time:	08/31/09	22:30	Initial Cal:	m8290-100708a	

Form Version:[8290]Report

Analyzed by: DS
Date: 9-2-09

Reviewed by:
Date: 9.2.09

Filename ; a31aug09a ;*8290*
Sample ; 4 ;INST: HRMS2
Acquired ; 31-AUG-09 22:30:50
Processed ; 1-SEP-09 06:47:47
Sample ID ; LMB17269
Cal Table ; m8290-100708a
Results Table ; m8290-083109a
Comments ;

Ent	Name	Resp	Ion 1	Ion 2	RA;?	RT	Conc	EDL	S/N1;?	S/N2;?;M	Signal1	Noise 1	Signal2	Noise 2
1	2,3,7,8-TCDD	2.42e+05	9.69e+04	1.45e+05	0.67;y	28:22	0.241	0.1914	3;y	4;y;y	1.63e+04	5.27e+03	2.41e+04	5.54e+03
2	1,2,3,7,8-PeCDD	*	*	*	*;n	NotFnd	*	0.0799	*;n	*;n;n	*	4.43e+03	*	4.66e+03
3	1,2,3,4,7,8-HxCDD	*	*	*	*;n	NotFnd	*	0.1248	*;n	*;n;n	*	5.95e+03	*	5.66e+03
4	1,2,3,6,7,8-HxCDD	*	*	*	*;n	NotFnd	*	0.1194	*;n	*;n;n	*	5.95e+03	*	5.66e+03
5	1,2,3,7,8,9-HxCDD	*	*	*	*;n	NotFnd	*	0.1227	*;n	*;n;n	*	5.95e+03	*	5.66e+03
6	1,2,3,4,6,7,8-HpCDD	1.26e+05	6.70e+04	5.90e+04	1.14;y	37:57	0.159	0.1843	3;y	3;n;y	1.73e+04	5.10e+03	1.66e+04	6.02e+03
7	OCDD	7.22e+05	3.33e+05	3.89e+05	0.86;y	41:33	1.037	0.1819	26;y	15;y;y	5.74e+04	2.17e+03	6.95e+04	4.62e+03
8	2,3,7,8-TCDF	2.12e+05	9.33e+04	1.19e+05	0.79;y	27:27	0.134	0.1132	4;y	4;y;y	1.91e+04	5.38e+03	2.11e+04	5.26e+03
9	1,2,3,7,8-PeCDF	*	*	*	*;n	NotFnd	*	0.0605	*;n	*;n;n	*	4.20e+03	*	4.83e+03
10	2,3,4,7,8-PeCDF	*	*	*	*;n	NotFnd	*	0.0588	*;n	*;n;n	*	4.20e+03	*	4.83e+03
11	1,2,3,4,7,8-HxCDF	*	*	*	*;n	NotFnd	*	0.0892	*;n	*;n;n	*	6.42e+03	*	5.33e+03
12	1,2,3,6,7,8-HxCDF	*	*	*	*;n	NotFnd	*	0.0826	*;n	*;n;n	*	6.42e+03	*	5.33e+03
13	2,3,4,6,7,8-HxCDF	*	*	*	*;n	NotFnd	*	0.0877	*;n	*;n;n	*	6.42e+03	*	5.33e+03
14	1,2,3,7,8,9-HxCDF	*	*	*	*;n	NotFnd	*	0.1013	*;n	*;n;n	*	6.42e+03	*	5.33e+03
15	1,2,3,4,6,7,8-HpCDF	8.35e+04	4.19e+04	4.16e+04	1.01;y	36:54	0.074	0.1004	2;n	3;n;y	1.18e+04	5.27e+03	1.24e+04	4.91e+03
16	1,2,3,4,7,8,9-HpCDF	*	*	*	*;n	NotFnd	*	0.1287	*;n	*;n;n	*	5.27e+03	*	4.91e+03
17	OCDF	1.84e+05	7.67e+04	1.07e+05	0.71;n	41:46	0.222	0.2152	3;y	4;y;y	1.54e+04	4.44e+03	2.20e+04	5.11e+03
	Extraction Standards													
18	13C-2,3,7,8-TCDD	9.93e+07	4.38e+07	5.55e+07	0.79;y	28:20	87.792	0.1746	1177;y	1571;y;n	7.45e+06	6.33e+03	9.35e+06	5.95e+03
19	13C-1,2,3,7,8-PeCDD	8.43e+07	5.15e+07	3.28e+07	1.57;y	32:45	101.881	0.1878	3968;y	2712;y;n	1.99e+07	5.02e+03	1.26e+07	4.64e+03
20	13C-1,2,3,6,7,8-HxCDD	9.17e+07	5.08e+07	4.09e+07	1.24;y	35:07	96.369	0.1180	2892;y	2499;y;n	1.63e+07	5.64e+03	1.31e+07	5.25e+03
21	13C-1,2,3,4,6,7,8-HpCDD	7.49e+07	3.84e+07	3.65e+07	1.05;y	37:57	104.291	0.1603	1508;y	1551;y;n	8.76e+06	5.81e+03	8.30e+06	5.35e+03
22	13C-OCDD	1.31e+08	6.18e+07	6.91e+07	0.90;y	41:33	229.169	0.1831	2064;y	2086;y;n	9.87e+06	4.78e+03	1.12e+07	5.36e+03
23	13C-2,3,7,8-TCDF	1.52e+08	6.71e+07	8.50e+07	0.79;y	27:26	90.762	0.0901	2507;y	3294;y;n	1.19e+07	4.76e+03	1.53e+07	4.63e+03
24	13C-1,2,3,7,8-PeCDF	1.26e+08	7.63e+07	4.94e+07	1.54;y	32:01	92.774	0.1306	5111;y	3176;y;n	2.77e+07	5.43e+03	1.77e+07	5.58e+03
25	13C-1,2,3,6,7,8-HxCDF	1.07e+08	3.70e+07	6.99e+07	0.53;y	34:30	85.701	0.0890	2264;y	4934;y;n	1.30e+07	5.73e+03	2.49e+07	5.04e+03
26	13C-1,2,3,4,6,7,8-HpCDF	8.24e+07	2.55e+07	5.69e+07	0.45;y	36:54	91.964	0.2606	913;y	1009;y;n	6.84e+06	7.49e+03	1.53e+07	1.52e+04
	Injection Standards													
27	13C-1,2,3,4-TCDD	1.01e+08	4.49e+07	5.66e+07	0.79;y	27:34	74.642	-;	1317;y	1780;y;n	8.34e+06	6.33e+03	1.06e+07	5.95e+03
28	13C-1,2,3,7,8,9-HxCDD	9.11e+07	5.05e+07	4.06e+07	1.24;y	35:20	84.400	-;	2625;y	2237;y;n	1.48e+07	5.64e+03	1.17e+07	5.25e+03
	Cleanup Standards													
29	37Cl-2,3,7,8-TCDD	2.39e+07	2.39e+07	-;	-;-	28:22	19.858	0.0738	724;y	-;-;n	4.01e+06	5.54e+03	-;	-
30	13C-2,3,4,7,8-PeCDF	2.71e+07	1.64e+07	1.07e+07	1.54;y	32:35	20.433	0.1334	1245;y	776;y;n	6.76e+06	5.43e+03	4.33e+06	5.58e+03
31	13C-1,2,3,4,7,8-HxCDD	1.53e+07	8.53e+06	6.78e+06	1.26;y	35:02	17.482	0.1282	588;y	503;y;n	3.32e+06	5.64e+03	2.64e+06	5.25e+03
32	13C-1,2,3,4,7,8-HxCDF	1.94e+07	6.23e+06	1.32e+07	0.47;y	34:25	17.152	0.0982	461;y	1018;y;n	2.64e+06	5.73e+03	5.13e+06	5.04e+03
33	13C-1,2,3,4,7,8,9-HpCDF	1.47e+07	4.55e+06	1.02e+07	0.45;y	38:30	20.854	0.3308	133;y	146;y;n	9.98e+05	7.49e+03	2.21e+06	1.52e+04
	Sampling Standards													
34	37Cl-2,3,7,8-TCDD	2.39e+07	2.39e+07	;	; ;	28:22	22.619	0.0927	724;y	-;-;n	4.01e+06	5.54e+03	-;	-
35	13C-2,3,4,7,8-PeCDF	2.71e+07	1.64e+07	1.07e+07	1.54;y	32:35	22.031	0.0743	1245;y	776;y;n	6.76e+06	5.43e+03	4.33e+06	5.58e+03
36	13C-1,2,3,4,7,8-HxCDD	1.53e+07	8.53e+06	6.78e+06	1.26;y	35:02	18.106	0.1204	588;y	503;y;n	3.32e+06	5.64e+03	2.64e+06	5.25e+03
37	13C-1,2,3,4,7,8-HxCDF	1.94e+07	6.23e+06	1.32e+07	0.47;y	34:25	20.013	0.0945	461;y	1018;y;n	2.64e+06	5.73e+03	5.13e+06	5.04e+03
38	13C-1,2,3,4,7,8,9-HpCDF	1.47e+07	4.55e+06	1.02e+07	0.45;y	38:30	22.677	0.3898	133;y	146;y;n	9.98e+05	7.49e+03	2.21e+06	1.52e+04

Totals Report

SGS North America, Inc. | Tue Sep 1 13:34:11 EDT 2009

Filename: a31aug09a-4 | Acquired: 2009-08-31 22:30:50 | Processed: 2009-09-01 06:47:47

Results: | Cal: m8290-100708a

Sample Text: LMB17269

Total Tetra-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		2378-TCDD	2.42E+05	9.69E+04	1.45E+05	0.67	Y	28:22	0.241	0.1914	OK	1.63E+04	5270	3	2.41E+04	5540	4	y
									EDL	0.1914								
									Total Tetra-Dioxins	0.241	Peaks	1						
									Total EMPC Tetra-Dioxins	0.241	Peaks	1						

Total Tetra-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		2378-TCDF	2.12E+05	9.33E+04	1.19E+05	0.79	Y	27:27	0.134	0.1132	OK	1.91E+04	5380	4	2.11E+04	5260	4	y
									EDL	0.1132								
									Total Tetra-Furans	0.134	Peaks	1						
									Total EMPC Tetra-Furans	0.134	Peaks	1						

Total Penta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		12378-PeCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.0799	S2N	0.00E+00	4430	0	0.00E+00	4660	0	n
									EDL	0.0799								
									Total EMPC Penta-Dioxins	0	Peaks	0						
									Total Penta-Dioxins	0	Peaks	0						

Total Penta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		12378-PeCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.0605	S2N	0.00E+00	4200	0	0.00E+00	4830	0	n
		23478-PeCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.0588	S2N	0.00E+00	4200	0	0.00E+00	4830	0	n
									EDL	0.0605								
									Total EMPC Penta-Furans	0	Peaks	0						
									Total Penta-Furans	0	Peaks	0						

Total Hexa-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		123478-HxCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1248	S2N	0.00E+00	5950	0	0.00E+00	5660	0	n
		123678-HxCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1194	S2N	0.00E+00	5950	0	0.00E+00	5660	0	n
		123789-HxCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1227	S2N	0.00E+00	5950	0	0.00E+00	5660	0	n
									EDL	0.1248								
									Total EMPC Hexa-Dioxins	0	Peaks	0						
									Total Hexa-Dioxins	0	Peaks	0						

Totals Report

Total Hexa-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		123478-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.0892	S2N	0.00E+00	6420	0	0.00E+00	5330	0	n
		234678-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.0877	S2N	0.00E+00	6420	0	0.00E+00	5330	0	n
		123789-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1013	S2N	0.00E+00	6420	0	0.00E+00	5330	0	n
		123678-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.0826	S2N	0.00E+00	6420	0	0.00E+00	5330	0	n
		Hexafurans	5.69E+04	3.33E+04	2.37E+04	1.41	Y	34:06	0.051	0.0897	S2N	1.23E+04	6424	1.9	9.59E+03	5328	1.8	y
									EDL	0.1013								
									Total EMPC Hexa-Furans	0	Peaks	0						
									Total Hexa-Furans	0	Peaks	0						

Total Hepta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		Heptadioxins	1.35E+05	7.08E+04	6.46E+04	1.1	Y	37:10	0.17	0.1843	OK	2.12E+04	5104	4.2	2.11E+04	6016	3.5	y
		1234678-HpCDD	1.26E+05	6.70E+04	5.90E+04	1.14	Y	37:57	0.159	0.1843	OK	1.73E+04	5100	3	1.66E+04	6020	3	y
									EDL	0.1843								
									Total Hepta-Dioxins	0.329	Peaks	2						
									Total EMPC Hepta-Dioxins	0.329	Peaks	2						

Total Hepta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		1234789-HpCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1287	S2N	0.00E+00	5270	0	0.00E+00	4910	0	n
		1234678-HpCDF	8.35E+04	4.19E+04	4.16E+04	1.01	Y	36:54	0.074	0.1004	S2N	1.18E+04	5270	2	1.24E+04	4910	3	y
		Heptafurans	1.16E+05	5.31E+04	6.26E+04	0.85	N	37:19	0.115	0.1128	EMPC	1.41E+04	5272	2.7	1.85E+04	4912	3.8	y
									EDL	0.1287								
									Total EMPC Hepta-Furans	0.115	Peaks	1						
									Total Hepta-Furans	0	Peaks	0						

Analytical Results
for
Ongoing Precision Result (OPR)

Analyte	Spiked (pg/µL)	AMT (pg/µL)	REC %	Range % Lower	Range % Upper	Qualifier
2,3,7,8-TCDD	10	9.70	97.0	70.0	130	
1,2,3,7,8-PeCDD	50	45.2	90.4	70.0	130	
1,2,3,4,7,8-HxCDD	50	44.8	89.6	70.0	130	
1,2,3,6,7,8-HxCDD	50	46.7	93.4	70.0	130	
1,2,3,7,8,9-HxCDD	50	46.5	92.9	70.0	130	
1,2,3,4,6,7,8-HpCDD	50	45.2	90.4	70.0	130	
OCDD	100	90.2	90.2	70.0	130	
2,3,7,8-TCDF	10	8.65	86.5	70.0	130	
1,2,3,7,8-PeCDF	50	45.1	90.2	70.0	130	
2,3,4,7,8-PeCDF	50	44.4	88.8	70.0	130	
1,2,3,4,7,8-HxCDF	50	43.2	86.3	70.0	130	
1,2,3,6,7,8-HxCDF	50	47.8	95.7	70.0	130	
2,3,4,6,7,8-HxCDF	50	46.2	92.3	70.0	130	
1,2,3,7,8,9-HxCDF	50	46.7	93.5	70.0	130	
1,2,3,4,6,7,8-HpCDF	50	44.5	89.0	70.0	130	
1,2,3,4,7,8,9-HpCDF	50	44.4	88.8	70.0	130	
OCDF	100	84.5	84.5	70.0	130	

= Outside range limits
* = Ion Ratio Out

QC Information

OPR Project No:	OPR17269
Extraction Date:	30-Aug-09
Analysis Date:	31-Aug-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPR Filename:	a31aug09a-2
Retchk:	a31aug09a-1
Begin ConCal:	a31aug09a-1
End ConCal:	a31aug09a-15
Initial Cal:	m8290-100708a

Analytical Results
for
Ongoing Precision Result (OPR)

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.66	83.0	28:19	0.78	
13C12-1,2,3,7,8-PeCDD	2	1.98	99.0	32:45	1.59	
13C12-1,2,3,6,7,8-HxCDD	2	1.88	94.0	35:07	1.24	
13C12-1,2,3,4,6,7,8-HpCDD	2	2.08	104	37:57	1.05	
13C12-OCDD	4	4.69	117	41:31	0.90	
13C12-2,3,7,8-TCDF	2	1.71	85.5	27:25	0.79	
13C12-1,2,3,7,8-PeCDF	2	1.80	90.0	32:01	1.56	
13C12-1,2,3,6,7,8-HxCDF	2	1.68	84.0	34:30	0.52	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.82	91.0	36:54	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.359	89.8	28:22	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.387	96.8	32:34	1.53	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.362	90.5	35:01	1.26	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.327	81.8	34:25	0.51	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.406	102	38:28	0.45	
Injection Standards						
13C12-1,2,3,4-TCDD	2	-	-	27:34	0.80	
13C12-1,2,3,7,8,9-HxCDD	2	-	-	35:19	1.24	

QC Information

OPR Project No:	OPR17269
Extraction Date:	30-Aug-09
Analysis Date:	31-Aug-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPR Filename :	a31aug09a-2
Retchk:	a31aug09a-1
Begin ConCal:	a31aug09a-1
End ConCal:	a31aug09a-15
Initial Cal:	m8290-100708a

Form Version:[8290]OPR

Reviewed By: YM

Date Reviewed: 9-2-09

;*8290*

Filename ; a31aug09a
Sample ; 2
Acquired ; 31-AUG-09 20:54:17
Processed ; 1-SEP-09 06:46:45
Sample ID ; OPR17269
Cal Table ; m8290-100708a
Results Table ; M8290-083109A
Comments ;

Ent;	Name;	Resp;	Ion 1;	Ion 2;	RA;?;	RT;	Conc;	EDL;	S/N1;?;	S/N2;?;M; Signal1; Noise 1; Signal2; Noise 2
1 ;	2,3,7,8-TCDD;	8.97e+06;	3.88e+06;	5.10e+06;	0.76;y;	28:22;	9.696;	0.1901;	132;y;	168;y;n;6.78e+05;5.13e+03;9.17e+05;5.44e+03
2 ;	1,2,3,7,8-PeCDD;	3.82e+07;	2.33e+07;	1.49e+07;	1.56;y;	32:46;	45.180;	0.0928;	1463;y;	1281;y;n;9.19e+06;6.28e+03;5.81e+06;4.54e+03
3 ;	1,2,3,4,7,8-HxCDD;	3.75e+07;	2.09e+07;	1.66e+07;	1.26;y;	35:02;	44.806;	0.1306;	1263;y;	941;y;n;7.60e+06;6.02e+03;6.20e+06;6.59e+03
4 ;	1,2,3,6,7,8-HxCDD;	4.08e+07;	2.28e+07;	1.81e+07;	1.26;y;	35:07;	46.710;	0.1250;	1299;y;	971;y;n;7.82e+06;6.02e+03;6.40e+06;6.59e+03
5 ;	1,2,3,7,8,9-HxCDD;	3.95e+07;	2.20e+07;	1.75e+07;	1.26;y;	35:20;	46.470;	0.1285;	1159;y;	860;y;n;6.98e+06;6.02e+03;5.66e+06;6.59e+03
6 ;	1,2,3,4,6,7,8-HpCDD;	3.53e+07;	1.80e+07;	1.73e+07;	1.04;y;	37:57;	45.210;	0.1780;	751;y;	748;y;n;4.49e+06;5.98e+03;4.27e+06;5.72e+03
7 ;	OCDD;	6.33e+07;	2.98e+07;	3.36e+07;	0.89;y;	41:33;	90.177;	0.2753;	850;y;	1169;y;n;5.19e+06;6.10e+03;5.90e+06;5.05e+03
8 ;	2,3,7,8-TCDF;	1.26e+07;	5.42e+06;	7.18e+06;	0.75;y;	27:27;	8.652;	0.1113;	201;y;	238;y;n;9.59e+05;4.78e+03;1.23e+06;5.20e+03
9 ;	1,2,3,7,8-PeCDF;	5.31e+07;	3.23e+07;	2.09e+07;	1.55;y;	32:01;	45.118;	0.0704;	2530;y;	1401;y;n;1.19e+07;4.71e+03;7.80e+06;5.57e+03
10 ;	2,3,4,7,8-PeCDF;	5.38e+07;	3.26e+07;	2.12e+07;	1.54;y;	32:36;	44.382;	0.0685;	2869;y;	1552;y;n;1.35e+07;4.71e+03;8.64e+06;5.57e+03
11 ;	1,2,3,4,7,8-HxCDF;	4.66e+07;	2.58e+07;	2.09e+07;	1.23;y;	34:26;	43.165;	0.0896;	1846;y;	1462;y;n;1.05e+07;5.67e+03;8.66e+06;5.92e+03
12 ;	1,2,3,6,7,8-HxCDF;	5.58e+07;	3.09e+07;	2.49e+07;	1.24;y;	34:31;	47.843;	0.0829;	1928;y;	1479;y;n;1.09e+07;5.67e+03;8.76e+06;5.92e+03
13 ;	2,3,4,6,7,8-HxCDF;	5.07e+07;	2.81e+07;	2.26e+07;	1.24;y;	34:57;	46.160;	0.0881;	1802;y;	1387;y;n;1.02e+07;5.67e+03;8.21e+06;5.92e+03
14 ;	1,2,3,7,8,9-HxCDF;	4.45e+07;	2.47e+07;	1.98e+07;	1.25;y;	35:36;	46.744;	0.1017;	1244;y;	944;y;n;7.06e+06;5.67e+03;5.59e+06;5.92e+03
15 ;	1,2,3,4,6,7,8-HpCDF;	4.93e+07;	2.50e+07;	2.43e+07;	1.03;y;	36:54;	44.500;	0.1306;	1100;y;	947;y;n;7.11e+06;6.47e+03;7.08e+06;7.47e+03
16 ;	1,2,3,4,7,8,9-HpCDF;	3.84e+07;	1.94e+07;	1.90e+07;	1.02;y;	38:30;	44.425;	0.1674;	696;y;	595;y;n;4.50e+06;6.47e+03;4.44e+06;7.47e+03
17 ;	OCDF;	7.06e+07;	3.34e+07;	3.71e+07;	0.90;y;	41:45;	84.499;	0.2039;	1171;y;	1342;y;n;5.84e+06;4.99e+03;6.48e+06;4.83e+03
Extraction Standards										
18 ;	13C-2,3,7,8-TCDD;	9.17e+07;	4.02e+07;	5.15e+07;	0.78;y;	28:20;	82.902;	0.1924;	936;y;	1734;y;n;7.26e+06;7.75e+03;9.28e+06;5.35e+03
19 ;	13C-1,2,3,7,8-PeCDD;	8.03e+07;	4.93e+07;	3.10e+07;	1.59;y;	32:45;	99.230;	0.1885;	4243;y;	2807;y;n;2.03e+07;4.79e+03;1.29e+07;4.59e+03
20 ;	13C-1,2,3,6,7,8-HxCDD;	8.82e+07;	4.89e+07;	3.93e+07;	1.24;y;	35:07;	94.053;	0.1072;	3597;y;	2316;y;n;1.67e+07;4.66e+03;1.37e+07;5.93e+03
21 ;	13C-1,2,3,4,6,7,8-HpCDD;	7.36e+07;	3.77e+07;	3.59e+07;	1.05;y;	37:57;	104.007;	0.1484;	1645;y;	1720;y;n;9.48e+06;5.76e+03;9.10e+06;5.29e+03
22 ;	13C-OCDD;	1.32e+08;	6.24e+07;	6.96e+07;	0.90;y;	41:32;	234.493;	0.1599;	2311;y;	2503;y;n;1.08e+07;4.67e+03;1.20e+07;4.81e+03
23 ;	13C-2,3,7,8-TCDF;	1.41e+08;	6.19e+07;	7.86e+07;	0.79;y;	27:26;	85.705;	0.1045;	2149;y;	2777;y;n;1.14e+07;5.30e+03;1.46e+07;5.24e+03
24 ;	13C-1,2,3,7,8-PeCDF;	1.19e+08;	7.26e+07;	4.67e+07;	1.56;y;	32:01;	90.012;	0.1282;	4810;y;	3574;y;n;2.67e+07;5.56e+03;1.75e+07;4.90e+03
25 ;	13C-1,2,3,6,7,8-HxCDF;	1.03e+08;	3.54e+07;	6.79e+07;	0.52;y;	34:30;	83.919;	0.0898;	2580;y;	3639;y;n;1.27e+07;4.91e+03;2.44e+07;6.72e+03
26 ;	13C-1,2,3,4,6,7,8-HpCDF;	8.05e+07;	2.52e+07;	5.53e+07;	0.45;y;	36:54;	91.209;	0.1659;	1031;y;	1914;y;n;7.28e+06;7.06e+03;1.60e+07;8.36e+03
Injection Standards										
27 ;	13C-1,2,3,4-TCDD;	9.92e+07;	4.41e+07;	5.51e+07;	0.80;y;	27:34;	73.022;	-;	1058;y;	1888;y;n;8.20e+06;7.75e+03;1.01e+07;5.35e+03
28 ;	13C-1,2,3,7,8,9-HxCDD;	8.98e+07;	4.98e+07;	4.00e+07;	1.24;y;	35:20;	83.178;	-;	3403;y;	2117;y;n;1.58e+07;4.66e+03;1.25e+07;5.93e+03
Cleanup Standards										
29 ;	37Cl-2,3,7,8-TCDD;	2.12e+07;	2.12e+07;	-;	-;-;	28:22;	17.954;	0.0758;	662;y;	-;-;n;3.64e+06;5.50e+03; -; -
30 ;	13C-2,3,4,7,8-PeCDF;	2.51e+07;	1.52e+07;	9.94e+06;	1.53;y;	32:35;	19.365;	0.1310;	1172;y;	863;y;n;6.51e+06;5.56e+03;4.23e+06;4.90e+03
31 ;	13C-1,2,3,4,7,8-HxCDD;	1.56e+07;	8.68e+06;	6.91e+06;	1.26;y;	35:02;	18.078;	0.1165;	728;y;	452;y;n;3.39e+06;4.66e+03;2.68e+06;5.93e+03
32 ;	13C-1,2,3,4,7,8-HxCDF;	1.82e+07;	6.16e+06;	1.21e+07;	0.51;y;	34:25;	16.360;	0.0991;	533;y;	757;y;n;2.62e+06;4.91e+03;5.09e+06;6.72e+03
33 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.41e+07;	4.40e+06;	9.70e+06;	0.45;y;	38:29;	20.281;	0.2106;	146;y;	268;y;n;1.03e+06;7.06e+03;2.24e+06;8.36e+03
Sampling Standards										
34 ;	37Cl-2,3,7,8-TCDD;	2.12e+07;	2.12e+07;	-;	-;-;	28:22;	21.657;	0.0936;	662;y;	-;-;n;3.64e+06;5.50e+03; -; -
35 ;	13C-2,3,4,7,8-PeCDF;	2.51e+07;	1.52e+07;	9.94e+06;	1.53;y;	32:35;	21.519;	0.0723;	1172;y;	863;y;n;6.51e+06;5.56e+03;4.23e+06;4.90e+03
36 ;	13C-1,2,3,4,7,8-HxCDD;	1.56e+07;	8.68e+06;	6.91e+06;	1.26;y;	35:02;	19.184;	0.1129;	728;y;	452;y;n;3.39e+06;4.66e+03;2.68e+06;5.93e+03
37 ;	13C-1,2,3,4,7,8-HxCDF;	1.82e+07;	6.16e+06;	1.21e+07;	0.51;y;	34:25;	19.494;	0.1038;	533;y;	757;y;n;2.62e+06;4.91e+03;5.09e+06;6.72e+03
38 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.41e+07;	4.40e+06;	9.70e+06;	0.45;y;	38:29;	22.237;	0.2522;	146;y;	268;y;n;1.03e+06;7.06e+03;2.24e+06;8.36e+03

Analytical Results
for
Ongoing Precision & Recovery Duplicate Results (OPRD)

Analyte	Spiked (pg/µL)	AMT (pg/µL)	Recovery %	#	Range Lower	Upper	OPR Rec(%)	#	RPD (±20%)	Qualifier
2,3,7,8-TCDD	10.0	9.56	95.6		70.0	130	97.0		1.50	
1,2,3,7,8-PeCDD	50.0	44.6	89.1		70.0	130	90.4		1.43	
1,2,3,4,7,8-HxCDD	50.0	44.2	88.5		70.0	130	89.6		1.27	
1,2,3,6,7,8-HxCDD	50.0	45.5	91.1		70.0	130	93.4		2.58	
1,2,3,7,8,9-HxCDD	50.0	45.2	90.3		70.0	130	92.9		2.83	
1,2,3,4,6,7,8-HpCDD	50.0	43.9	87.8		70.0	130	90.4		2.98	
OCDD	100	88.0	88.0		70.0	130	90.2		2.51	
2,3,7,8-TCDF	10.0	8.50	85.0		70.0	130	86.5		1.75	
1,2,3,7,8-PeCDF	50.0	44.0	87.9		70.0	130	90.2		2.58	
2,3,4,7,8-PeCDF	50.0	44.4	88.9		70.0	130	88.8		0.0788	
1,2,3,4,7,8-HxCDF	50.0	43.0	86.0		70.0	130	86.3		0.375	
1,2,3,6,7,8-HxCDF	50.0	46.7	93.4		70.0	130	95.7		2.43	
2,3,4,6,7,8-HxCDF	50.0	45.8	91.6		70.0	130	92.3		0.725	
1,2,3,7,8,9-HxCDF	50.0	45.8	91.6		70.0	130	93.5		2.04	
1,2,3,4,6,7,8-HpCDF	50.0	41.7	83.5		70.0	130	89.0		6.64	
1,2,3,4,7,8,9-HpCDF	50.0	43.3	86.6		70.0	130	88.8		2.52	
OCDF	100	83.7	83.7		70.0	130	84.5		0.908	

= Outside range limits
* = Ion Ratio Out

QC Information

OPR Project No:	OPRD17269
Extraction Date:	30-Aug-09
Analysis Date:	31-Aug-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPRD Filename :	a31aug09a-3
Retchk:	a31aug09a-1
Begin ConCal:	a31aug09a-1
End ConCal:	a31aug09a-15
Initial Cal:	m8290-100708a

Analytical Results
for
Ongoing Precision & Recovery Duplicate Results (OPRD)

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards			(40-135%)			
13C12-2,3,7,8-TCDD	2	1.63	81.6	28:19	0.78	
13C12-1,2,3,7,8-PeCDD	2	1.92	96.0	32:45	1.58	
13C12-1,2,3,6,7,8-HxCDD	2	1.80	90.0	35:06	1.25	
13C12-1,2,3,4,6,7,8-HpCDD	2	1.96	97.8	37:57	1.05	
13C12-OCDD	4	4.37	109	41:31	0.90	
13C12-2,3,7,8-TCDF	2	1.71	85.3	27:25	0.79	
13C12-1,2,3,7,8-PeCDF	2	1.76	87.8	32:01	1.56	
13C12-1,2,3,6,7,8-HxCDF	2	1.62	80.9	34:30	0.52	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.72	86.1	36:54	0.45	
Cleanup Standards			(70-130%)			
37Cl4-2,3,7,8-TCDD	0.4	0.352	88.1	28:22	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.377	94.3	32:34	1.57	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.349	87.3	35:01	1.26	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.312	77.9	34:25	0.52	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.371	92.8	38:28	0.44	
Injection Standards						
13C12-1,2,3,4-TCDD	2	-	-	27:34	0.79	
13C12-1,2,3,7,8,9-HxCDD	2	-	-	35:19	1.24	

QC Information

OPR Project No:	OPRD17269
Extraction Date:	30-Aug-09
Analysis Date:	31-Aug-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPRD Filename :	a31aug09a-3
Retchk:	a31aug09a-1
Begin ConCal:	a31aug09a-1
End ConCal:	a31aug09a-15
Initial Cal:	m8290-100708a

Form Version:[8290]OPRD

Reviewed By: _____ Date Reviewed: 9-2-09

Filename ; a31aug09a ;*8290*
Sample ; 3
Acquired ; 31-AUG-09 21:42:34
Processed ; 1-SEP-09 06:47:15
Sample ID ; OPRD17269
Cal Table ; m8290-100708a
Results Table ; M8290-083109A
Comments ;

Ent	Name	Resp	Ion 1	Ion 2	RA;?;	RT	Conc	EDL	S/N1;?;	S/N2;?;M; Signal1; Noise 1; Signal2; Noise 2
1	2,3,7,8-TCDD	9.08e+06	3.93e+06	5.16e+06	0.76;y;	28:22	9.557	0.1839	141;y;	167;y;n;6.85e+05;4.84e+03;9.23e+05;5.52e+03
2	1,2,3,7,8-PeCDD	3.79e+07	2.32e+07	1.47e+07	1.57;y;	32:46	44.561	0.0885	1871;y;	1139;y;n;9.68e+06;5.18e+03;6.13e+06;5.39e+03
3	1,2,3,4,7,8-HxCDD	3.67e+07	2.03e+07	1.64e+07	1.24;y;	35:02	44.240	0.1004	1260;y;	1443;y;n;7.40e+06;5.87e+03;5.92e+06;4.10e+03
4	1,2,3,6,7,8-HxCDD	3.95e+07	2.18e+07	1.77e+07	1.24;y;	35:07	45.525	0.0961	1310;y;	1487;y;n;7.69e+06;5.87e+03;6.10e+06;4.10e+03
5	1,2,3,7,8,9-HxCDD	3.81e+07	2.11e+07	1.70e+07	1.24;y;	35:20	45.173	0.0988	1138;y;	1312;y;n;6.68e+06;5.87e+03;5.38e+06;4.10e+03
6	1,2,3,4,6,7,8-HpCDD	3.34e+07	1.70e+07	1.64e+07	1.04;y;	37:57	43.890	0.1487	843;y;	943;y;n;4.47e+06;5.30e+03;4.19e+06;4.44e+03
7	OCDD	5.97e+07	2.81e+07	3.16e+07	0.89;y;	41:33	87.993	0.2562	976;y;	1111;y;n;4.78e+06;4.89e+03;5.51e+06;4.96e+03
8	2,3,7,8-TCDF	1.29e+07	5.70e+06	7.16e+06	0.80;y;	27:27	8.501	0.1122	249;y;	201;y;n;1.05e+06;4.21e+03;1.25e+06;6.22e+03
9	1,2,3,7,8-PeCDF	5.27e+07	3.20e+07	2.07e+07	1.55;y;	32:01	43.966	0.0717	2220;y;	1581;y;n;1.24e+07;5.58e+03;8.07e+06;5.10e+03
10	2,3,4,7,8-PeCDF	5.47e+07	3.34e+07	2.14e+07	1.56;y;	32:36	44.435	0.0697	2518;y;	1741;y;n;1.41e+07;5.58e+03;8.89e+06;5.10e+03
11	1,2,3,4,7,8-HxCDF	4.64e+07	2.57e+07	2.07e+07	1.24;y;	34:26	42.989	0.0826	1902;y;	1505;y;n;1.02e+07;5.34e+03;8.22e+06;5.46e+03
12	1,2,3,6,7,8-HxCDF	5.45e+07	3.01e+07	2.43e+07	1.24;y;	34:31	46.717	0.0764	2034;y;	1625;y;n;1.09e+07;5.34e+03;8.87e+06;5.46e+03
13	2,3,4,6,7,8-HxCDF	5.03e+07	2.77e+07	2.26e+07	1.23;y;	34:57	45.818	0.0812	1798;y;	1414;y;n;9.59e+06;5.34e+03;7.72e+06;5.46e+03
14	1,2,3,7,8,9-HxCDF	4.36e+07	2.43e+07	1.93e+07	1.26;y;	35:36	45.814	0.0938	1359;y;	1090;y;n;7.25e+06;5.34e+03;5.95e+06;5.46e+03
15	1,2,3,4,6,7,8-HpCDF	4.52e+07	2.29e+07	2.23e+07	1.03;y;	36:54	41.729	0.1192	856;y;	1392;y;n;6.93e+06;8.10e+03;6.75e+06;4.85e+03
16	1,2,3,4,7,8,9-HpCDF	3.66e+07	1.86e+07	1.80e+07	1.03;y;	38:30	43.308	0.1528	556;y;	904;y;n;4.51e+06;8.10e+03;4.38e+06;4.85e+03
17	OCDF	6.75e+07	3.20e+07	3.55e+07	0.90;y;	41:45	83.740	0.2254	1017;y;	1395;y;n;5.80e+06;5.71e+03;6.42e+06;4.60e+03
	Extraction Standards									
18	13C-2,3,7,8-TCDD	9.42e+07	4.14e+07	5.28e+07	0.78;y;	28:20	81.646	0.1555	1081;y;	2219;y;n;7.37e+06;6.82e+03;9.38e+06;4.23e+03
19	13C-1,2,3,7,8-PeCDD	8.10e+07	4.96e+07	3.13e+07	1.58;y;	32:45	95.964	0.1673	4752;y;	3063;y;n;2.10e+07;4.42e+03;1.31e+07;4.27e+03
20	13C-1,2,3,6,7,8-HxCDD	8.75e+07	4.86e+07	3.89e+07	1.25;y;	35:06	90.011	0.0993	3477;y;	2753;y;n;1.74e+07;5.01e+03;1.40e+07;5.08e+03
21	13C-1,2,3,4,6,7,8-HpCDD	7.17e+07	3.67e+07	3.50e+07	1.05;y;	37:57	97.804	0.1402	1686;y;	1766;y;n;9.51e+06;5.64e+03;9.02e+06;5.11e+03
22	13C-OCDD	1.27e+08	6.04e+07	6.71e+07	0.90;y;	41:32	218.566	0.1603	1949;y;	2534;y;n;1.03e+07;5.27e+03;1.14e+07;4.50e+03
23	13C-2,3,7,8-TCDF	1.46e+08	6.42e+07	8.17e+07	0.79;y;	27:26	85.324	0.0952	2637;y;	2718;y;n;1.19e+07;4.51e+03;1.50e+07;5.51e+03
24	13C-1,2,3,7,8-PeCDF	1.21e+08	7.39e+07	4.74e+07	1.56;y;	32:01	87.781	0.1163	5456;y;	3659;y;n;2.79e+07;5.11e+03;1.75e+07;4.78e+03
25	13C-1,2,3,6,7,8-HxCDF	1.03e+08	3.53e+07	6.78e+07	0.52;y;	34:30	80.891	0.0698	2713;y;	5380;y;n;1.27e+07;4.70e+03;2.48e+07;4.61e+03
26	13C-1,2,3,4,6,7,8-HpCDF	7.87e+07	2.46e+07	5.41e+07	0.45;y;	36:54	86.058	0.2243	997;y;	1164;y;n;7.38e+06;7.40e+03;1.64e+07;1.41e+04
	Injection Standards									
27	13C-1,2,3,4-TCDD	1.03e+08	4.57e+07	5.77e+07	0.79;y;	27:34	76.143	-;	1242;y;	2515;y;n;8.47e+06;6.82e+03;1.06e+07;4.23e+03
28	13C-1,2,3,7,8,9-HxCDD	9.30e+07	5.15e+07	4.16e+07	1.24;y;	35:20	86.197	-;	3212;y;	2579;y;n;1.61e+07;5.01e+03;1.31e+07;5.08e+03
	Cleanup Standards									
29	37Cl-2,3,7,8-TCDD	2.17e+07	2.17e+07	-;	-;-;	28:22	17.610	0.0791	633;y;	-;-;n;3.79e+06;5.99e+03; -; -
30	13C-2,3,4,7,8-PeCDF	2.55e+07	1.56e+07	9.92e+06	1.57;y;	32:35	18.868	0.1188	1332;y;	885;y;n;6.81e+06;5.11e+03;4.23e+06;4.78e+03
31	13C-1,2,3,4,7,8-HxCDD	1.56e+07	8.71e+06	6.91e+06	1.26;y;	35:02	17.463	0.1078	686;y;	535;y;n;3.44e+06;5.01e+03;2.72e+06;5.08e+03
32	13C-1,2,3,4,7,8-HxCDF	1.80e+07	6.12e+06	1.19e+07	0.52;y;	34:25	15.577	0.0771	550;y;	1067;y;n;2.58e+06;4.70e+03;4.92e+06;4.61e+03
33	13C-1,2,3,4,7,8,9-HpCDF	1.34e+07	4.08e+06	9.29e+06	0.44;y;	38:29	18.562	0.2848	140;y;	159;y;n;1.03e+06;7.40e+03;2.24e+06;1.41e+04
	Sampling Standards									
34	37Cl-2,3,7,8-TCDD	2.17e+07	2.17e+07	-;	-;-;	28:22	21.570	0.1006	633;y;	-;-;n;3.79e+06;5.99e+03; -; -
35	13C-2,3,4,7,8-PeCDF	2.55e+07	1.56e+07	9.92e+06	1.57;y;	32:35	21.500	0.0670	1332;y;	885;y;n;6.81e+06;5.11e+03;4.23e+06;4.78e+03
36	13C-1,2,3,4,7,8-HxCDD	1.56e+07	8.71e+06	6.91e+06	1.26;y;	35:02	19.363	0.1045	686;y;	535;y;n;3.44e+06;5.01e+03;2.72e+06;5.08e+03
37	13C-1,2,3,4,7,8-HxCDF	1.80e+07	6.12e+06	1.19e+07	0.52;y;	34:25	19.255	0.0823	550;y;	1067;y;n;2.58e+06;4.70e+03;4.92e+06;4.61e+03
38	13C-1,2,3,4,7,8,9-HpCDF	1.34e+07	4.08e+06	9.29e+06	0.44;y;	38:29	21.569	0.3447	140;y;	159;y;n;1.03e+06;7.40e+03;2.24e+06;1.41e+04

Method 8290

Results for MS/MSD

Analyte	Sample pg/g	Spike pg	MS pg/g	%REC (70-130) #	MSD pg/g	%REC (70-130) #	%RPD (20) #
2,3,7,8-TCDD	5.93	200	25.9	94.7	30.0	104	14.7
1,2,3,7,8-PeCDD	23.3	1000	124	95.5	140	101	12.1
1,2,3,4,7,8-HxCDD	37.0	1000	130	88.2	141	89.8	8.12
1,2,3,6,7,8-HxCDD	86.8	1000	160	69.4 *	193	91.8	18.7
1,2,3,7,8,9-HxCDD	64.3	1000	150	81.3	172	93.0	13.7
1,2,3,4,6,7,8-HpCDD	1450	1000	1330	-114 ☆ *	1510	51.8 ☆ *	12.7
OCDD	12100	2000	12000	-47.4 ☆ *	12500	173 ☆ *	4.08
2,3,7,8-TCDF	33.8	200	40.4	31.3 *	46.4	54.4 *	13.8
1,2,3,7,8-PeCDF	35.2	1000	122	82.3	136	87.1	10.9
2,3,4,7,8-PeCDF	66.6	1000	139	68.7 *	165	85.0	17.1
1,2,3,4,7,8-HxCDF	98.0	1000	170	68.3 *	193	82.1	12.7
1,2,3,6,7,8-HxCDF	85.4	1000	155	66.0 *	180	81.7	14.9
2,3,4,6,7,8-HxCDF	103	1000	166	59.8 *	195	79.5	16.1
1,2,3,7,8,9-HxCDF	29.1	1000	81.6	49.8 *	138	94.1	51.4 *
1,2,3,4,6,7,8-HpCDF	652	1000	592	-56.9 ☆ *	679	23.3 ☆ *	13.7
1,2,3,4,7,8,9-HpCDF	51.7	1000	138	81.9	154	88.4	11.0
OCDF	928	2000	979	24.2 ☆ *	1170	105	17.8

☆ [sample] > 4 x [spike] so no action

Client Information

QC Batch #:

Solids: 84.7 %
Sample amount: 11.17 g
MS amount: 11.2 g
MSD amount: 10.2 g

Laboratory Information

Project ID:	G296-641
Sample ID:	G296-641-3D
MS ID:	G296-641-4D
MSD ID:	G296-641-5D

Reviewed By:

Method 8290
77SB2A MS
URS

Analytical Data Summary Sheet

Analyte	Amount pg/g	EDL pg/g	EMPC pg/g	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	**25.9**			28:22	0.76	
1,2,3,7,8-PeCDD	**124**			32:48	1.59	
1,2,3,4,7,8-HxCDD	**130**			35:12	1.26	
1,2,3,6,7,8-HxCDD	**160**			35:16	1.25	
1,2,3,7,8,9-HxCDD	**150**			35:28	1.27	
1,2,3,4,6,7,8-HpCDD	**1330**			38:07	1.04	
OCDD	**12000**			41:51	0.90	E
2,3,7,8-TCDF	**40.4**			27:28	0.78	
1,2,3,7,8-PeCDF	**122**			32:03	1.57	
2,3,4,7,8-PeCDF	**139**			32:37	1.56	
1,2,3,4,7,8-HxCDF	**170**			34:34	1.23	
1,2,3,6,7,8-HxCDF	**155**			34:39	1.24	
2,3,4,6,7,8-HxCDF	**166**			35:07	1.24	
1,2,3,7,8,9-HxCDF	**81.6**			35:42	1.22	Q
1,2,3,4,6,7,8-HpCDF	**592**			37:04	1.04	
1,2,3,4,7,8,9-HpCDF	**138**			38:37	1.05	
OCDF	**979**			42:03	0.89	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB2A MS		Weight / Volume:	11.22	g
			Solids / Lipids:	84.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-4D		Filename:	a02sep09c_2-5	
Collection Date/Time:	08/11/09	14:15	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	17:26	Initial Cal:	m8290-100708a	

Method 8290
77SB2A MS
URS

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.51	75.7	28:22	0.80	
13C12-1,2,3,7,8-PeCDD	2	2.24	112	32:46	1.58	
13C12-1,2,3,6,7,8-HxCDD	2	1.89	94.5	35:16	1.25	
13C12-1,2,3,4,6,7,8-HpCDD	2	1.99	99.4	38:06	1.05	
13C12-OCDD	4.0	3.96	99.1	41:49	0.91	
13C12-2,3,7,8-TCDF	2	1.15	57.3	27:27	0.79	
13C12-1,2,3,7,8-PeCDF	2	2.16	108	32:01	1.58	
13C12-1,2,3,6,7,8-HxCDF	2	1.78	88.8	34:37	0.53	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.83	91.7	37:04	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.333	83.1	28:22	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.466	117	32:37	1.59	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.370	92.5	35:10	1.30	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.461	115	34:33	0.51	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.414	104	38:37	0.44	
Injection Standards						
13C12-1,2,3,4-TCDD	2.0	-	-	27:36	0.80	
13C12-1,2,3,7,8,9-HxCDD	2.0	-	-	35:28	1.26	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB2A MS		Weight / Volume:	11.22	g
			Solids / Lipids:	84.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-4D		Filename:	a02sep09c_2-5	
Collection Date/Time:	08/11/09	14:15	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	17:26	Initial Cal:	m8290-100708a	

Form Version:[8290]Report

Analyzed by: DS
Date: 9-10-09

Reviewed by: [signature]
Date: 9/10/09

Method 8290
77SB2A MSD
URS

Analytical Data Summary Sheet

Analyte	Amount pg/g	EDL pg/g	EMPC pg/g	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	**30.0**			28:24	0.81	
1,2,3,7,8-PeCDD	**140**			32:46	1.59	
1,2,3,4,7,8-HxCDD	**141**			35:06	1.26	
1,2,3,6,7,8-HxCDD	**193**			35:10	1.27	
1,2,3,7,8,9-HxCDD	**172**			35:22	1.26	
1,2,3,4,6,7,8-HpCDD	**1510**			38:04	1.04	
OCDD	**12500**			41:46	0.90	E
2,3,7,8-TCDF	**46.4**			27:28	0.77	
1,2,3,7,8-PeCDF	**136**			32:01	1.57	
2,3,4,7,8-PeCDF	**165**			32:36	1.58	
1,2,3,4,7,8-HxCDF	**193**			34:28	1.29	
1,2,3,6,7,8-HxCDF	**180**			34:34	1.21	
2,3,4,6,7,8-HxCDF	**195**			35:00	1.26	
1,2,3,7,8,9-HxCDF	**138**			35:37	1.27	
1,2,3,4,6,7,8-HpCDF	**679**			37:01	1.03	
1,2,3,4,7,8,9-HpCDF	**154**			38:34	1.04	
OCDF	**1170**			41:58	0.90	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB2A MSD		Weight / Volume:	10.17	g
			Solids / Lipids:	84.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-5D		Filename:	a02sep09c_2-6	
Collection Date/Time:	08/11/09	14:15	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	18:14	Initial Cal:	m8290-100708a	

Method 8290
77SB2A MSD
URS

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.66	82.9	28:22	0.78	
13C12-1,2,3,7,8-PeCDD	2	2.28	114	32:46	1.59	
13C12-1,2,3,6,7,8-HxCDD	2	1.91	95.5	35:09	1.26	
13C12-1,2,3,4,6,7,8-HpCDD	2	2.10	105	38:03	1.06	
13C12-OCDD	4.0	3.89	97.3	41:46	0.91	
13C12-2,3,7,8-TCDF	2	1.44	72.2	27:28	0.80	
13C12-1,2,3,7,8-PeCDF	2	2.13	106	32:01	1.56	
13C12-1,2,3,6,7,8-HxCDF	2	1.91	95.3	34:33	0.53	
13C12-1,2,3,4,6,7,8-HpCDF	2	2.03	101	37:00	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.362	90.4	28:24	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.458	114	32:36	1.58	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.399	99.9	35:04	1.27	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.418	104	34:28	0.52	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.447	112	38:34	0.45	
Injection Standards						
13C12-1,2,3,4-TCDD	2.0	-	-	27:36	0.79	
13C12-1,2,3,7,8,9-HxCDD	2.0	-	-	35:22	1.26	

Client Information			**Sample Information**		
Project Name:	RFAAP SSP 6 Sites		Report Basis:	Dry	
			Matrix:	Soil	
Sample ID:	77SB2A MSD		Weight / Volume:	10.17	g
			Solids / Lipids:	84.7	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17269	
Project ID:	G296-641		Instrument:	HRMS1	
Sample ID:	G296-641-5D		Filename:	a02sep09c_2-6	
Collection Date/Time:	08/11/09	14:15	Retchk:	a02sep09c-8	
Receipt Date/Time:	08/12/09	9:45	Begin ConCal:	a02sep09c-8	
Extraction Date:	08/30/09		End ConCal:	a02sep09c_2-14	
Analysis Date/Time:	09/02/09	18:14	Initial Cal:	m8290-100708a	

Form Version:{8290}Report

Analyzed by: DS
Date: 9-10-09

Reviewed by:
Date: 9/10/09

Extraction by Modified Method 3540C

(Soxhlet with Dean-Stark Adapter - SDS)

Analytical Method: (8290) 1613 8280
1668A DLM Other_____

QC Date	QC Batch*	Prev. WG	Workgroup*	Logbook#	Page#
30-Aug-09		N/A	**WG**	**17**	**269**

Glassware #	QC #/20	Sample Identification: Client* ID	Project* ID	Sample* ID	Container* ID	Sample Matrix	Sample Weight*	ES Amt.* (µL)	MX Amt. (µL)	Analyst (initials)
		N/A	N/A	LMB17269	A	Soil	10.00	40		lmc
		G1040	9	1	A	Soil	10.59	40		lmc
		G1040	10	1	A	Soil	1.58	40 ★		lmc
		G1053	7	1	A	Soil	11.03	40		lmc
		G1053	7	5	A	Soil	10.94	40		lmc
		G1053	7	9	A	Soil	10.01	40		lmc
		G1053	7	12	A	Soil	11.25	40		lmc
		G383	759	1	A	Soil	10.36	40		lmc
		G383	759	2	A-MS	Soil	11.73	40	40	lmc
		G383	759	3	A-MSD	Soil	10.96	40	40	lmc
		G383	759	4	A	Soil	10.30	40		lmc
		G296	641	1	A	Soil	10.45	40		lmc
		G296	641	2	A	Soil	11.13	40		lmc
		G296	641	3	A	Soil	11.17	40		lmc
		G296	641	4	A-MS	Soil	11.22	40	40	lmc
		G296	641	5	A-MSD	Soil	10.17	40	40 Δ	lmc
		N/A	N/A	OPR17269	A	Soil	10.00	40	40 Δ	lmc
		N/A	N/A	OPRD17269	A	Soil	10.00	40	40 #	lmc
		1053	6	4	A	Soil	11.43	40		lmc
							lmc	8/30/09		

Items	Lot #	Conc. (ng/µL)	Witness
Toluene	SPL2-184D		
Tridecane	SPL2-195		
Salt	SPL2-186C		
Thimbles	[illegible]		
Extraction Std.	SSS-273	0.05	
Matrix Spike	SSS-273	0.005	

* = To be entered in the Prep Table.

✓ Pre-Sox? ✓ Tridecane added? 500uL

Start Date/Time: 30 AUG 2009 17:00

Finish Date/Time: 31 AUG 2009 8:00

Comments: # SSS, SSS-278 0.05 ng/µL DM
Δ SSS-269 MX: 0.005 ng/µL DM
LW3 MX: SSS 281 0.005 ng/µL DM

Data in prep table?

Balance Reference:
WB1
SB1

DC7.082508.7

Dry Weight Log

Sample ID	Tare*	Total*		Dry Weight 1		Dry Weight 2*		Dry Weight 3*		Ana
296-641-1	1.17 g	11.94 g	Date: 8/19/09 Time: 10:00	10.09 g	Date: 8/19/09 Time: 13:00	10.09 g	Date: 8/19/09 Time: 17.00	g	Date: Time:	
-2	1.18 g	12.84 g	Date: Time:	10.99 g	Date: Time:	10.98 g	Date: Time:	g	Date: Time:	
-3	1.17 g	13.02 g	Date: Time:	11.21 g	Date: Time:	11.21 g	Date: Time:	g	Date: Time:	
-4	1.17 g	13.02 g	Date: Time:	11.21 g	Date: Time:	11.21 g	Date: Time:	g	Date: Time:	
-5	1.17 g	13.02 g	Date: Time:	11.21 g	Date: Time:	11.21 g	Date: Time:	g	Date: Time:	
~~552-610-1~~ UMC 8/19/09	g	g	Date: Time:	g	Date: Time:	img	Date: Time:	g	Date: Time:	
185-420-15	1.18 g	12.36 g	Date: Time:	11.11 g	Date: Time:	11.10 g	Date: 8/19/09 Time:	g	Date: Time:	
1096-1-1	1.17 g	12.24 g	Date: Time:	11.97 g	Date: Time:	11.96 g	Date: Time:	g	Date: Time:	
185-420-12	1.17 g	12.84 g	Date: Time:	11.17 g	Date: Time:	11.17 g	Date: Time:	g	Date: Time:	
552-612-2	1.16 g	1.24 g	Date: Time:	0.96 g	Date: Time:	0.95 g	Date: Time:	g	Date: Time:	
185-420-16	1.17 g	11.76 g	Date: 8/25/09 Time: 10:00	11.46 g	Date: 8/25/09 Time: 14.00	11.45 g	Date: 8/25/09 Time: 17.00	g	Date: Time:	
414-147-1	1.18 g	14.12 g	Date: Time:	12.39 g	Date: Time:	12.39 g	Date: Time:	g	Date: Time:	
-2	1.17 g	11.71 g	Date: Time:	9.45 g	Date: Time:	9.45 g	Date: Time:	g	Date: Time:	
-3	1.17 g	12.09 g	Date: Time:	9.64 g	Date: Time:	9.64 g	Date: Time:	g	Date: Time:	
-4	1.17 g	17.21 g	Date: Time:	15.59 g	Date: Time:	15.59 g	Date: Time:	g	Date: Time:	
-5	1.17 g	12.64 g	Date: Time:	10.53 g	Date: Time:	10.53 g	Date: Time:	g	Date: Time:	
-6	1.18 g	11.38 g	Date: Time:	10.00 g	Date: Time:	10.00 g	Date: Time:	g	Date: Time:	
-7	1.17 g	11.59 g	Date: Time:	10.05 g	Date: Time:	10.04 g	Date: Time:	g	Date: Time:	
-8	1.18 g	16.12 g	Date: Time:	14.15 g	Date: Time:	14.14 g	Date: Time:	g	Date: Time:	
-10	1.17 g	12.31 g	Date: Time:	9.56 g	Date: Time:	9.55 g	Date: Time:	g	Date: Time:	
-11	1.16 g	11.58 g	Date: Time:	9.23 g	Date: Time:	9.22 g	Date: Time:	g	Date: Time:	

* To be entered in the prep database.

DG16.121703.2

Logbook #: _____

Page: 131

Extract cleanup by modified method 3630/3620

Silica/florisil

	Sample Identification											
	Client ID	Project ID	Sample ID	Container ID	Train	CS Amt.* (µL)	Witness (initials)	Analyzed (%)	Analyst (initials)	Date	Method	Matrix
A	G383	759	2 MS	C	1	40 ✓	UMC	100	~~UMC~~ W	31-Aug-09	1613	Soil
	G383	759	3 MSD	C	2	40 ✓		100	8/31/09 UMC	31-Aug-09	1613	Soil
	G383	759	4	C	3	40 ✓		100		31-Aug-09	1613	Soil
	G296	641	1	D	4	40 ✓		100		31-Aug-09	1613	Soil
B	G296	641	2	D	5	40 ✓		100		31-Aug-09	1613	Soil
	G296	641	3	D	6	40 ✓		100		31-Aug-09	1613	Soil
	G296	641	4 MS	D	7	40 ✓		100		31-Aug-09	1613	Soil
	G296	641	5 MSD	D	8	40 ✓		100		31-Aug-09	1613	Soil
C	G1053	6	4	S	9	40 ✓		100		31-Aug-09	1613	Soil
	-	-	OPR17269	-	10	40 ✓		100		31-Aug-09	1613	Soil
	-	-	OPRD17269	-	11	40 ✓	✓	100		31-Aug-09	1613	Soil
	-	-	-	-	12	-	-	-	-	-	-	-

Item	Lot #'s
Hexane	SPL2-197B
Methylene Chloride	SPL2-201D
Acid Silica	SPL2-204
Base Silica	SPL2-200
Silica	SPL2-201A
Florisil	SPL2-194A
Salt	SPL2-201B
Tridecane	SPL2-182
Cleanup Std.	533-258A

Conc. (ng/µL)
0.01

☐ PCU 1
☑ PCU 2

Comments: Neutral Si ONLY

DC1.090203.6

* = to be entered in the Prep table.

Log Book: 27 Page:

Cleanup Observation Form

Reference: PCU Log

Log:	Page:

	Train 1	Train 2	Train 3	Train 4	Train 5	Train 6
Silica	☐ Clear/Colorless Brown 3/1 Yellow 2/4 Travel	☐ Clear/Colorless Brown 3/1 Yellow 2/4 Travel	☐ Clear/Colorless Brown 3/1 Yellow 2/4 Travel	☐ Clear/Colorless Brown 4/1 Yellow 2/4 Travel	☐ Clear/Colorless Brown 4/1 Yellow 2/4 Travel	☐ Clear/Colorless Brown 3/4 Yellow 1/4 Travel
Acid	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel
Base	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel
Florisil	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel	☐ Clear/Colorless Travel
Extract	☐ Clear/Colorless	☐ Clear/Colorless	☐ Clear/Colorless	☐ Clear/Colorless	☐ Clear/Colorless	☐ Clear/Colorless
Sx	G383-759-2 MSC	G383-759-3 MSDC	G383-759-4C	G296-641-1D	G296-641-2D	G296-641-3D
Comments						

DC29.071105.4

☐ Continued on next page.

Cleanup Observation Form

Reference: PCU Log

Log:	Page:
______	______

	Train 7	Train 8	Train 9	Train 10	Train 11	Train 12
Silica	☐ Clear/Colorless ☐ Brown 4/2 ☐ Yellow 1/4 ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ Brown 4/2 ☐ Yellow 0/4 ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ Brown 2/1 ☐ Yellow 1/4 ☐ ______ ___ Travel______	☑ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☑ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______
Acid	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☑ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☑ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______
Base	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______
Florisil	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______	☐ Clear/Colorless ☐ ______ ___ ☐ ______ ___ ☐ ______ ___ Travel______
Extract	☐ Clear/Colorless ☐ ______ ___	☐ Clear/Colorless ☐ ______ ___	☐ Clear/Colorless ☐ ______ ___	☑ Clear/Colorless ☐ ______ ___	☑ Clear/Colorless ☐ ______ ___	☐ Clear/Colorless ☐ ______ ___
Sx	G296-641-4 MSD	G296-641-5 MSDD	G1053-6-4S	----OPR17269-	----OPRD17269-	------
Comments						

DC29.071105.4

Method 8290
Lab Method Blank

Analytical Data Summary Sheet

Analyte	Amount pg/g	EDL pg/g	EMPC pg/g	RT (min.)	Ratio	Qualifier
2,3,7,8-TCDD	ND	0.478				
1,2,3,7,8-PeCDD	ND	0.500				
1,2,3,4,7,8-HxCDD	ND	0.500				
1,2,3,6,7,8-HxCDD	ND	0.500				
1,2,3,7,8,9-HxCDD	ND	0.500				
1,2,3,4,6,7,8-HpCDD	ND	0.550				
OCDD	ND	1.00				
2,3,7,8-TCDF	ND	0.284				
1,2,3,7,8-PeCDF	ND	0.500				
2,3,4,7,8-PeCDF	ND	0.500				
1,2,3,4,7,8-HxCDF	ND	0.500				
1,2,3,6,7,8-HxCDF	ND	0.500				
2,3,4,6,7,8-HxCDF	ND	0.500				
1,2,3,7,8,9-HxCDF	ND	0.500				
1,2,3,4,6,7,8-HpCDF	ND	0.500				
1,2,3,4,7,8,9-HpCDF	ND	0.500				
OCDF	ND	1.00				
Total TCDDs	ND	0.478				
Total PeCDDs	ND	0.500				
Total HxCDDs	ND	0.500				
Total HpCDDs	ND	0.550				
Total TCDFs	ND	0.284				
Total PeCDFs	ND	0.500				
Total HxCDFs	ND	0.500				
Total HpCDFs	ND	0.500				
WHO-2005 TEQ (ND=0)	ND		ND			
WHO-2005 TEQ (ND=½)	**0.769**		0.769			

Client Information			**Sample Information**		
Project Name:			Report Basis:	Wet	
			Matrix:	Soil	
Sample ID:	Lab Method Blank		Weight / Volume:	10.00	g
			Solids / Lipids:	NA	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17287	
Project ID:			Instrument:	HRMS1	
Sample ID:			Filename:	a10sep09d-4	
Collection Date/Time:			Retchk:	a10sep09d-1	
Receipt Date/Time:			Begin ConCal:	a10sep09d-1	
Extraction Date:	09/09/09		End ConCal:	a10sep09d-14	
Analysis Date/Time:	09/10/09	19:56	Initial Cal:	m8290-100708a	

Method 8290
Lab Method Blank

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.62	81.1	28:22	0.80	
13C12-1,2,3,7,8-PeCDD	2	1.81	90.3	32:46	1.59	
13C12-1,2,3,6,7,8-HxCDD	2	1.82	91.0	35:09	1.26	
13C12-1,2,3,4,6,7,8-HpCDD	2	1.85	92.4	38:01	1.05	
13C12-OCDD	4.0	3.69	92.3	41:40	0.90	
13C12-2,3,7,8-TCDF	2	1.94	97.2	27:28	0.78	
13C12-1,2,3,7,8-PeCDF	2	1.82	91.2	32:01	1.59	
13C12-1,2,3,6,7,8-HxCDF	2	1.72	86.0	34:33	0.53	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.70	84.9	36:57	0.45	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.387	96.8	28:24	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.409	102	32:37	1.61	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.340	85.0	35:04	1.24	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.382	95.4	34:27	0.52	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.383	95.8	38:34	0.44	
Injection Standards						
13C12-1,2,3,4-TCDD	2.0	-	-	27:34	0.80	
13C12-1,2,3,7,8,9-HxCDD	2.0	-	-	35:22	1.24	

Client Information			**Sample Information**		
Project Name:			Report Basis:	Wet	
			Matrix:	Soil	
Sample ID:	Lab Method Blank		Weight / Volume:	10.00	g
			Solids / Lipids:	NA	%
			Original pH :	NA	
Laboratory Information			Batch ID:	WG17287	
Project ID:			Instrument:	HRMS1	
Sample ID:			Filename:	a10sep09d-4	
Collection Date/Time:			Retchk:	a10sep09d-1	
Receipt Date/Time:			Begin ConCal:	a10sep09d-1	
Extraction Date:	09/09/09		End ConCal:	a10sep09d-14	
Analysis Date/Time:	09/10/09	19:56	Initial Cal:	m8290-100708a	

Form Version:[8290]Report

Analyzed by: QS
Date: 9-11-09

Reviewed by: YM
Date: 9-11-09

;*8290*

Filename ; a10sep09d
Sample ; 4
Acquired ; 10-SEP-09 19:56:00
Processed ; 11-SEP-09 06:15:55
Sample ID ; LMB17287
Cal Table ; m8290-100708a
Results Table ; M8290-091009D
Comments ;

Ent;	Name;	Resp;	Ion 1;	Ion 2;	RA;?;	RT;	Conc;	EDL;	S/N1;?;	S/N2;?;M;	Signal1;	Noise 1;	Signal2;	Noise 2
1 ;	2,3,7,8-TCDD;	*;	*;	*;	*;n;	NotFnd;	*;	0.2390;	*;n;	*;n;n;	*;5.34e+03;		*;5.08e+03	
2 ;	1,2,3,7,8-PeCDD;	*;	*;	*;	*;n;	NotFnd;	*;	0.1265;	*;n;	*;n;n;	*;5.19e+03;		*;5.62e+03	
3 ;	1,2,3,4,7,8-HxCDD;	*;	*;	*;	*;n;	NotFnd;	*;	0.1784;	*;n;	*;n;n;	*;5.75e+03;		*;5.70e+03	
4 ;	1,2,3,6,7,8-HxCDD;	*;	*;	*;	*;n;	NotFnd;	*;	0.1707;	*;n;	*;n;n;	*;5.75e+03;		*;5.70e+03	
5 ;	1,2,3,7,8,9-HxCDD;	*;	*;	*;	*;n;	NotFnd;	*;	0.1754;	*;n;	*;n;n;	*;5.75e+03;		*;5.70e+03	
6 ;	1,2,3,4,6,7,8-HpCDD;	*;	*;	*;	*;n;	NotFnd;	*;	0.2752;	*;n;	*;n;n;	*;5.64e+03;		*;4.99e+03	
7 ;	OCDD;	*;	*;	*;	*;n;	NotFnd;	*;	0.4851;	*;n;	*;n;n;	*;5.08e+03;		*;5.22e+03	
8 ;	2,3,7,8-TCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.1421;	*;n;	*;n;n;	*;4.96e+03;		*;6.47e+03	
9 ;	1,2,3,7,8-PeCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.0900;	*;n;	*;n;n;	*;5.61e+03;		*;5.13e+03	
10 ;	2,3,4,7,8-PeCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.0875;	*;n;	*;n;n;	*;5.61e+03;		*;5.13e+03	
11 ;	1,2,3,4,7,8-HxCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.1244;	*;n;	*;n;n;	*;5.33e+03;		*;5.92e+03	
12 ;	1,2,3,6,7,8-HxCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.1151;	*;n;	*;n;n;	*;5.33e+03;		*;5.92e+03	
13 ;	2,3,4,6,7,8-HxCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.1223;	*;n;	*;n;n;	*;5.33e+03;		*;5.92e+03	
14 ;	1,2,3,7,8,9-HxCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.1412;	*;n;	*;n;n;	*;5.33e+03;		*;5.92e+03	
15 ;	1,2,3,4,6,7,8-HpCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.1467;	*;n;	*;n;n;	*;4.79e+03;		*;4.88e+03	
16 ;	1,2,3,4,7,8,9-HpCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.1880;	*;n;	*;n;n;	*;4.79e+03;		*;4.88e+03	
17 ;	OCDF;	*;	*;	*;	*;n;	NotFnd;	*;	0.4174;	*;n;	*;n;n;	*;5.95e+03;		*;4.58e+03	
Extraction Standards														
18 ;	13C-2,3,7,8-TCDD;	8.29e+07;	3.68e+07;	4.62e+07;	0.80;y;	28:22;	81.107;	0.2194;	932;y;	1043;y;n;5.77e+06;	6.19e+03;	7.20e+06;	6.90e+03	
19 ;	13C-1,2,3,7,8-PeCDD;	6.75e+07;	4.14e+07;	2.61e+07;	1.59;y;	32:47;	90.266;	0.2044;	3263;y;	2177;y;n;1.50e+07;	4.60e+03;	9.40e+06;	4.32e+03	
20 ;	13C-1,2,3,6,7,8-HxCDD;	6.90e+07;	3.85e+07;	3.05e+07;	1.26;y;	35:09;	91.014;	0.1783;	1748;y;	1640;y;n;1.13e+07;	6.47e+03;	8.98e+06;	5.48e+03	
21 ;	13C-1,2,3,4,6,7,8-HpCDD;	5.29e+07;	2.71e+07;	2.58e+07;	1.05;y;	38:01;	92.420;	0.2239;	1023;y;	912;y;n;5.52e+06;	5.40e+03;	5.39e+06;	5.92e+03	
22 ;	13C-OCDD;	8.41e+07;	3.99e+07;	4.42e+07;	0.90;y;	41:40;	184.659;	0.2652;	1231;y;	1040;y;n;5.63e+06;	4.57e+03;	6.34e+06;	6.10e+03	
23 ;	13C-2,3,7,8-TCDF;	1.47e+08;	6.47e+07;	8.26e+07;	0.78;y;	27:28;	97.201;	0.1168;	2067;y;	2429;y;n;1.02e+07;	4.93e+03;	1.31e+07;	5.40e+03	
24 ;	13C-1,2,3,7,8-PeCDF;	1.12e+08;	6.86e+07;	4.31e+07;	1.59;y;	32:02;	91.195;	0.1543;	4166;y;	2459;y;n;2.23e+07;	5.36e+03;	1.39e+07;	5.67e+03	
25 ;	13C-1,2,3,6,7,8-HxCDF;	8.56e+07;	2.96e+07;	5.60e+07;	0.53;y;	34:33;	86.043;	0.1353;	1498;y;	2869;y;n;8.96e+06;	5.98e+03;	1.69e+07;	5.91e+03	
26 ;	13C-1,2,3,4,6,7,8-HpCDF;	6.06e+07;	1.87e+07;	4.19e+07;	0.45;y;	36:57;	84.857;	0.2631;	625;y;	1047;y;n;4.44e+06;	7.11e+03;	9.94e+06;	9.49e+03	
Injection Standards														
27 ;	13C-1,2,3,4-TCDD;	9.17e+07;	4.07e+07;	5.10e+07;	0.80;y;	27:35;	67.478;	-;	1156;y;	1288;y;n;7.16e+06;	6.19e+03;	8.88e+06;	6.90e+03	
28 ;	13C-1,2,3,7,8,9-HxCDD;	7.26e+07;	4.03e+07;	3.24e+07;	1.24;y;	35:22;	67.280;	-;	1649;y;	1568;y;n;1.07e+07;	6.47e+03;	8.58e+06;	5.48e+03	
Cleanup Standards														
29 ;	37Cl-2,3,7,8-TCDD;	2.11e+07;	2.11e+07;	-;	-;-;	28:24;	19.358;	0.1040;	491;y;	-;-;n;3.25e+06;	6.62e+03;	-;	-	
30 ;	13C-2,3,4,7,8-PeCDF;	2.45e+07;	1.51e+07;	9.40e+06;	1.61;y;	32:37;	20.437;	0.1576;	942;y;	566;y;n;5.05e+06;	5.36e+03;	3.21e+06;	5.67e+03	
31 ;	13C-1,2,3,4,7,8-HxCDD;	1.19e+07;	6.57e+06;	5.29e+06;	1.24;y;	35:04;	16.994;	0.1937;	397;y;	372;y;n;2.57e+06;	6.47e+03;	2.04e+06;	5.48e+03	
32 ;	13C-1,2,3,4,7,8-HxCDF;	1.72e+07;	5.86e+06;	1.13e+07;	0.52;y;	34:27;	19.082;	0.1493;	328;y;	640;y;n;1.96e+06;	5.98e+03;	3.78e+06;	5.91e+03	
33 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.08e+07;	3.28e+06;	7.49e+06;	0.44;y;	38:34;	19.156;	0.3340;	90;y;	153;y;n;6.37e+05;	7.11e+03;	1.45e+06;	9.49e+03	
Sampling Standards														
34 ;	37Cl-2,3,7,8-TCDD;	2.11e+07;	2.11e+07;	-;	-;-;	28:24;	23.867;	0.1436;	491;y;	-;-;n;3.25e+06;	6.62e+03;	-;	-	
35 ;	13C-2,3,4,7,8-PeCDF;	2.45e+07;	1.51e+07;	9.40e+06;	1.61;y;	32:37;	22.416;	0.0933;	942;y;	566;y;n;5.05e+06;	5.36e+03;	3.21e+06;	5.67e+03	
36 ;	13C-1,2,3,4,7,8-HxCDD;	1.19e+07;	6.57e+06;	5.29e+06;	1.24;y;	35:04;	18.635;	0.1915;	397;y;	372;y;n;2.57e+06;	6.47e+03;	2.04e+06;	5.48e+03	
37 ;	13C-1,2,3,4,7,8-HxCDF;	1.72e+07;	5.86e+06;	1.13e+07;	0.52;y;	34:27;	22.176;	0.1519;	328;y;	640;y;n;1.96e+06;	5.98e+03;	3.78e+06;	5.91e+03	
38 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.08e+07;	3.28e+06;	7.49e+06;	0.44;y;	38:34;	22.575;	0.4396;	90;y;	153;y;n;6.37e+05;	7.11e+03;	1.45e+06;	9.49e+03	

Totals Report

SGS North America, Inc.	Fri Sep 11 06:33:40 EDT 2009	
Filename: a10sep09d-4	Acquired: 2009-09-10 19:56:00	Processed: 2009-09-11 06:15:55
Results:	Cal: m8290-100708a	
Sample Text: LMB17287		

Total Tetra-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		2378-TCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.239	S2N	0.00E+00	5340	0	0.00E+00	5080	0	n
									EDL	0.239								
									Total Tetra-Dioxins	0	Peaks	0						
									Total EMPC Tetra-Dioxins	0	Peaks	0						

Total Tetra-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		2378-TCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1421	S2N	0.00E+00	4960	0	0.00E+00	6470	0	n
									EDL	0.1421								
									Total Tetra-Furans	0	Peaks	0						
									Total EMPC Tetra-Furans	0	Peaks	0						

Total Penta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		12378-PeCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1265	S2N	0.00E+00	5190	0	0.00E+00	5620	0	n
									EDL	0.1265								
									Total Penta-Dioxins	0	Peaks	0						
									Total EMPC Penta-Dioxins	0	Peaks	0						

Total Penta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		23478-PeCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.0875	S2N	0.00E+00	5610	0	0.00E+00	5130	0	n
		12378-PeCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.09	S2N	0.00E+00	5610	0	0.00E+00	5130	0	n
									EDL	0.09								
									Total Penta-Furans	0	Peaks	0						
									Total EMPC Penta-Furans	0	Peaks	0						

Total Hexa-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		123789-HxCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1754	S2N	0.00E+00	5750	0	0.00E+00	5700	0	n
		123678-HxCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1707	S2N	0.00E+00	5750	0	0.00E+00	5700	0	n
		123478-HxCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1784	S2N	0.00E+00	5750	0	0.00E+00	5700	0	n
									EDL	0.1784								
									Total Hexa-Dioxins	0	Peaks	0						
									Total EMPC Hexa-Dioxins	0	Peaks	0						

Totals Report

Total Hexa-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		123789-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1412	S2N	0.00E+00	5330	0	0.00E+00	5920	0	n
		234678-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1223	S2N	0.00E+00	5330	0	0.00E+00	5920	0	n
		123678-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1151	S2N	0.00E+00	5330	0	0.00E+00	5920	0	n
		123478-HxCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1244	S2N	0.00E+00	5330	0	0.00E+00	5920	0	n
									EDL	0.1412								
									Total Hexa-Furans	0	Peaks	0						
									Total EMPC Hexa-Furans	0	Peaks	0						

Total Hepta-Dioxins

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		1234678-HpCDD	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.2752	S2N	0.00E+00	5640	0	0.00E+00	4990	0	n
									EDL	0.2752								
									Total Hepta-Dioxins	0	Peaks	0						
									Total EMPC Hepta-Dioxins	0	Peaks	0						

Total Hepta-Furans

Ent	Type	Name	AreaSum	Ion1Area	Ion2Area	IR	?	RT	Conc	EDL	Status	Height1	Noise1	SN1	Height2	Noise2	SN2	Mod
		1234678-HpCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.1467	S2N	0.00E+00	4790	0	0.00E+00	4880	0	n
		1234789-HpCDF	0.00E+00	0.00E+00	0.00E+00	0	N	0:00	0	0.188	S2N	0.00E+00	4790	0	0.00E+00	4880	0	n
									EDL	0.188								
									Total EMPC Hepta-Furans	0	Peaks	0						
									Total Hepta-Furans	0	Peaks	0						

Analytical Results
for
Ongoing Precision Result (OPR)

Analyte	Spiked (pg/µL)	AMT (pg/µL)	REC %	Range % Lower	Range % Upper	Qualifier
2,3,7,8-TCDD	10	9.94	99.4	70.0	130	
1,2,3,7,8-PeCDD	50	45.8	91.6	70.0	130	
1,2,3,4,7,8-HxCDD	50	41.8	83.6	70.0	130	
1,2,3,6,7,8-HxCDD	50	49.1	98.2	70.0	130	
1,2,3,7,8,9-HxCDD	50	45.8	91.7	70.0	130	
1,2,3,4,6,7,8-HpCDD	50	45.7	91.4	70.0	130	
OCDD	100	92.5	92.5	70.0	130	
2,3,7,8-TCDF	10	8.86	88.6	70.0	130	
1,2,3,7,8-PeCDF	50	45.4	90.9	70.0	130	
2,3,4,7,8-PeCDF	50	43.4	86.7	70.0	130	
1,2,3,4,7,8-HxCDF	50	41.6	83.1	70.0	130	
1,2,3,6,7,8-HxCDF	50	47.6	95.3	70.0	130	
2,3,4,6,7,8-HxCDF	50	43.6	87.2	70.0	130	
1,2,3,7,8,9-HxCDF	50	42.0	84.0	70.0	130	
1,2,3,4,6,7,8-HpCDF	50	43.2	86.4	70.0	130	
1,2,3,4,7,8,9-HpCDF	50	42.3	84.7	70.0	130	
OCDF	100	90.8	90.8	70.0	130	

= Outside range limits
* = Ion Ratio Out

QC Information

OPR Project No:	OPR17287
Extraction Date:	9-Sep-09
Analysis Date:	10-Sep-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPR Filename:	a10sep09d-2
Retchk:	a10sep09d-1
Begin ConCal:	a10sep09d-1
End ConCal:	a10sep09d-14
Initial Cal:	m8290-100708a

Analytical Results
for
Ongoing Precision Result (OPR)

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards						
13C12-2,3,7,8-TCDD	2	1.56	78.0	28:22	0.79	
13C12-1,2,3,7,8-PeCDD	2	1.77	88.5	32:46	1.58	
13C12-1,2,3,6,7,8-HxCDD	2	1.86	93.0	35:09	1.25	
13C12-1,2,3,4,6,7,8-HpCDD	2	1.84	92.0	38:00	1.06	
13C12-OCDD	4	3.72	93.0	41:39	0.90	
13C12-2,3,7,8-TCDF	2	1.87	93.5	27:28	0.78	
13C12-1,2,3,7,8-PeCDF	2	1.78	89.0	32:01	1.59	
13C12-1,2,3,6,7,8-HxCDF	2	1.78	89.0	34:31	0.52	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.75	87.5	36:57	0.44	
Cleanup Standards						
37Cl4-2,3,7,8-TCDD	0.4	0.372	93.0	28:24	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.393	98.3	32:36	1.60	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.349	87.3	35:04	1.25	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.333	83.3	34:27	0.51	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.379	94.8	38:33	0.43	
Injection Standards						
13C12-1,2,3,4-TCDD	2	-	-	27:34	0.80	
13C12-1,2,3,7,8,9-HxCDD	2	-	-	35:22	1.26	

QC Information

OPR Project No:	OPR17287
Extraction Date:	9-Sep-09
Analysis Date:	10-Sep-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPR Filename :	a10sep09d-2
Retchk:	a10sep09d-1
Begin ConCal:	a10sep09d-1
End ConCal:	a10sep09d-14
Initial Cal:	m8290-100708a

Form Version:[8290]OPR

Reviewed By: _____ Date Reviewed: 9-11-09

;*8290*

Filename ; a10sep09d
Sample ; 2
Acquired ; 10-SEP-09 18:19:18
Processed ; 11-SEP-09 06:15:05
Sample ID ; OPR17287
Cal Table ; m8290-100708a
Results Table ; M8290-091009D
Comments ;

Ent;	Name;	Resp;	Ion 1;	Ion 2;	RA;?;	RT;	Conc;	EDL;	S/N1;?;	S/N2;?;M; Signal1; Noise 1; Signal2; Noise 2
1 ;	2,3,7,8-TCDD;	7.37e+06;	3.25e+06;	4.12e+06;	0.79;y;	28:24;	9.938;	0.2733;	105;y;	112;y;n;5.25e+05;4.98e+03;6.49e+05;5.78e+03
2 ;	1,2,3,7,8-PeCDD;	2.94e+07;	1.78e+07;	1.16e+07;	1.54;y;	32:47;	45.775;	0.1534;	1074;y;	679;y;n;6.42e+06;5.98e+03;4.05e+06;5.96e+03
3 ;	1,2,3,4,7,8-HxCDD;	2.51e+07;	1.39e+07;	1.12e+07;	1.24;y;	35:05;	41.796;	0.2021;	743;y;	661;y;n;4.70e+06;6.32e+03;3.76e+06;5.68e+03
4 ;	1,2,3,6,7,8-HxCDD;	3.08e+07;	1.72e+07;	1.36e+07;	1.27;y;	35:09;	49.096;	0.1934;	817;y;	723;y;n;5.17e+06;6.32e+03;4.11e+06;5.68e+03
5 ;	1,2,3,7,8,9-HxCDD;	2.80e+07;	1.55e+07;	1.25e+07;	1.24;y;	35:23;	45.850;	0.1988;	633;y;	574;y;n;4.00e+06;6.32e+03;3.26e+06;5.68e+03
6 ;	1,2,3,4,6,7,8-HpCDD;	2.29e+07;	1.17e+07;	1.12e+07;	1.04;y;	38:01;	45.685;	0.3180;	460;y;	409;y;n;2.52e+06;5.48e+03;2.39e+06;5.85e+03
7 ;	OCDD;	3.74e+07;	1.77e+07;	1.97e+07;	0.90;y;	41:40;	92.483;	0.5088;	453;y;	656;y;n;2.52e+06;5.56e+03;2.86e+06;4.36e+03
8 ;	2,3,7,8-TCDF;	1.20e+07;	5.26e+06;	6.77e+06;	0.78;y;	27:30;	8.859;	0.1523;	177;y;	179;y;n;8.84e+05;4.98e+03;1.09e+06;6.07e+03
9 ;	1,2,3,7,8-PeCDF;	4.52e+07;	2.76e+07;	1.76e+07;	1.57;y;	32:03;	45.437;	0.0976;	1593;y;	1134;y;n;9.24e+06;5.80e+03;5.95e+06;5.25e+03
10 ;	2,3,4,7,8-PeCDF;	4.44e+07;	2.69e+07;	1.75e+07;	1.54;y;	32:37;	43.370;	0.0949;	1689;y;	1223;y;n;9.80e+06;5.80e+03;6.42e+06;5.25e+03
11 ;	1,2,3,4,7,8-HxCDF;	3.45e+07;	1.96e+07;	1.50e+07;	1.31;y;	34:28;	41.554;	0.1250;	1200;y;	953;y;n;6.48e+06;5.40e+03;5.27e+06;5.53e+03
12 ;	1,2,3,6,7,8-HxCDF;	4.28e+07;	2.31e+07;	1.97e+07;	1.17;y;	34:33;	47.627;	0.1157;	1331;y;	1045;y;n;7.18e+06;5.40e+03;5.78e+06;5.53e+03
13 ;	2,3,4,6,7,8-HxCDF;	3.69e+07;	2.04e+07;	1.65e+07;	1.24;y;	35:00;	43.600;	0.1229;	1112;y;	902;y;n;6.00e+06;5.40e+03;4.99e+06;5.53e+03
14 ;	1,2,3,7,8,9-HxCDF;	3.07e+07;	1.69e+07;	1.38e+07;	1.23;y;	35:39;	41.988;	0.1419;	794;y;	616;y;n;4.28e+06;5.40e+03;3.41e+06;5.53e+03
15 ;	1,2,3,4,6,7,8-HpCDF;	3.32e+07;	1.68e+07;	1.64e+07;	1.02;y;	36:58;	43.208;	0.1977;	579;y;	769;y;n;4.16e+06;7.18e+03;4.19e+06;5.45e+03
16 ;	1,2,3,4,7,8,9-HpCDF;	2.54e+07;	1.29e+07;	1.25e+07;	1.03;y;	38:34;	42.336;	0.2535;	346;y;	451;y;n;2.49e+06;7.18e+03;2.46e+06;5.45e+03
17 ;	OCDF;	4.37e+07;	2.08e+07;	2.28e+07;	0.91;y;	41:52;	90.783;	0.4547;	696;y;	545;y;n;3.02e+06;4.34e+03;3.38e+06;6.20e+03
Extraction Standards										
18 ;	13C-2,3,7,8-TCDD;	7.35e+07;	3.25e+07;	4.10e+07;	0.79;y;	28:23;	77.950;	0.2047;	954;y;	1137;y;n;5.17e+06;5.42e+03;6.55e+06;5.76e+03
19 ;	13C-1,2,3,7,8-PeCDD;	6.10e+07;	3.73e+07;	2.37e+07;	1.58;y;	32:47;	88.391;	0.2291;	2944;y;	1903;y;n;1.36e+07;4.63e+03;8.59e+06;4.51e+03
20 ;	13C-1,2,3,6,7,8-HxCDD;	6.32e+07;	3.52e+07;	2.81e+07;	1.25;y;	35:09;	93.026;	0.1947;	1651;y;	1581;y;n;1.04e+07;6.29e+03;8.38e+06;5.30e+03
21 ;	13C-1,2,3,4,6,7,8-HpCDD;	4.72e+07;	2.43e+07;	2.29e+07;	1.06;y;	38:00;	92.098;	0.2704;	785;y;	882;y;n;5.16e+06;6.57e+03;4.91e+06;5.57e+03
22 ;	13C-OCDD;	7.60e+07;	3.61e+07;	3.99e+07;	0.90;y;	41:39;	186.235;	0.1689;	3992;y;	1226;y;n;5.19e+06;1.30e+03;5.80e+06;4.73e+03
23 ;	13C-2,3,7,8-TCDF;	1.31e+08;	5.75e+07;	7.35e+07;	0.78;y;	27:28;	93.682;	0.1429;	1546;y;	2107;y;n;9.26e+06;5.99e+03;1.17e+07;5.57e+03
24 ;	13C-1,2,3,7,8-PeCDF;	1.01e+08;	6.18e+07;	3.89e+07;	1.59;y;	32:02;	89.134;	0.1588;	4475;y;	2346;y;n;2.12e+07;4.73e+03;1.32e+07;5.64e+03
25 ;	13C-1,2,3,6,7,8-HxCDF;	7.94e+07;	2.73e+07;	5.21e+07;	0.52;y;	34:32;	89.049;	0.1687;	1203;y;	2737;y;n;8.60e+06;7.15e+03;1.65e+07;6.01e+03
26 ;	13C-1,2,3,4,6,7,8-HpCDF;	5.59e+07;	1.72e+07;	3.87e+07;	0.44;y;	36:57;	87.336;	0.3362;	526;y;	904;y;n;4.30e+06;8.18e+03;9.63e+06;1.07e+04
Injection Standards										
27 ;	13C-1,2,3,4-TCDD;	8.46e+07;	3.76e+07;	4.70e+07;	0.80;y;	27:35;	62.255;	-;	1198;y;	1425;y;n;6.49e+06;5.42e+03;8.20e+06;5.76e+03
28 ;	13C-1,2,3,7,8,9-HxCDD;	6.51e+07;	3.63e+07;	2.88e+07;	1.26;y;	35:22;	60.312;	-;	1514;y;	1429;y;n;9.52e+06;6.29e+03;7.57e+06;5.30e+03
Cleanup Standards										
29 ;	37Cl-2,3,7,8-TCDD;	1.87e+07;	1.87e+07;	-;	-;-;	28:24;	18.582;	0.0386;	1276;y;	-;-;n;2.86e+06;2.24e+03; -; -
30 ;	13C-2,3,4,7,8-PeCDF;	2.18e+07;	1.34e+07;	8.37e+06;	1.60;y;	32:36;	19.667;	0.1622;	1017;y;	537;y;n;4.81e+06;4.73e+03;3.03e+06;5.64e+03
31 ;	13C-1,2,3,4,7,8-HxCDD;	1.09e+07;	6.08e+06;	4.85e+06;	1.25;y;	35:04;	17.461;	0.2116;	359;y;	338;y;n;2.26e+06;6.29e+03;1.79e+06;5.30e+03
32 ;	13C-1,2,3,4,7,8-HxCDF;	1.34e+07;	4.53e+06;	8.91e+06;	0.51;y;	34:27;	16.636;	0.1862;	232;y;	544;y;n;1.66e+06;7.15e+03;3.27e+06;6.01e+03
33 ;	13C-1,2,3,4,7,8,9-HpCDF;	9.56e+06;	2.87e+06;	6.69e+06;	0.43;y;	38:33;	18.950;	0.4268;	66;y;	116;y;n;5.40e+05;8.18e+03;1.24e+06;1.07e+04
Sampling Standards										
34 ;	37Cl-2,3,7,8-TCDD;	1.87e+07;	1.87e+07;	-;	-;-;	28:24;	23.839;	0.0539;	1276;y;	-;-;n;2.86e+06;2.24e+03; -; -
35 ;	13C-2,3,4,7,8-PeCDF;	2.18e+07;	1.34e+07;	8.37e+06;	1.60;y;	32:36;	22.071;	0.0925;	1017;y;	537;y;n;4.81e+06;4.73e+03;3.03e+06;5.64e+03
36 ;	13C-1,2,3,4,7,8-HxCDD;	1.09e+07;	6.08e+06;	4.85e+06;	1.25;y;	35:04;	18.734;	0.2008;	359;y;	338;y;n;2.26e+06;6.29e+03;1.79e+06;5.30e+03
37 ;	13C-1,2,3,4,7,8-HxCDF;	1.34e+07;	4.53e+06;	8.91e+06;	0.51;y;	34:27;	18.681;	0.1740;	232;y;	544;y;n;1.66e+06;7.15e+03;3.27e+06;6.01e+03
38 ;	13C-1,2,3,4,7,8,9-HpCDF;	9.56e+06;	2.87e+06;	6.69e+06;	0.43;y;	38:33;	21.698;	0.5145;	66;y;	116;y;n;5.40e+05;8.18e+03;1.24e+06;1.07e+04

Analytical Results
for
Ongoing Precision & Recovery Duplicate Results (OPRD)

Analyte	Spiked (pg/µL)	AMT (pg/µL)	Recovery %	#	Range Lower	Range Upper	OPR Rec(%)	#	RPD (±20%)	Qualifier
2,3,7,8-TCDD	10.0	10.1	101		70.0	130	99.4		1.74	
1,2,3,7,8-PeCDD	50.0	45.6	91.1		70.0	130	91.6		0.520	
1,2,3,4,7,8-HxCDD	50.0	43.1	86.2		70.0	130	83.6		2.99	
1,2,3,6,7,8-HxCDD	50.0	45.5	91.0		70.0	130	98.2		7.95	
1,2,3,7,8,9-HxCDD	50.0	45.1	90.2		70.0	130	91.7		1.62	
1,2,3,4,6,7,8-HpCDD	50.0	45.2	90.4		70.0	130	91.4		1.08	
OCDD	100	91.4	91.4		70.0	130	92.5		1.25	
2,3,7,8-TCDF	10.0	8.69	86.9		70.0	130	88.6		1.98	
1,2,3,7,8-PeCDF	50.0	44.8	89.6		70.0	130	90.9		1.46	
2,3,4,7,8-PeCDF	50.0	42.9	85.8		70.0	130	86.7		1.07	
1,2,3,4,7,8-HxCDF	50.0	42.0	84.1		70.0	130	83.1		1.14	
1,2,3,6,7,8-HxCDF	50.0	47.0	94.1		70.0	130	95.3		1.32	
2,3,4,6,7,8-HxCDF	50.0	44.3	88.7		70.0	130	87.2		1.64	
1,2,3,7,8,9-HxCDF	50.0	43.7	87.3		70.0	130	84.0		3.83	
1,2,3,4,6,7,8-HpCDF	50.0	42.7	85.3		70.0	130	86.4		1.24	
1,2,3,4,7,8,9-HpCDF	50.0	40.5	81.1		70.0	130	84.7		4.50	
OCDF	100	89.5	89.5		70.0	130	90.8		1.47	

= Outside range limits
* = Ion Ratio Out

QC Information

OPR Project No:	OPRD17287
Extraction Date:	9-Sep-09
Analysis Date:	10-Sep-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPRD Filename :	a10sep09d-3
Retchk:	a10sep09d-1
Begin ConCal:	a10sep09d-1
End ConCal:	a10sep09d-14
Initial Cal:	m8290-100708a

Analytical Results
for
Ongoing Precision & Recovery Duplicate Results (OPRD)

Labeled Standard	Expected Amount (ng)	Measured Amount (ng)	Percent Recovery (%)	RT (min.)	Ratio	Qualifier
Extraction Standards			(40-135%)			
13C12-2,3,7,8-TCDD	2	1.66	83.2	28:22	0.78	
13C12-1,2,3,7,8-PeCDD	2	1.92	96.2	32:46	1.59	
13C12-1,2,3,6,7,8-HxCDD	2	1.93	96.5	35:07	1.26	
13C12-1,2,3,4,6,7,8-HpCDD	2	1.89	94.4	38:00	1.05	
13C12-OCDD	4	3.79	94.7	41:39	0.90	
13C12-2,3,7,8-TCDF	2	1.89	94.4	27:28	0.79	
13C12-1,2,3,7,8-PeCDF	2	1.96	97.9	32:01	1.60	
13C12-1,2,3,6,7,8-HxCDF	2	1.79	89.4	34:31	0.52	
13C12-1,2,3,4,6,7,8-HpCDF	2	1.83	91.4	36:57	0.45	
Cleanup Standards			(70-130%)			
37Cl4-2,3,7,8-TCDD	0.4	0.385	96.3	28:24	-	
13C12-2,3,4,7,8-PeCDF	0.4	0.413	103	32:36	1.61	
13C12-1,2,3,4,7,8-HxCDD	0.4	0.312	78.1	35:04	1.26	
13C12-1,2,3,4,7,8-HxCDF	0.4	0.353	88.1	34:27	0.51	
13C12-1,2,3,4,7,8,9-HpCDF	0.4	0.378	94.6	38:33	0.43	
Injection Standards						
13C12-1,2,3,4-TCDD	2	-	-	27:34	0.80	
13C12-1,2,3,7,8,9-HxCDD	2	-	-	35:22	1.26	

QC Information

OPR Project No:	OPRD17287
Extraction Date:	09-Sep-09
Analysis Date:	10-Sep-09
Method:	8290

Sample Information

Matrix:	Soil

File Information

OPRD Filename :	a10sep09d-3
Retchk:	a10sep09d-1
Begin ConCal:	a10sep09d-1
End ConCal:	a10sep09d-14
Initial Cal:	m8290-100708a

Form Version:[8290]OPRD

Reviewed By: JM

Date Reviewed: 9-11-09

Filename ; al0sep09d
Sample ; 3
Acquired ; 10-SEP-09 19:07:39
Processed ; 11-SEP-09 06:15:30
Sample ID ; OPRD17287
Cal Table ; m8290-100708a
Results Table ; M8290-091009D
Comments ;

;*8290*

Ent;	Name;	Resp;	Ion 1;	Ion 2;	RA;?;	RT;	Conc;	EDL;	S/N1;?;	S/N2;?;M; Signal1; Noise 1; Signal2; Noise 2
1 ;	2,3,7,8-TCDD;	8.20e+06;	3.56e+06;	4.64e+06;	0.77;y;	28:24;	10.116;	0.2239;	123;y;	144;y;n;5.85e+05;4.76e+03;7.22e+05;5.02e+03
2 ;	1,2,3,7,8-PeCDD;	3.26e+07;	1.98e+07;	1.27e+07;	1.56;y;	32:47;	45.563;	0.1145;	1619;y;	780;y;n;7.31e+06;4.52e+03;4.74e+06;6.07e+03
3 ;	1,2,3,4,7,8-HxCDD;	2.95e+07;	1.64e+07;	1.31e+07;	1.25;y;	35:04;	43.089;	0.1540;	1190;y;	734;y;n;5.67e+06;4.76e+03;4.55e+06;6.20e+03
4 ;	1,2,3,6,7,8-HxCDD;	3.25e+07;	1.80e+07;	1.45e+07;	1.25;y;	35:09;	45.486;	0.1474;	1182;y;	714;y;n;5.63e+06;4.76e+03;4.42e+06;6.20e+03
5 ;	1,2,3,7,8,9-HxCDD;	3.14e+07;	1.74e+07;	1.40e+07;	1.24;y;	35:23;	45.119;	0.1514;	1004;y;	633;y;n;4.78e+06;4.76e+03;3.92e+06;6.20e+03
6 ;	1,2,3,4,6,7,8-HpCDD;	2.55e+07;	1.30e+07;	1.25e+07;	1.04;y;	38:01;	45.213;	0.2647;	488;y;	559;y;n;2.87e+06;5.88e+03;2.78e+06;4.97e+03
7 ;	OCDD;	4.13e+07;	1.93e+07;	2.19e+07;	0.88;y;	41:39;	91.357;	0.4027;	600;y;	702;y;n;2.79e+06;4.65e+03;3.15e+06;4.49e+03
8 ;	2,3,7,8-TCDF;	1.22e+07;	5.27e+06;	6.89e+06;	0.77;y;	27:29;	8.688;	0.1429;	155;y;	221;y;n;8.75e+05;5.64e+03;1.13e+06;5.12e+03
9 ;	1,2,3,7,8-PeCDF;	5.01e+07;	3.04e+07;	1.97e+07;	1.54;y;	32:02;	44.795;	0.0880;	1888;y;	1169;y;n;1.07e+07;5.67e+03;6.95e+06;5.94e+03
10 ;	2,3,4,7,8-PeCDF;	4.93e+07;	3.00e+07;	1.93e+07;	1.55;y;	32:37;	42.892;	0.0856;	1946;y;	1183;y;n;1.10e+07;5.67e+03;7.03e+06;5.94e+03
11 ;	1,2,3,4,7,8-HxCDF;	3.85e+07;	2.11e+07;	1.74e+07;	1.21;y;	34:27;	42.031;	0.1047;	1397;y;	1359;y;n;7.78e+06;5.57e+03;6.40e+06;4.71e+03
12 ;	1,2,3,6,7,8-HxCDF;	4.66e+07;	2.58e+07;	2.08e+07;	1.24;y;	34:32;	47.031;	0.0969;	1498;y;	1405;y;n;8.35e+06;5.57e+03;6.62e+06;4.71e+03
13 ;	2,3,4,6,7,8-HxCDF;	4.13e+07;	2.28e+07;	1.85e+07;	1.23;y;	35:00;	44.329;	0.1029;	1358;y;	1281;y;n;7.56e+06;5.57e+03;6.03e+06;4.71e+03
14 ;	1,2,3,7,8,9-HxCDF;	3.53e+07;	1.95e+07;	1.57e+07;	1.24;y;	35:39;	43.671;	0.1188;	895;y;	851;y;n;4.99e+06;5.57e+03;4.01e+06;4.71e+03
15 ;	1,2,3,4,6,7,8-HpCDF;	3.77e+07;	1.92e+07;	1.85e+07;	1.03;y;	36:57;	42.670;	0.1662;	702;y;	792;y;n;4.62e+06;6.58e+03;4.51e+06;5.70e+03
16 ;	1,2,3,4,7,8,9-HpCDF;	2.79e+07;	1.41e+07;	1.39e+07;	1.02;y;	38:33;	40.528;	0.2131;	415;y;	475;y;n;2.73e+06;6.58e+03;2.70e+06;5.70e+03
17 ;	OCDF;	4.80e+07;	2.27e+07;	2.54e+07;	0.89;y;	41:52;	89.486;	0.4113;	541;y;	742;y;n;3.34e+06;6.18e+03;3.65e+06;4.92e+03
Extraction Standards										
18 ;	13C-2,3,7,8-TCDD;	8.03e+07;	3.53e+07;	4.50e+07;	0.78;y;	28:22;	83.172;	0.1937;	1022;y;	1428;y;n;5.67e+06;5.54e+03;7.35e+06;5.14e+03
19 ;	13C-1,2,3,7,8-PeCDD;	6.79e+07;	4.17e+07;	2.63e+07;	1.59;y;	32:46;	96.221;	0.2602;	3418;y;	1764;y;n;1.63e+07;4.78e+03;1.01e+07;5.72e+03
20 ;	13C-1,2,3,6,7,8-HxCDD;	7.21e+07;	4.01e+07;	3.19e+07;	1.26;y;	35:08;	96.531;	0.1783;	2158;y;	1515;y;n;1.25e+07;5.77e+03;1.00e+07;6.62e+03
21 ;	13C-1,2,3,4,6,7,8-HpCDD;	5.32e+07;	2.72e+07;	2.59e+07;	1.05;y;	38:00;	94.405;	0.2306;	952;y;	965;y;n;5.95e+06;6.25e+03;5.64e+06;5.84e+03
22 ;	13C-OCDD;	8.49e+07;	4.02e+07;	4.46e+07;	0.90;y;	41:39;	189.374;	0.2462;	1308;y;	1195;y;n;6.07e+06;4.64e+03;6.73e+06;5.63e+03
23 ;	13C-2,3,7,8-TCDF;	1.35e+08;	5.94e+07;	7.56e+07;	0.79;y;	27:28;	94.365;	0.1322;	2099;y;	1958;y;n;9.56e+06;4.56e+03;1.22e+07;6.26e+03
24 ;	13C-1,2,3,7,8-PeCDF;	1.13e+08;	6.96e+07;	4.35e+07;	1.60;y;	32:02;	97.879;	0.1666;	4528;y;	2771;y;n;2.43e+07;5.37e+03;1.56e+07;5.64e+03
25 ;	13C-1,2,3,6,7,8-HxCDF;	8.75e+07;	3.01e+07;	5.74e+07;	0.52;y;	34:32;	89.416;	0.1247;	1676;y;	3304;y;n;9.67e+06;5.77e+03;1.85e+07;5.60e+03
26 ;	13C-1,2,3,4,6,7,8-HpCDF;	6.42e+07;	1.99e+07;	4.43e+07;	0.45;y;	36:57;	91.420;	0.2226;	806;y;	1328;y;n;5.04e+06;6.25e+03;1.10e+07;8.31e+03
Injection Standards										
27 ;	13C-1,2,3,4-TCDD;	8.66e+07;	3.85e+07;	4.81e+07;	0.80;y;	27:35;	63.715;	-;	1185;y;	1609;y;n;6.57e+06;5.54e+03;8.28e+06;5.14e+03
28 ;	13C-1,2,3,7,8,9-HxCDD;	7.15e+07;	3.98e+07;	3.17e+07;	1.26;y;	35:22;	66.217;	-;	1921;y;	1340;y;n;1.11e+07;5.77e+03;8.87e+06;6.62e+03
Cleanup Standards										
29 ;	37Cl-2,3,7,8-TCDD;	1.98e+07;	1.98e+07;	-;	-;-;	28:24;	19.252;	0.0852;	630;y;	-;-;n;3.16e+06;5.01e+03; -; -
30 ;	13C-2,3,4,7,8-PeCDF;	2.34e+07;	1.44e+07;	8.96e+06;	1.61;y;	32:36;	20.648;	0.1702;	1004;y;	617;y;n;5.39e+06;5.37e+03;3.48e+06;5.64e+03
31 ;	13C-1,2,3,4,7,8-HxCDD;	1.07e+07;	5.97e+06;	4.75e+06;	1.26;y;	35:04;	15.611;	0.1938;	443;y;	309;y;n;2.56e+06;5.77e+03;2.04e+06;6.62e+03
32 ;	13C-1,2,3,4,7,8-HxCDF;	1.56e+07;	5.29e+06;	1.03e+07;	0.51;y;	34:27;	17.629;	0.1377;	341;y;	693;y;n;1.97e+06;5.77e+03;3.88e+06;5.60e+03
33 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.05e+07;	3.14e+06;	7.33e+06;	0.43;y;	38:33;	18.925;	0.2826;	97;y;	164;y;n;6.07e+05;6.25e+03;1.36e+06;8.31e+03
Sampling Standards										
34 ;	37Cl-2,3,7,8-TCDD;	1.98e+07;	1.98e+07;	-;	-;-;	28:24;	23.148;	0.1085;	630;y;	-;-;n;3.16e+06;5.01e+03; -; -
35 ;	13C-2,3,4,7,8-PeCDF;	2.34e+07;	1.44e+07;	8.96e+06;	1.61;y;	32:36;	21.100;	0.0842;	1004;y;	617;y;n;5.39e+06;5.37e+03;3.48e+06;5.64e+03
36 ;	13C-1,2,3,4,7,8-HxCDD;	1.07e+07;	5.97e+06;	4.75e+06;	1.26;y;	35:04;	16.141;	0.1792;	443;y;	309;y;n;2.56e+06;5.77e+03;2.04e+06;6.62e+03
37 ;	13C-1,2,3,4,7,8-HxCDF;	1.56e+07;	5.29e+06;	1.03e+07;	0.51;y;	34:27;	19.714;	0.1337;	341;y;	693;y;n;1.97e+06;5.77e+03;3.88e+06;5.60e+03
38 ;	13C-1,2,3,4,7,8,9-HpCDF;	1.05e+07;	3.14e+06;	7.33e+06;	0.43;y;	38:33;	20.702;	0.3440;	97;y;	164;y;n;6.07e+05;6.25e+03;1.36e+06;8.31e+03

Extraction by Modified Method 3540C

(Soxhlet with Dean-Stark Adapter - SDS)

Analytical Method: (8290) 1613 8280
1668A DLM Other _____

QC Date	QC Batch*	Prev. WG	Workgroup*	Logbook#	Page#
09-Sep-09		N/A	**WG**	**17**	**287**

Glassware #	QC #/20	Sample Identification: Client* ID	Project* ID	Sample* ID	Container* ID	Sample Matrix	Sample Weight*	ES Amt.* (µL)	MX Amt. (µL)	Analyst (initials)
		N/A	N/A	LMB17287	A	Soil	10.00	40		lmc
		G296	641	2	A	Soil	5.22	40		lmc
		G383	759	1	A	Soil	5.11	40		lmc
		G383	759	2	A-MS	Soil	5.55	40	40	lmc
		G383	759	3	A-MSD	Soil	4.90	40	40	lmc
		G1089	4	11	A	Soil	10.26	40		lmc
		G1089	4	12	A	Soil	10.37	40		lmc
		G1089	4	13	A	Soil	11.38	40		lmc
		G1089	4	18	A-MS	Soil	10.43	40	40	lmc
		G1089	4	19	A-MSD	Soil	11.06	40	40	lmc
		N/A	N/A	OPR17287	A	Soil	10.00	40	40	lmc
		N/A	N/A	OPRD17287	A	Soil	10.00	40	40	lmc

Items	Lot #	Conc. (ng/µL)	Witness
Toluene	SPL2-193A		
Tridecane	SPL2-195		
Salt	SPL2-1860		
Thimbles	020134		
Extraction Std.	533.30	0.05	
Matrix Spike	535.306	0.005	

* = To be entered in the Prep Table.

✓ Pre-Sox?

✓ Tridecane added? 500 µL

Start Date/Time: 09 SEP 2009 17:00

Finish Date/Time: 10 SEP 2009 18:00

Comments: _____

Balance Reference:
WB1
✓ SB1

Data in prep table?

DC7.082508.7

Extract cleanup by modified method 3630/3620

Silica/florisil

	Sample Identification											
	Client ID	Project ID	Sample ID	Container ID	Train	CS Amt.* (µL)	Witness (initials)	Analyzed (%)	Analyst (initials)	Date	Method	Matrix
☆	-	-	LMB17287	-	1	40	DTF	100	DL	10-Sep-09	8290	Soil
☆ A	G296	641	2	F	2	40		100		10-Sep-09	8290	Soil
A	G383	759	1	E	3	40		100		10-Sep-09	8290	Soil
A	G383	759	2 MS	E	4	40		100		10-Sep-09	8290	Soil
A	G383	759	3 MSD	E	5	40		100		10-Sep-09	8290	Soil
B	G1089	4	11	B	6	40		100		10-Sep-09	8290	Soil
B	G1089	4	12	B	7	40		100		10-Sep-09	8290	Soil
B	G1089	4	13	B	8	40		100		10-Sep-09	8290	Soil
B	G1089	4	18 MS	B	9	40		100		10-Sep-09	8290	Soil
B	G1089	4	19 MSD	B	10	40		100		10-Sep-09	8290	Soil
C ☆	-	-	OPR17287	-	11	40		100		10-Sep-09	8290	Soil
☆	-	-	OPRD17287	-	12	40	↓	100	↓	10-Sep-09	8290	Soil

Item	Lot #'s
Hexane	SPL2-197C
Methylene Chloride	SPL2-201D
Acid Silica	SPL2-204
Base Silica	SPL2-200
Silica	SPL2-201A
Florisil	SPL2-201C
Salt	SPL2-201B
Tridecane	SPL2-182
Cleanup Std.	533-308

Conc. (ng/µL)
0.01

☑ PCU 1
☐ PCU 2

Comments: Baked acid silica.

☆ Samples split across 2 columns

DC1.090203.6

* = to be entered in the Prep table.

Log Book: 27 Page:

Cleanup Observation Form

Reference: PCU Log

Log:	Page:

	Train 1	Train 2	Train 3	Train 4	Train 5	Train 6
Silica	☑ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Brown 4/2 ☐ Yellow 2/4 ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Brown 4/4 ☐ Yellow 1/4 ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Brown 4/4 ☐ Yellow 1/4 ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Brown 4/4 ☐ Yellow 1/4 ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Brown 4/2 ☐ Yellow 1/4 ☐ _____ ____ Travel_____
Acid	☑ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Brown/Green 2/3 ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Gray 2/2 ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Gray 2/2 ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Gray 2/2 ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ Gray 2/2 ☐ _____ ____ ☐ _____ ____ Travel_____
Base	☑ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____
Florisil	☑ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____	☐ Clear/Colorless ☐ _____ ____ ☐ _____ ____ ☐ _____ ____ Travel_____
Extract	☑ Clear/Colorless ☐ _____ ____	☐ Clear/Colorless ☐ _____ ____	☐ Clear/Colorless ☐ _____ ____	☐ Clear/Colorless ☐ _____ ____	☐ Clear/Colorless ☐ _____ ____	☐ Clear/Colorless ☐ _____ ____
Sx	----LMB17287-	G296-641-2F	G383-759-1E	G383-759-2 MSE	G383-759-3 MSDE	G1089-4-11B
Comments						

DC29.071105.4

Continued on next page.

Cal: m8290-100708a Results: Version: V3.6 17 MAR-2000 13:37:51

Ent	Name	Mean RRF	Std	%RSD	a07oct08a-3 RRF#1	a07oct08a 5 RRF#2	a07oct08a-6 RRF#3	a07oct08a-7 RRF#4	a07oct08a-8 RRF#5
1	2,3,7,8-TCDD	1.0087	18	2.99 %	1.06	0.99	0.99	1.01	1.00
2	1,2,3,7,8-PeCDD	1.0517	19	0.73 %	1.06	1.04	1.06	1.05	1.06
3	1,2,3,4,7,8-HxCDD	0.9489	20	2.73 %	0.96	0.98	0.93	0.92	0.96
4	1,2,3,6,7,8 HxCDD	0.9916	20	3.25 %	1.05	0.98	0.98	0.97	0.98
5	1,2,3,7,8,9-HxCDD	0.9649	20	4.10 %	1.03	0.97	0.94	0.93	0.96
6	1,2,3,4,6,7,8-HpCDD	1.0612	21	1.09 %	1.06	1.05	1.06	1.06	1.08
7	OCDD	1.0643	22	1.53 %	1.06	1.04	1.07	1.07	1.08
8	2,3,7,8-TCDF	1.0368	23	2.40 %	1.00	1.03	1.05	1.05	1.06
9	1,2,3,7,8-PeCDF	0.9873	24	1.81 %	0.96	0.98	1.00	1.00	1.00
10	2,3,4,7,8-PeCDF	1.0154	24	1.65 %	1.02	1.01	0.99	1.03	1.03
11	1,2,3,4,7,8-HxCDF	1.0470	25	2.07 %	1.03	1.02	1.05	1.05	1.08
12	1,2,3,6,7,8-HxCDF	1.1310	25	1.75 %	1.15	1.10	1.13	1.13	1.14
13	2,3,4,6,7,8-HxCDF	1.0650	25	1.31 %	1.06	1.04	1.06	1.08	1.08
14	1,2,3,7,8,9-HxCDF	0.9220	25	1.91 %	0.93	0.91	0.90	0.93	0.94
15	1,2,3,4,6,7,8-HpCDF	1.3752	26	0.95 %	1.39	1.38	1.37	1.37	1.36
16	1,2,3,4,7,8,9-HpCDF	1.0727	26	1.91 %	1.06	1.07	1.08	1.06	1.11
17	OCDF	1.2654	22	5.55 %	1.17	1.23	1.27	1.30	1.36
18	13C-2,3,7,8-TCDD	1.1153	27	3.41 %	1.13	1.08	1.08	1.11	1.17
19	13C-1,2,3,7,8-PeCDD	0.8155	27	6.26 %	0.78	0.79	0.79	0.82	0.90
20	13C-1,2,3,6,7,8-HxCDD	1.0442	28	4.12 %	0.99	1.02	1.07	1.10	1.06
21	13C-1,2,3,4,6,7,8-HpCDD	0.7878	28	1.55 %	0.80	0.78	0.77	0.79	0.79
22	13C-OCDD	0.6269	28	4.89 %	0.64	0.59	0.61	0.62	0.67
23	13C-2,3,7,8-TCDF	1.6529	27	2.59 %	1.62	1.69	1.61	1.63	1.70
24	13C-1,2,3,7,8-PeCDF	1.3359	27	6.12 %	1.27	1.29	1.31	1.33	1.48
25	13C-1,2,3,6,7,8-HxCDF	1.3697	28	1.58 %	1.35	1.36	1.39	1.40	1.36
26	13C-1,2,3,4,6,7,8-HpCDF	0.9832	28	1.51 %	0.99	0.97	0.97	1.00	0.99
27	13C-1,2,3,4-TCDD	-		- %	-	-	-	-	-
28	13C-1,2,3,7,8,9-HxCDD	-		- %	-	-	-	-	-
29	37Cl 2,3,7,8-TCDD	1.1889	27	4.22 %	1.24	1.18	1.13	1.16	1.24
30	13C-2,3,4,7,8-PeCDF	1.3078	27	6.72 %	1.25	1.26	1.27	1.30	1.46
31	13C-1,2,3,4,7,8-HxCDD	0.9610	28	2.44 %	1.00	0.96	0.93	0.96	0.95
32	13C-1,2,3,4,7,8-HxCDF	1.2409	28	1.13 %	1.23	1.23	1.26	1.25	1.24
33	13C-1,2,3,4,7,8,9-HpCDF	0.7746	28	2.11 %	0.78	0.76	0.76	0.77	0.80
34	37Cl 2,3,7,8-TCDD	1.0659	16	2.44 %	1.09	1.09	1.04	1.04	1.06
35	13C-2,3,4,7,8 PeCDF	0.9787	24	0.89 %	0.98	0.98	0.97	0.98	0.99
36	13C 1,2,3,4,7,8-HxCDD	0.9221	20	6.18 %	1.01	0.94	0.88	0.88	0.90
37	13C-1,2,3,4,7,8 HxCDF	0.9860	25	0.68 %	0.91	0.90	0.91	0.90	0.91
38	13C 1,2,3,4,7,8,9-HpCDF	0.7878	26	1.32 %	0.79	0.78	0.79	0.78	0.80
39	Total Tetra-Furans	1.0368		2.40 %	1.00	1.03	1.05	1.05	1.06
40	Total Tetra-Dioxins	1.0087		2.99 %	1.06	0.99	0.99	1.01	1.00
41	Total Penta-Furans Fn1	1.0014	9 10	1.24 %	0.99	1.00	0.99	1.01	1.02
42	Total Penta-Furans Fn2	1.0014		1.24 %	0.99	1.00	0.99	1.01	1.02
43	Total Penta-Dioxins	1.0517		0.73 %	1.06	1.04	1.06	1.05	1.06
44	Total Hexa-Furans	1.0413		1.41 %	1.04	1.04	1.04	1.04	1.06
45	Total Hexa-Dioxins	0.9581		1.14 %	1.01	0.97	0.95	0.94	0.97

1.2439

10/8/08

HRMS1 Sequence Log — SGS Environmental Services — Page 1 of 1

Data File S	Sample ID	Analyst	Acq. Date	Time
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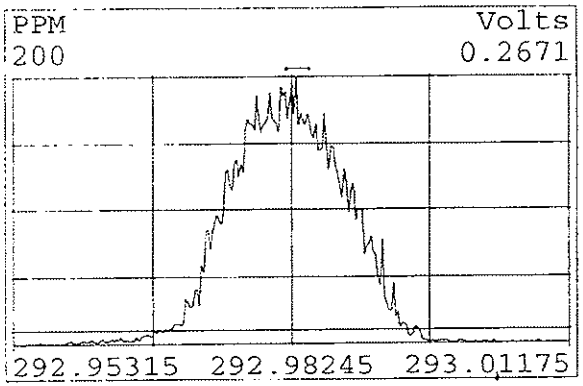
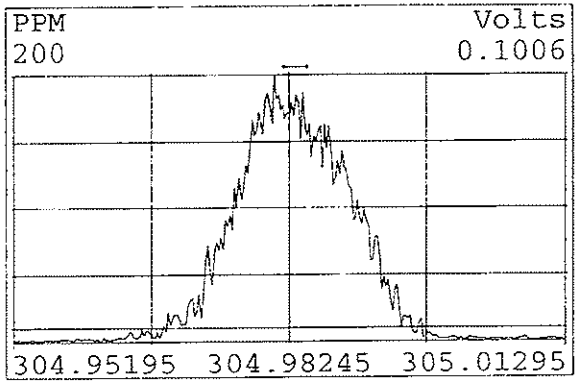
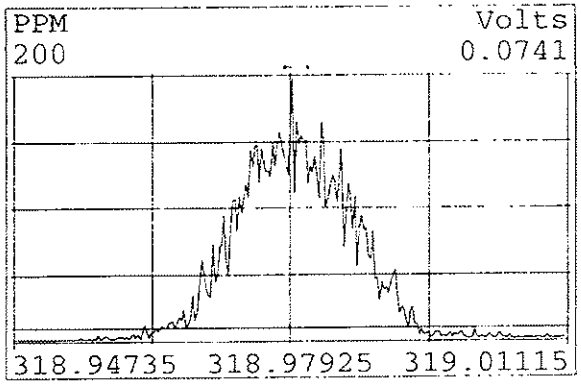
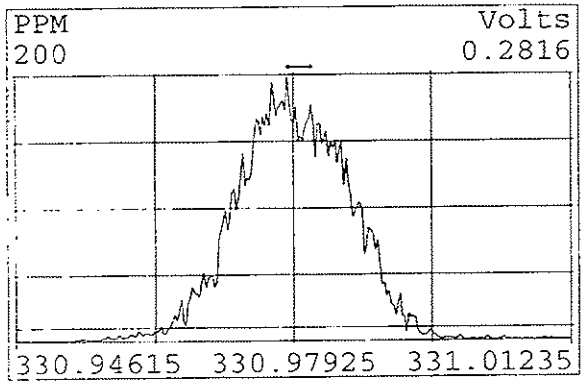
a07oct08a;2	;SB	;JWP	7-OCT-08	16:34:51
a07oct08a;3	;CS0.5 S30 144A	;JWP	7-OCT-08	17:23:03
a07oct08a;4	;CS1 S30-144B	;JWP	7-OCT-08	18:11:14
a07oct08a;5	;CS2 S30-144C	;JWP	7-OCT-08	18:59:31
a07oct08a;6	;CS3 S30-144D	;JWP	7-OCT-08	19:47:49
a07oct08a;7	;CS4 S30-144E	;JWP	7-OCT-08	20:36:05
a07oct08a;8	;CS5 S30-144F	;JWP	7-OCT-08	21:24:17

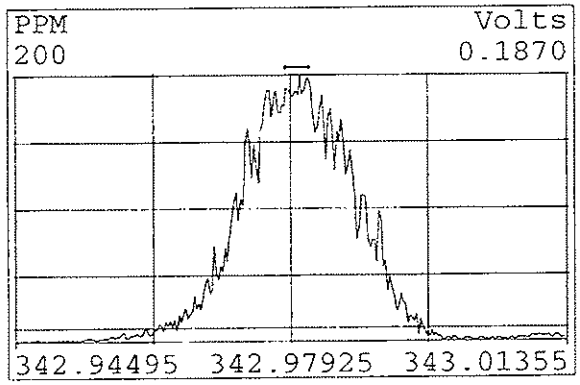
Peak Locate Examination: 7-OCT-2008:15:43 File:A07OCT08A_L
Experiment:EXP_DB5MS Function:1 Reference:PFK

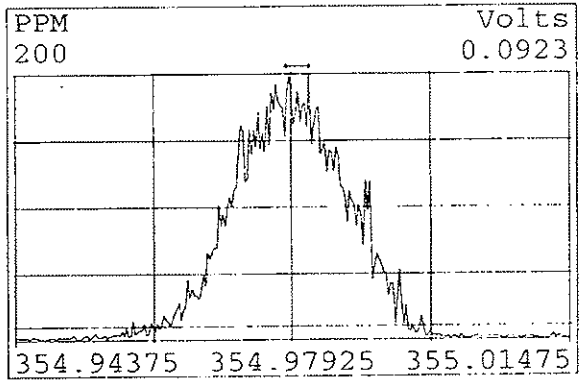


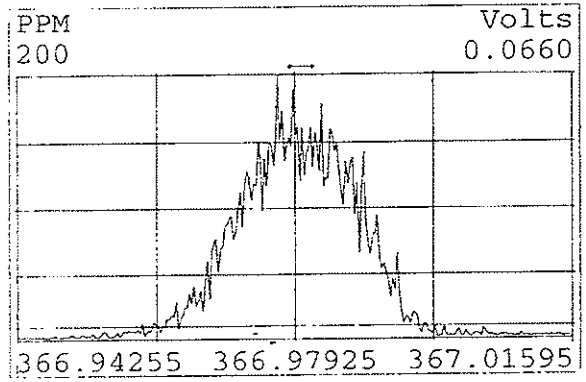


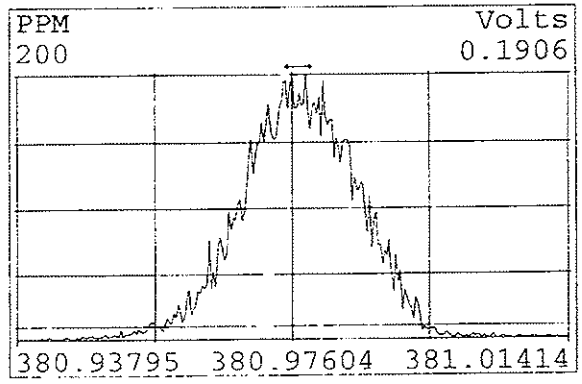




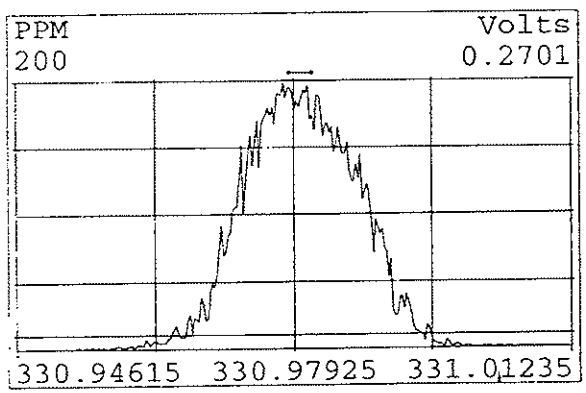


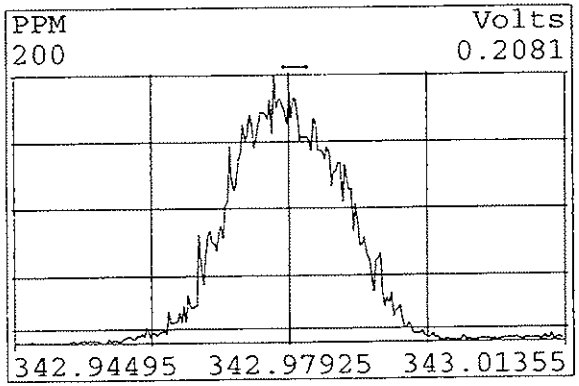


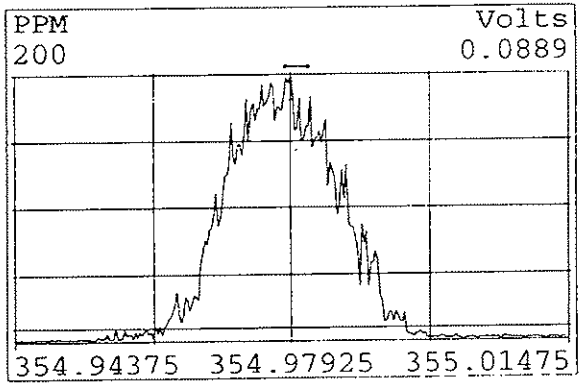


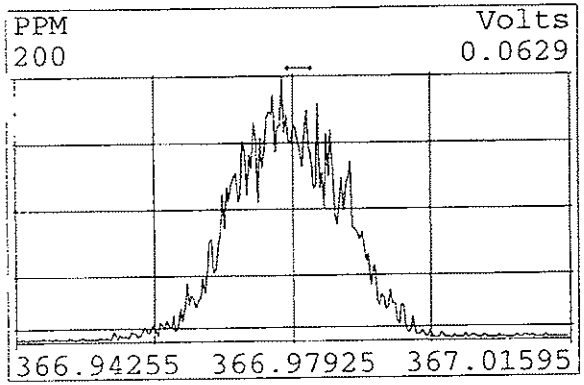


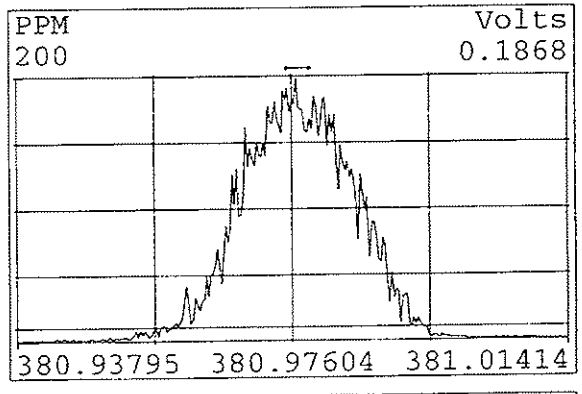
Peak Locate Examination: 7-OCT-2008:15:44 File:A07OCT08A_L
Experiment:EXP_DB5MS Function:2 Reference:PFK

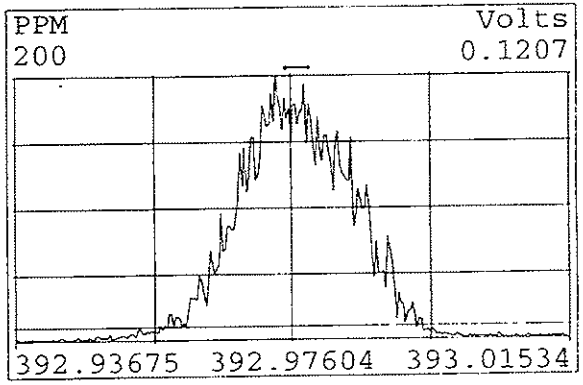


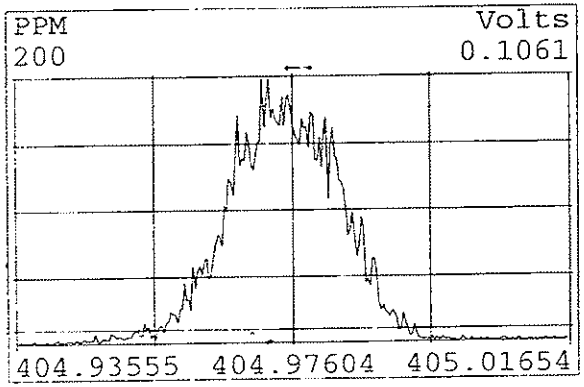


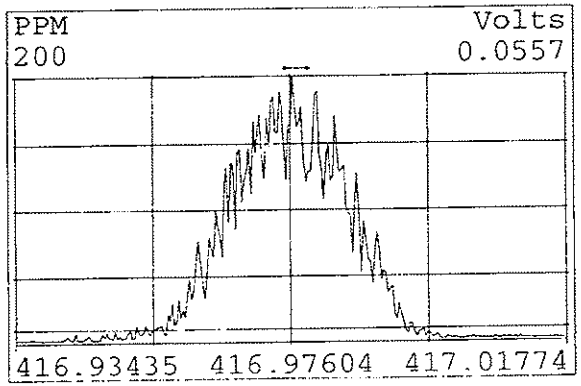




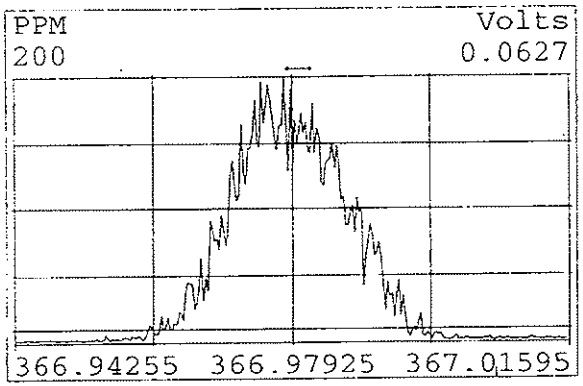


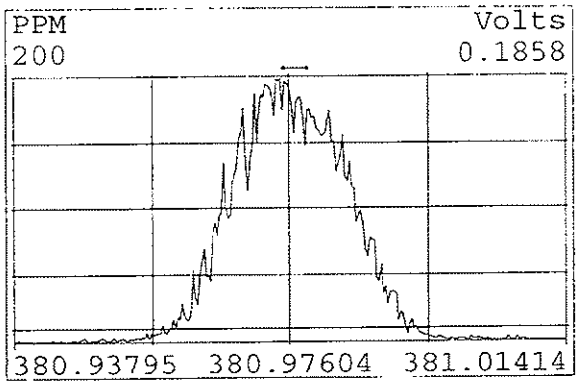


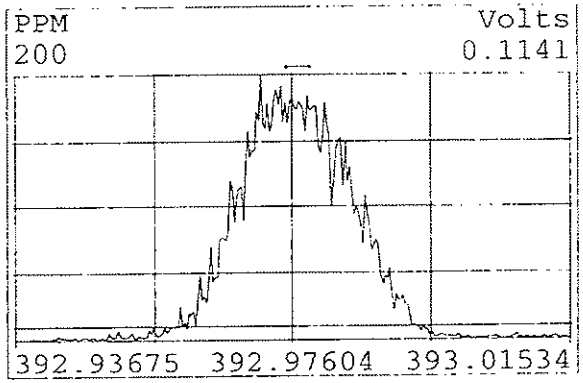


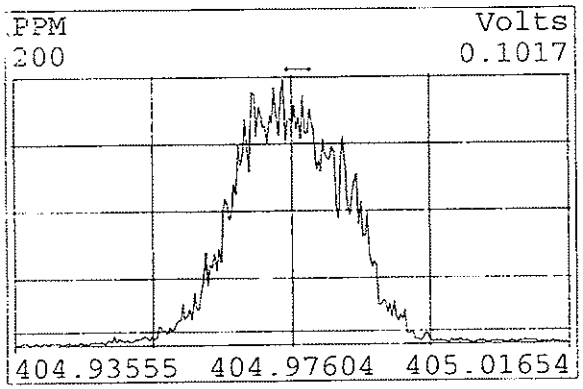


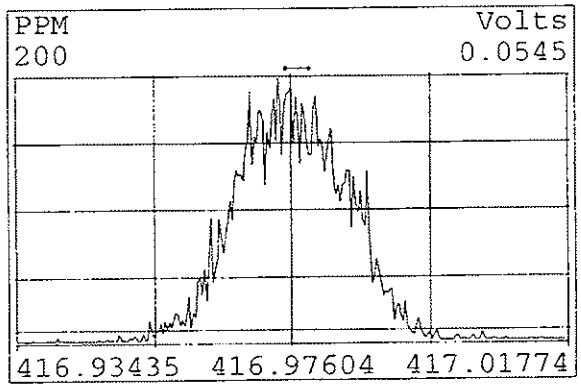
Peak Locate Examination: 7-OCT-2008:15:44 File:A07OCT08A_L
Experiment:EXP_DB5MS Function:3 Reference:PFK

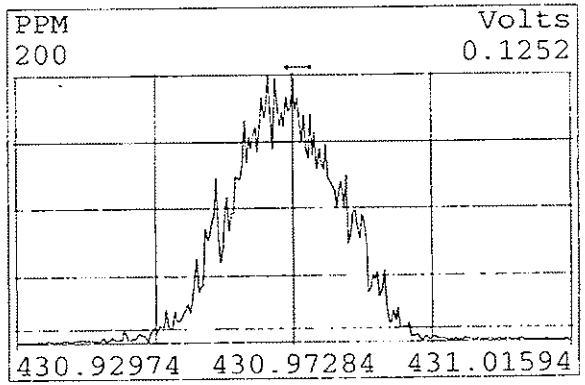


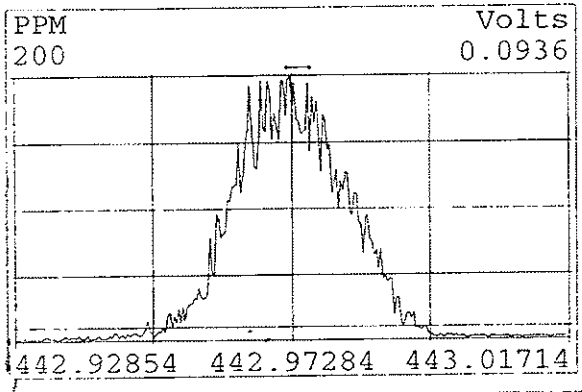


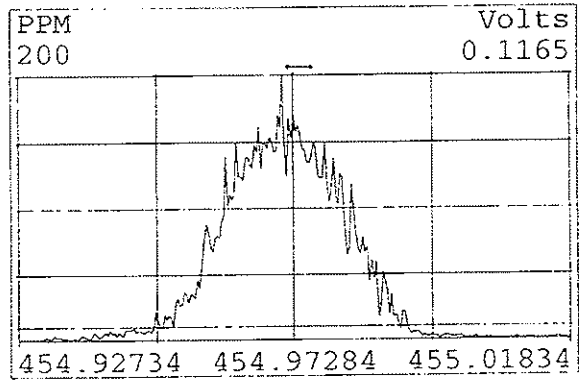




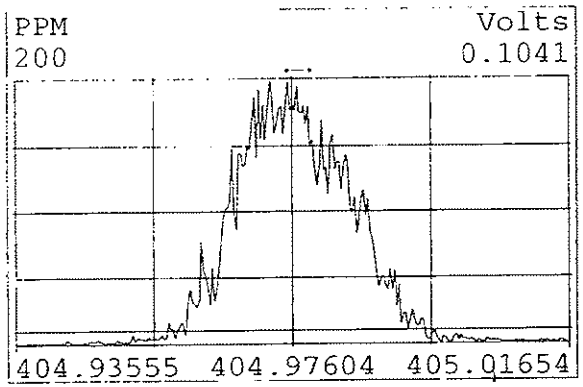


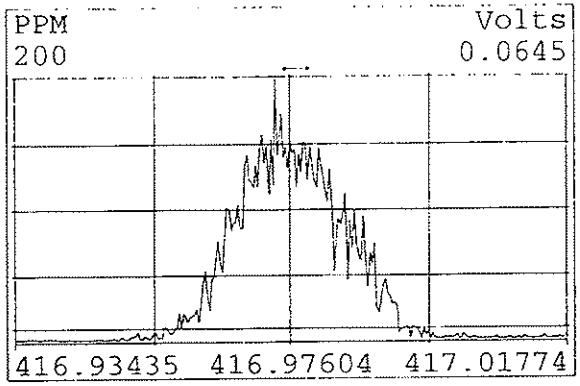


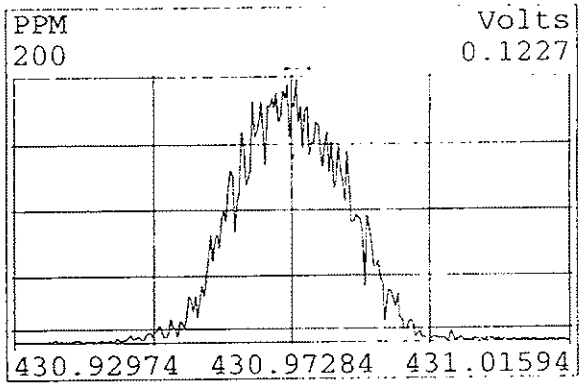


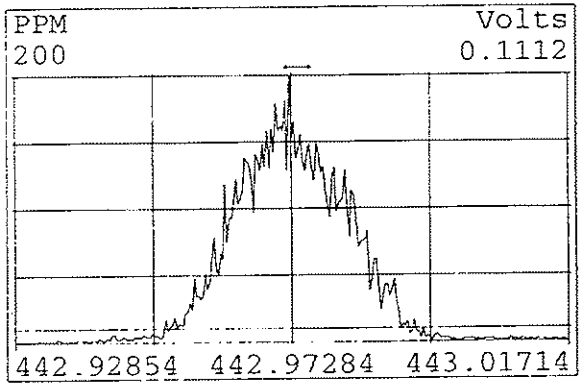


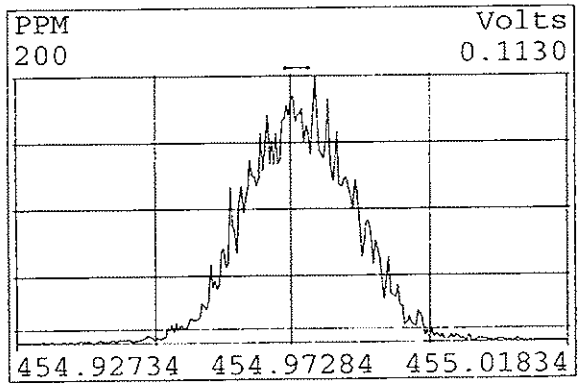
Peak Locate Examination: 7-OCT-2008:15:45 File:A07OCT08A_L
Experiment:EXP_DB5MS Function:4 Reference:PFK

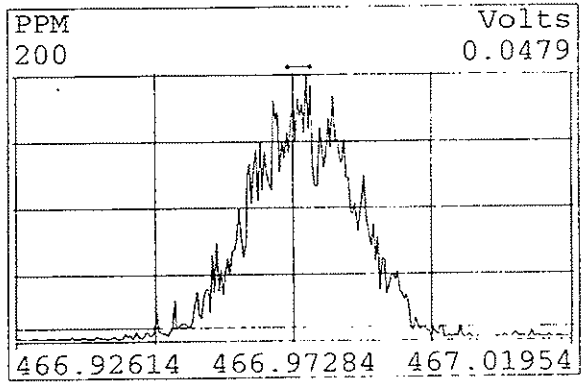


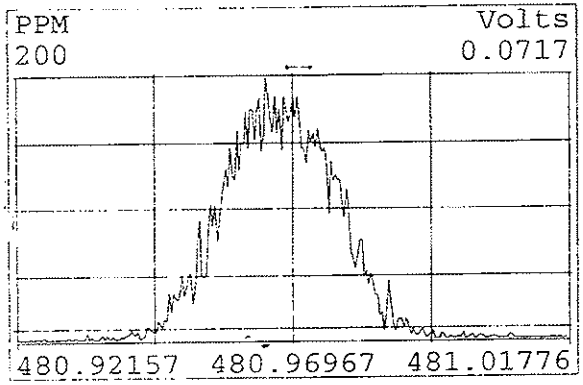




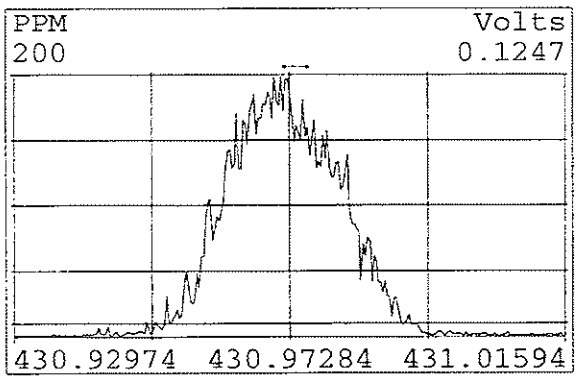


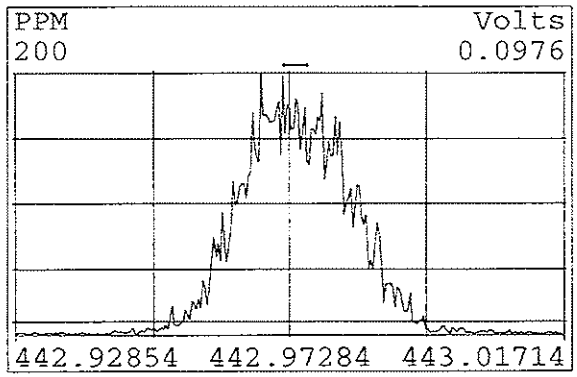


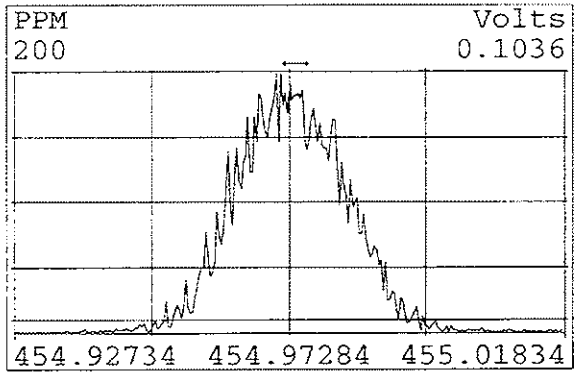


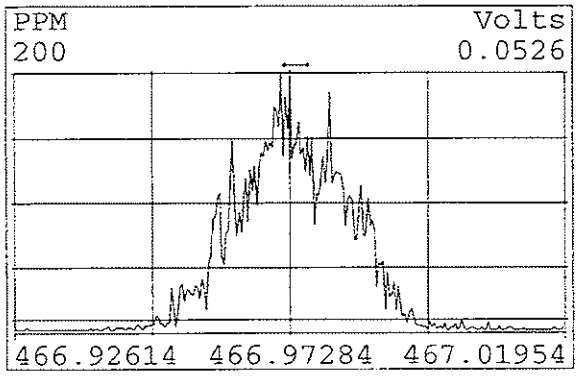


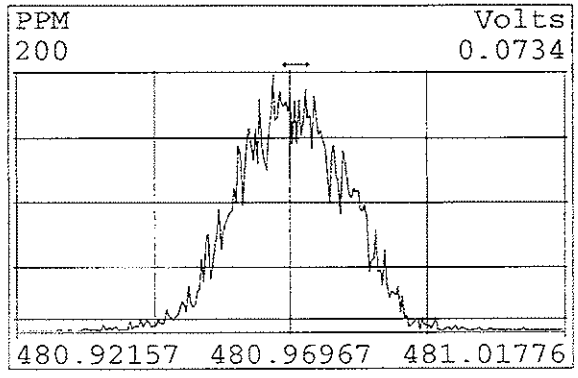
Peak Locate Examination: 7-OCT-2008:15:45 File:A07OCT08A_L
Experiment:EXP_DB5MS Function:5 Reference:PFK

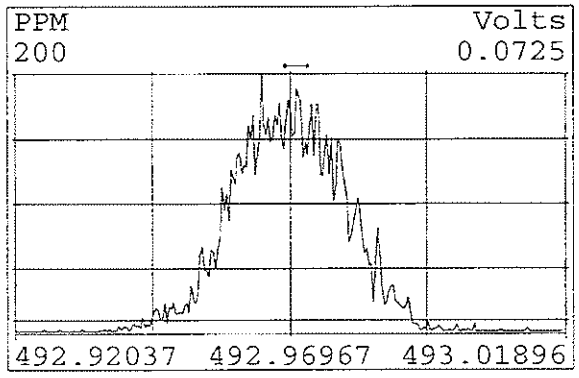


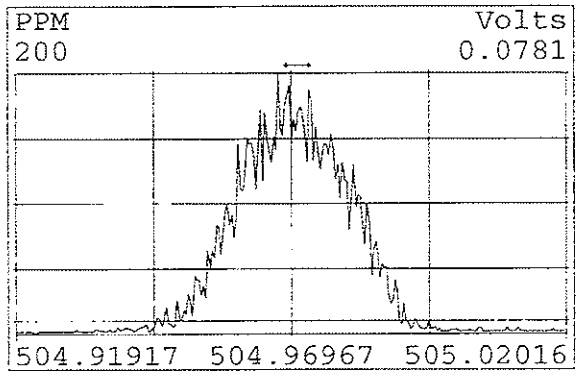


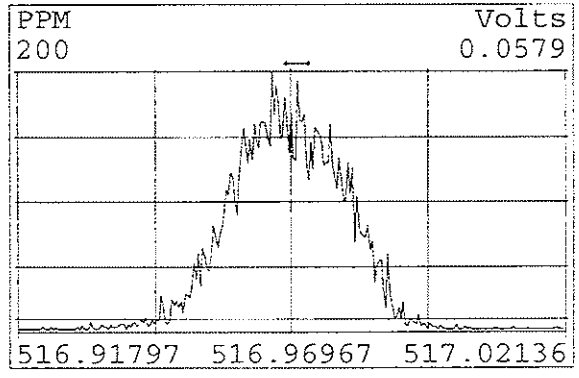




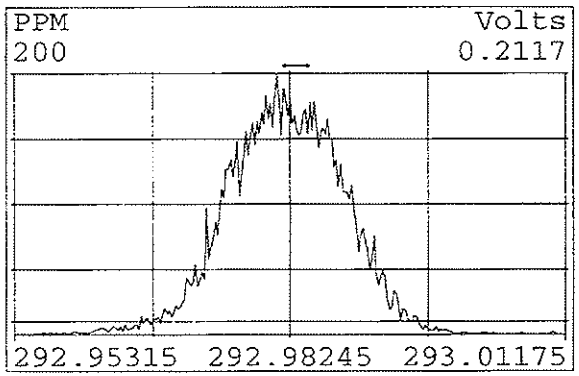


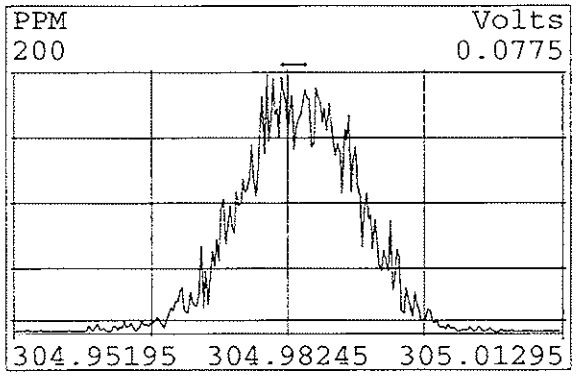


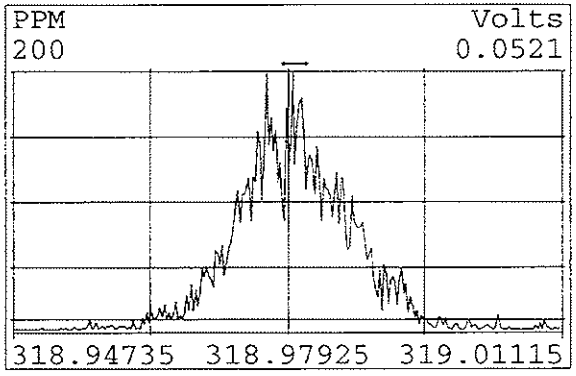


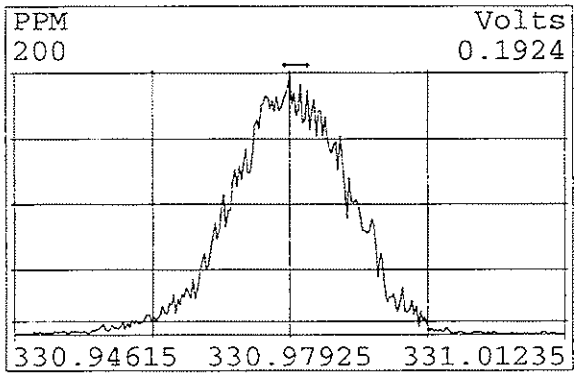


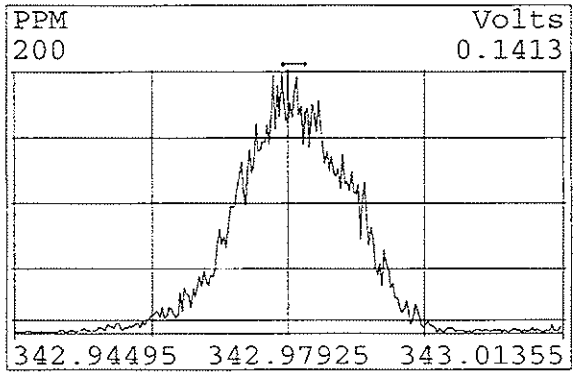
Peak Locate Examination: 7-OCT-2008:22:12 File:A07OCT08A_RES_CHECK
Experiment:EXP_DB5MS Function:1 Reference:PFK

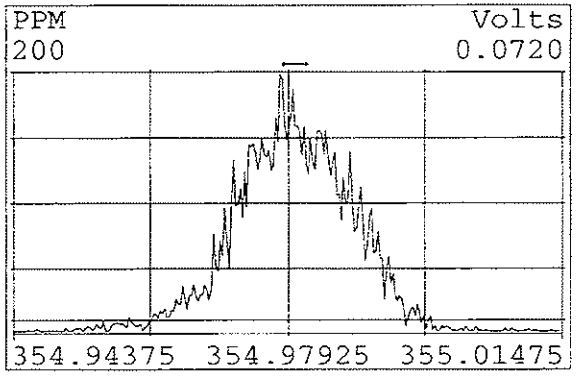


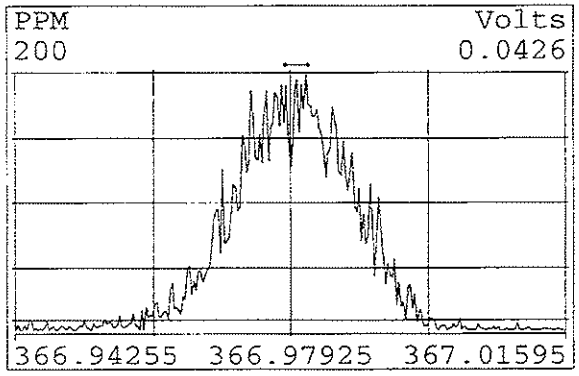


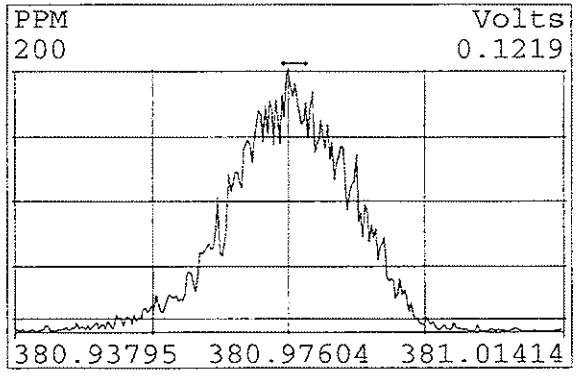




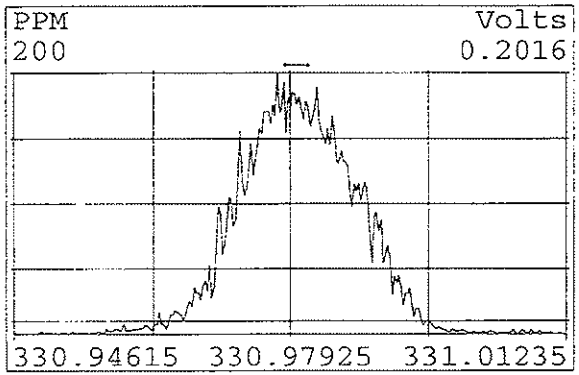


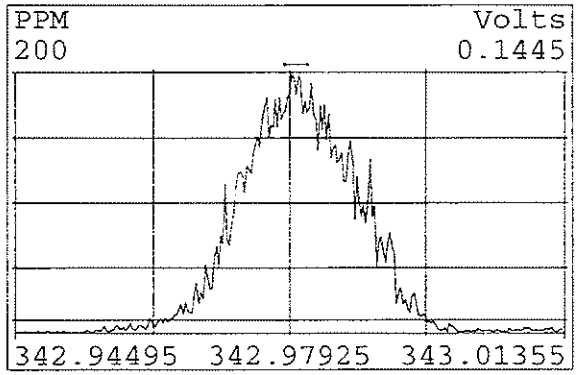


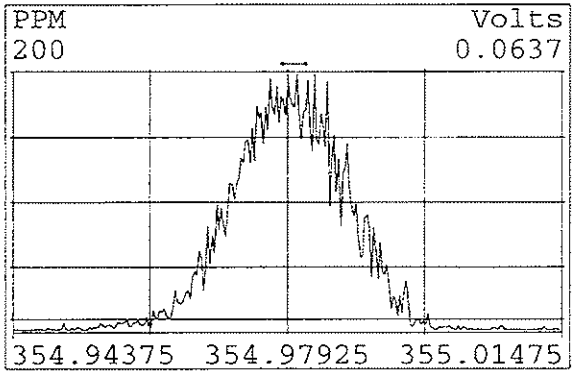


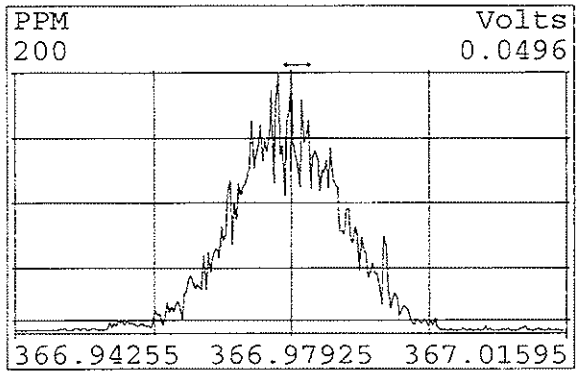


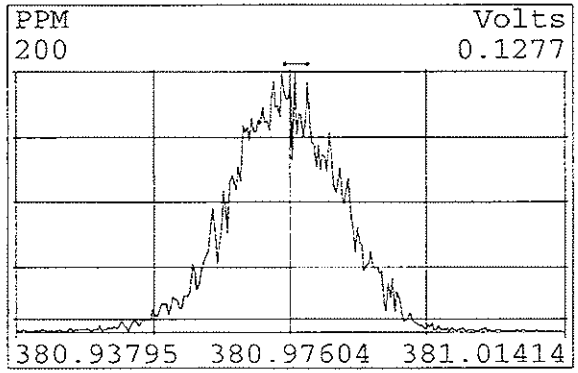
Peak Locate Examination: 7-OCT-2008:22:13 File:A07OCT08A_RES_CHECK
Experiment:EXP_DB5MS Function:2 Reference:PFK

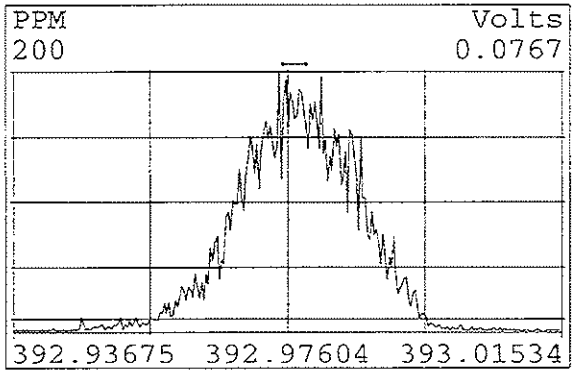


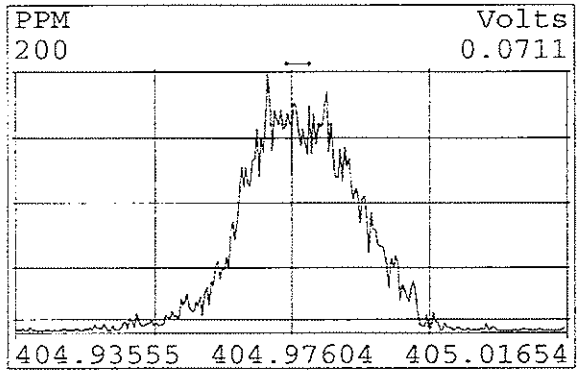


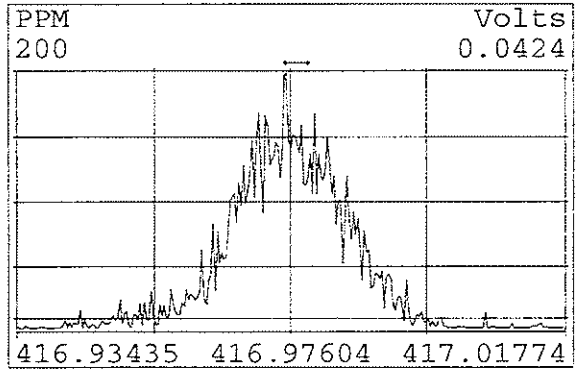




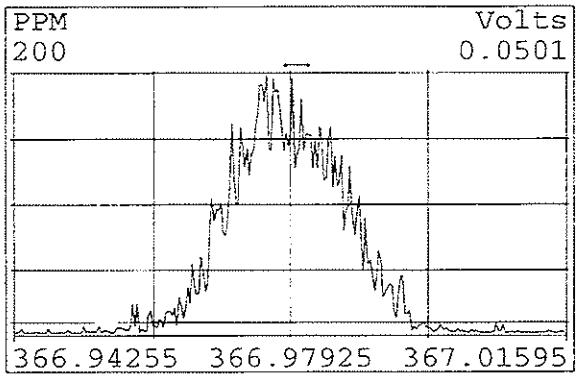


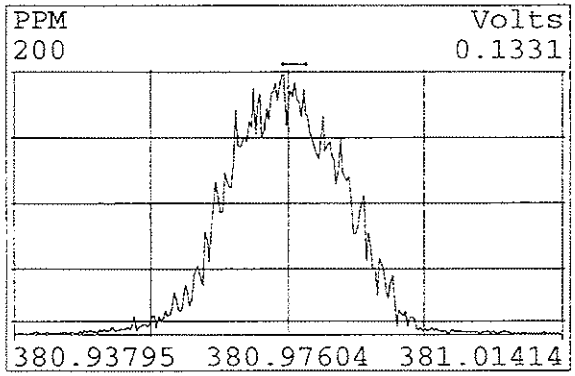


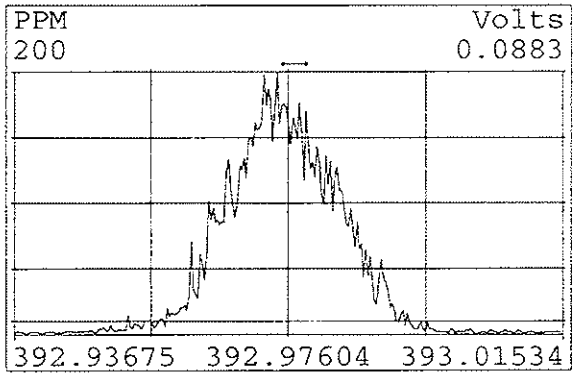


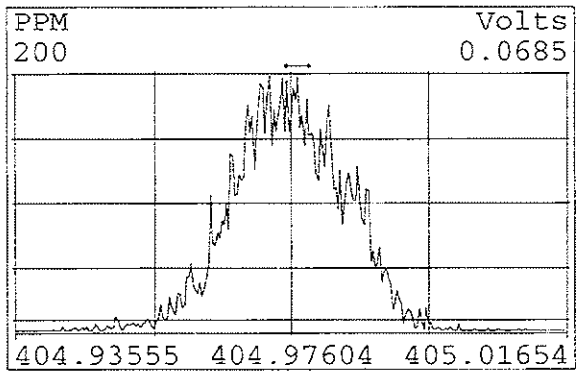


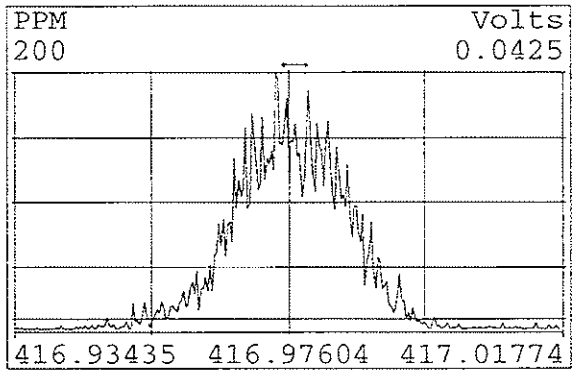
Peak Locate Examination: 7-OCT-2008:22:14 File:A07OCT08A_RES_CHECK
Experiment:EXP_DB5MS Function:3 Reference:PFK

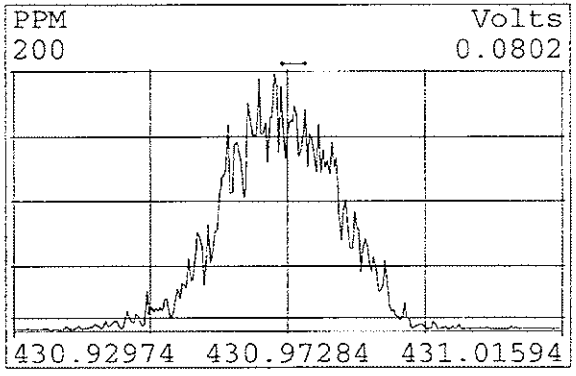


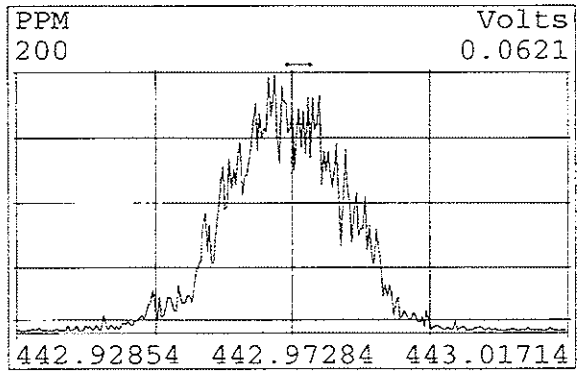


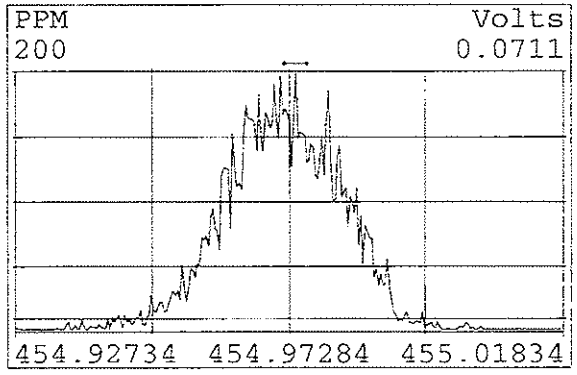




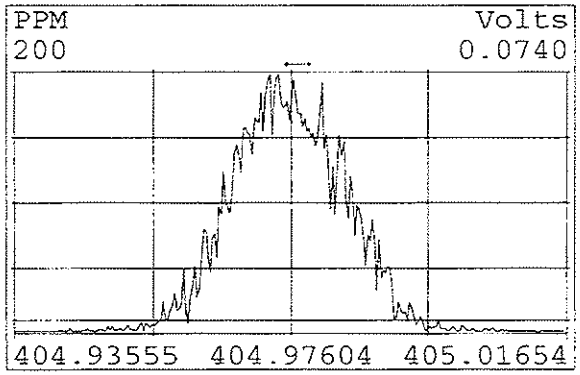


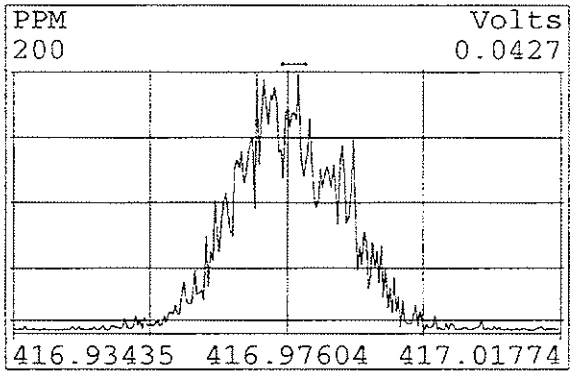


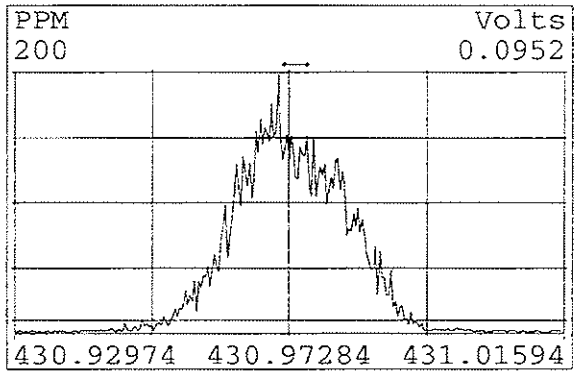


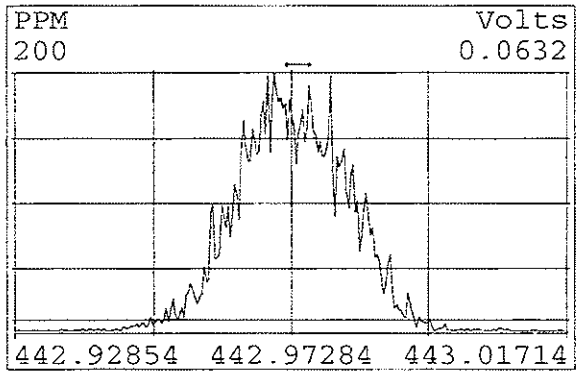


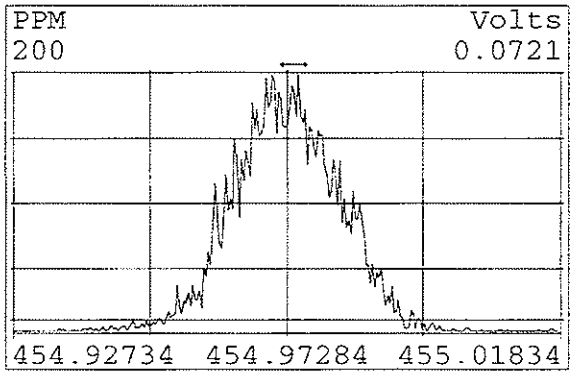
Peak Locate Examination: 7-OCT-2008:22:15 File:A07OCT08A_RES_CHECK
Experiment:EXP_DB5MS Function:4 Reference:PFK

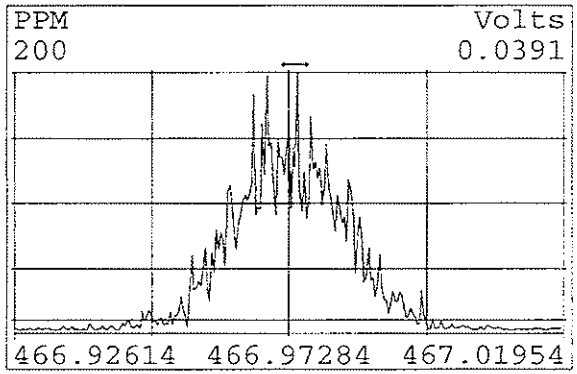


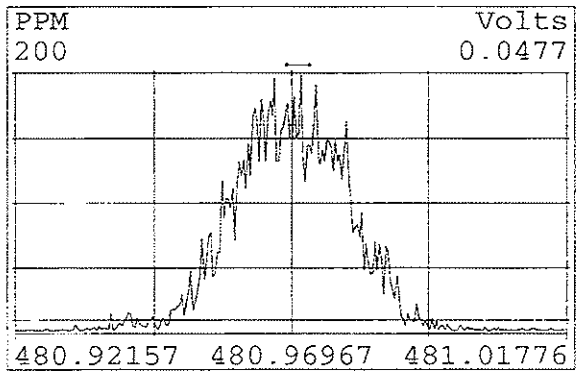




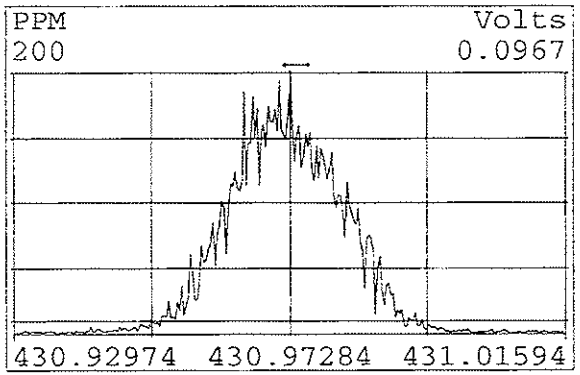


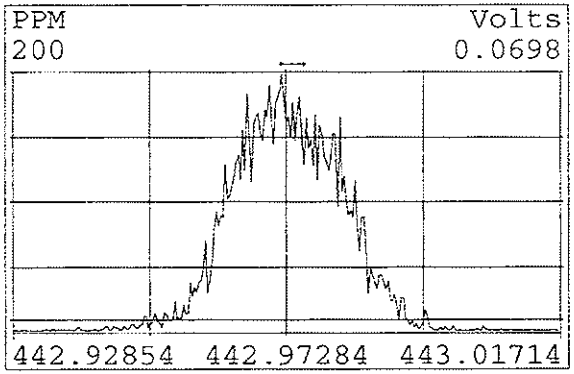


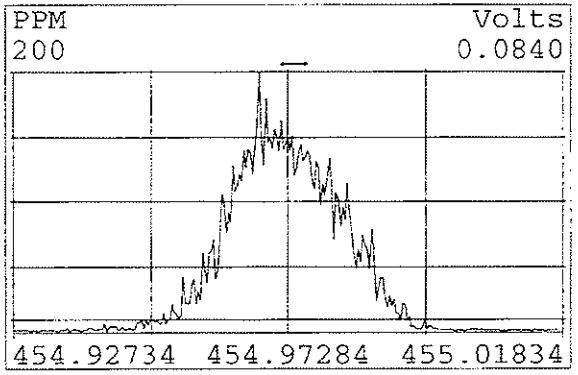


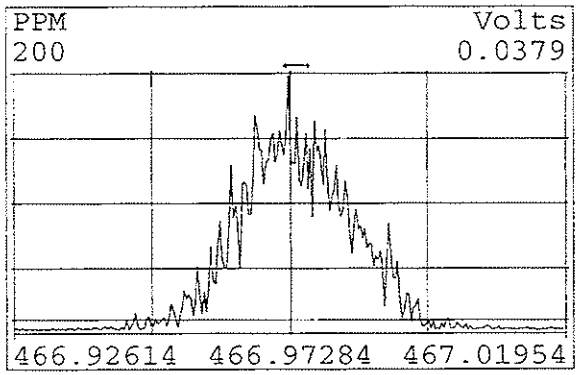


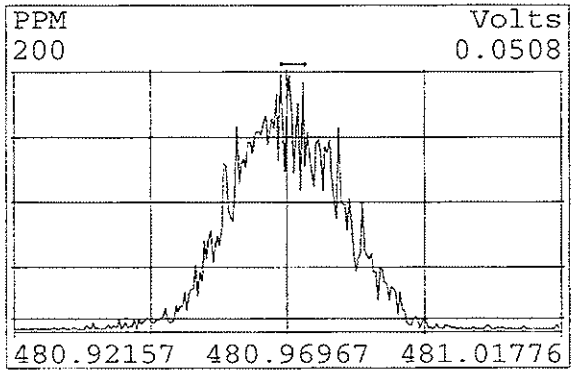
Peak Locate Examination: 7-OCT-2008:22:16 File:A07OCT08A_RES_CHECK
Experiment:EXP_DB5MS Function:5 Reference:PFK

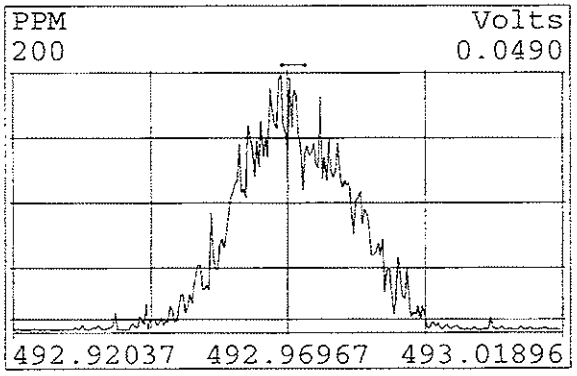


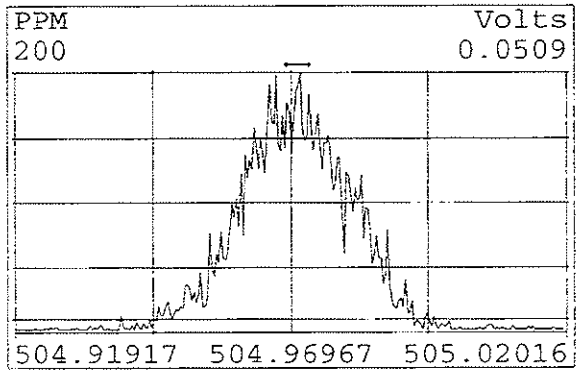


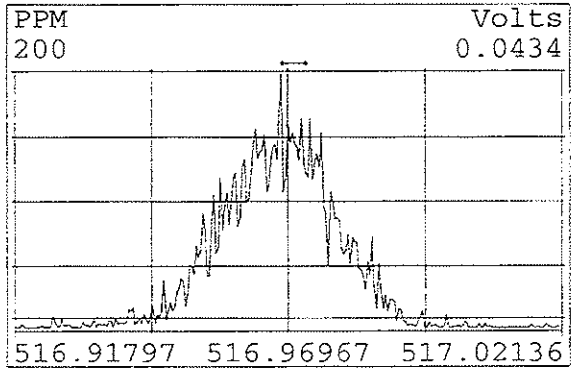






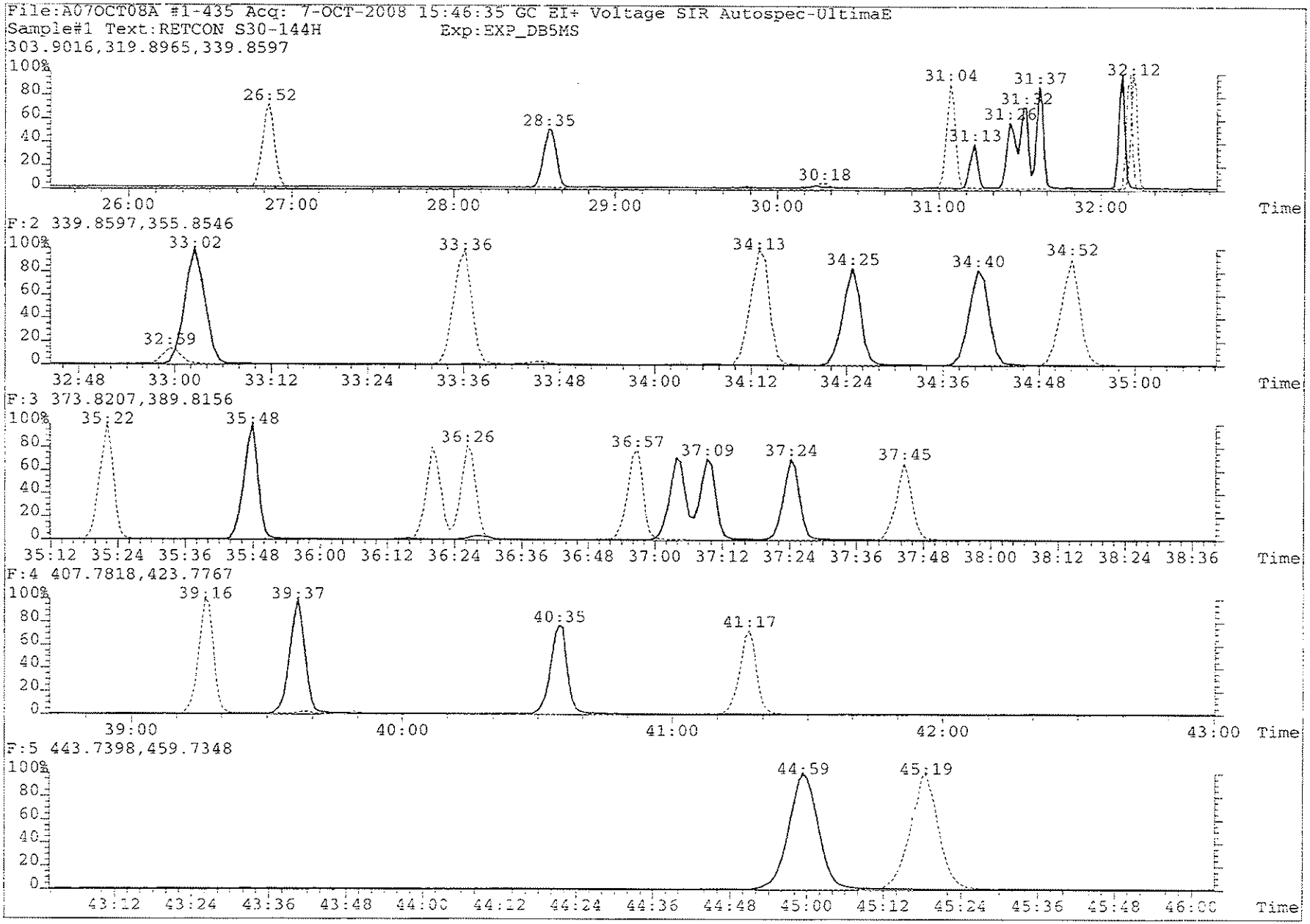


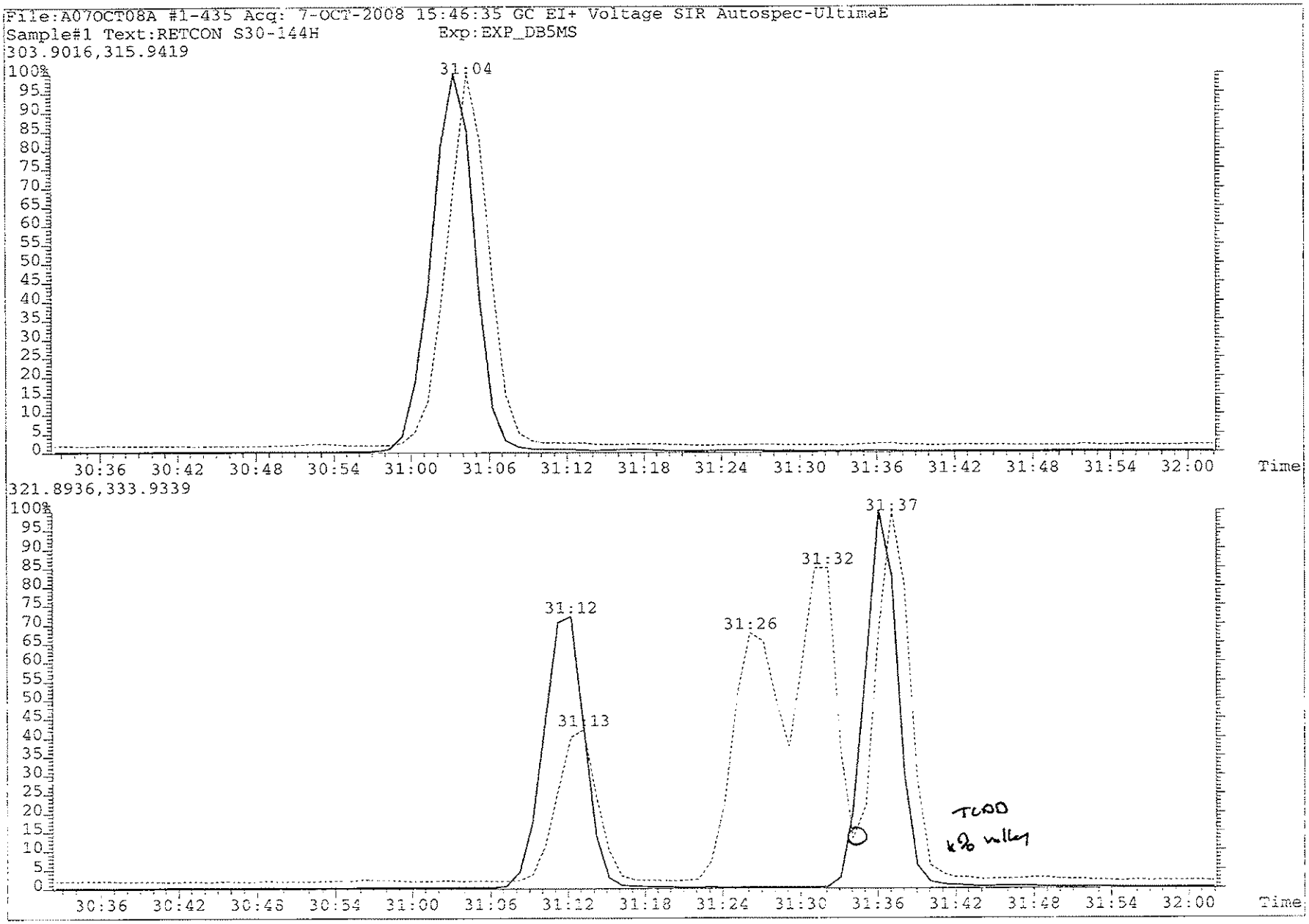




Filename ; a07oct08a
Sample ; 1
Acquired ; 7-OCT-08 15:46:35
Processed ; 8-OCT-08 08:19:56
Sample ID ; RETCON S30-144H

Name	First Eluter RT	Last Eluter RT
TCDD	28:35	32:08
PeCDD	33:02	34:40
HxCDD	35:48	37:24
HpCDD	39:37	40:35
OCDD	44:60	
TCDF	26:52	32:12
PeCDF	32:11	34:52
HxCDF	35:22	37:45
HpCDF	39:16	41:17
OCDF	45:19	


File:A07OCT08A #1-435 Acq: 7-OCT-2008 15:46:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:RETCON S30-144H Exp:EXP_DB5MS
303.9016,319.8965,339.8597
26:52
28:35
30:18
31:04
31:13
31:26
31:32
31:37
32:12
Time
F:2 339.8597,355.8546
32:59
33:02
33:36
34:13
34:25
34:40
34:52
Time
F:3 373.8207,389.8156
35:22
35:48
36:26
36:57
37:09
37:24
37:45
Time
F:4 407.7818,423.7767
39:16
39:37
40:35
41:17
Time
F:5 443.7398,459.7348
44:59
45:19
Time


File:A07OCT08A #1-435 Acq: 7-OCT-2008 15:46:35 GC EI+ Voltage SIR Autospec-UltimaE
Sample#1 Text:RETCON S30-144H
Exp:EXP_DB5MS
303.9016,315.9419
31:04
321.8936,333.9339
31:12
31:13
31:26
31:32
31:37
TCDD
4% wiley
Time

Filename a07oct08a - 3 Acquired: 7-OCT-08 17:23:03 Processed: 8-OCT-08 10:58:06

Analyte: Cal: m8290-100708a

Sample text: CS0.5 S30-144A

	Typ	Name	Amount	Resp	Ion1	Ion2	RA	RT	S/N1?	S/N2?	RRF	Mod?
1	Unk	2,3,7,8-TCDD	0.25	4.16e+05	1.76e+05	2.40e+05	0.73 y	31:38	11 y	14 y	1.0606	n
2	Unk	1,2,3,7,8-PeCDD	1.25	1.42e+06	8.52e+05	5.73e+05	1.49 y	34:25	46 y	41 y	1.0595	n
3	Unk	1,2,3,4,7,8-HxCDD	1.25	1.23e+06	7.00e+05	5.35e+05	1.31 y	37:04	32 y	26 y	0.9551	n
4	Unk	1,2,3,6,7,8-HxCDD	1.25	1.35e+06	7.86e+05	5.69e+05	1.38 y	37:10	36 y	28 y	1.0478	n
5	Unk	1,2,3,7,8,9-HxCDD	1.25	1.33e+06	7.36e+05	5.93e+05	1.24 y	37:25	35 y	29 y	1.0285	n
6	Unk	1,2,3,4,6,7,8-HpCDD	1.25	1.12e+06	5.98e+05	5.21e+05	1.15 y	40:35	25 y	24 y	1.0622	n
7	Unk	OCDD	2.50	1.78e+06	7.97e+05	9.80e+05	0.81 y	44:50	22 y	31 y	1.0620	n
8	Unk	2,3,7,8-TCDF	0.25	5.59e+05	2.43e+05	3.16e+05	0.77 y	31:05	12 y	13 y	0.9986	n
9	Unk	1,2,3,7,8-PeCDF	1.25	2.10e+06	1.28e+06	8.22e+05	1.56 y	33:36	81 y	45 y	0.9581	n
10	Unk	2,3,4,7,8-PeCDF	1.25	2.24e+06	1.39e+06	8.45e+05	1.65 y	34:13	81 y	48 y	1.0184	n
11	Unk	1,2,3,4,7,8-HxCDF	1.25	1.82e+06	1.02e+06	7.96e+05	1.29 y	36:20	54 y	46 y	1.0287	n
12	Unk	1,2,3,6,7,8-HxCDF	1.25	2.04e+06	1.11e+06	9.28e+05	1.20 y	36:27	60 y	53 y	1.1536	n
13	Unk	2,3,4,6,7,8-HxCDF	1.25	1.88e+06	1.05e+06	8.24e+05	1.28 y	36:56	57 y	45 y	1.0619	n
14	Unk	1,2,3,7,8,9-HxCDF	1.25	1.65e+06	9.49e+05	7.01e+05	1.35 y	37:45	42 y	32 y	0.9327	n
15	Unk	1,2,3,4,6,7,8-HpCDF	1.25	1.81e+06	9.34e+05	8.75e+05	1.07 y	39:17	39 y	39 y	1.3935	n
16	Unk	1,2,3,4,7,8,9-HpCDF	1.25	1.37e+06	6.98e+05	6.76e+05	1.03 y	41:17	25 y	26 y	1.0580	n
17	Unk	OCDF	2.50	1.96e+06	9.36e+05	1.02e+06	0.91 y	45:19	26 y	33 y	1.1707	n
18	ES/RT	13C-2,3,7,8-TCDD	100.00	1.57e-08	6.93e-07	8.75e-07	0.79 y	31:37	3369 y	5409 y	1.1343	n
19	ES	13C-1,2,3,7,8-PeCDD	100.00	1.08e-08	6.61e+07	4.15e+07	1.59 y	34:24	3500 y	2716 y	0.7785	n
20	ES	13C-1,2,3,6,7,8-HxCDD	100.00	1.03e-08	5.75e+07	4.59e+07	1.25 y	37:09	3292 y	2307 y	0.9864	n
21	ES	13C-1,2,3,4,6,7,8-HpCDD	100.00	8.43e+07	4.34e+07	4.09e+07	1.06 y	40:34	2370 y	1543 y	0.8040	n
22	ES	13C-OCDD	200.00	1.34e-08	6.32e-07	7.07e+07	0.89 y	44:59	1789 y	2553 y	0.6384	n
23	ES/RT	13C-2,3,7,8-TCDF	100.00	2.24e+08	1.00e+08	1.24e+08	0.81 y	31:04	3656 y	4310 y	1.6214	n
24	ES	13C-1,2,3,7,8-PeCDF	100.00	1.76e+08	1.08e+08	6.82e+07	1.58 y	33:36	2108 y	1619 y	1.2714	n
25	ES	13C-1,2,3,6,7,8-HxCDF	100.00	1.41e+08	4.88e+07	9.27e+07	0.53 y	36:26	2486 y	4023 y	1.3493	n
26	ES	13C-1,2,3,4,6,7,8-HpCDF	100.00	1.04e+08	3.24e+07	7.14e+07	0.45 y	39:16	1215 y	2177 y	0.9905	n
27	JS	13C-1,2,3,4-TCDD	100.00	1.38e+08	6.15e+07	7.67e+07	0.80 y	31:12	2662 y	4156 y		n
28	JS	13C-1,2,3,7,8,9-HxCDD	100.00	1.05e+08	5.86e+07	4.63e+07	1.27 y	37:24	2929 y	2042 y	-	n
29	CS	37Cl-2,3,7,8-TCDD	0.25	4.29e+05	4.29e+05			31:38	23 y		1.2420	n
30	CS	13C 2,3,4,7,8-PeCDF	100.00	1.72e+08	1.05e+08	6.74e+07	1.56 y	34:13	1815 y	1450 y	1.2467	n
31	CS	13C-1,2,3,4,7,8-HxCDD	100.00	1.05e+08	5.84e+07	4.63e+07	1.26 y	37:03	2845 y	1949 y	0.9981	n
32	CS	13C-1,2,3,4,7,8-HxCDF	100.00	1.29e+08	4.37e+07	8.50e+07	0.51 y	36:20	2273 y	3729 y	1.2275	n
33	CS	13C 1,2,3,4,7,8,9-HpCDF	100.00	8.15e+07	2.55e+07	5.61e+07	0.45 y	41:16	801 y	1437 y	0.7776	n
34	SS	37Cl 2,3,7,8-TCDD	0.25	4.29e-05	4.29e-05			31:38	23 y		1.0949	n
35	SS	13C-2,3,4,7,8-PeCDF	100.00	1.72e-08	1.05e-08	6.74e-07	1.56 y	34:13	1815 y	1450 y	0.9806	n
36	SS	13C 1,2,3,4,7,8-HxCDD	100.00	1.05e+08	5.84e-07	4.63e+07	1.26 y	37:03	2845 y	1949 y	1.0118	n
37	SS	13C-1,2,3,4,7,8 HxCDF	100.00	1.29e+08	4.37e-07	8.50e-07	0.51 y	36:20	2273 y	3729 y	0.9097	n
38	SS	13C-1,2,3,4,7,8,9-HpCDF	100.00	8.15e-07	2.55e+07	5.61e-07	0.45 y	41:16	801 y	1437 y	0.7850	n
39	Tot	Total Tetra Furans	0.00				n		n	n	0.9936	n
40	Tot	Total Tetra-Dioxins	0.00				n		n	n	1.0606	n
41	Tot	Total Penta Furans Fn1	0.00				n		n	n	0.9883	n
42	Tot	Total Penta Furans Fn2	0.00				n		n	n	0.9382	n
43	Tot	Total Penta Dioxins	0.00				n		n	n	1.0595	n
44	Tot	Total Hexa Furans	0.00				n		n	n	1.0442	n

1.1707

Filename a07oct08a - 5 Acquired: 7-OCT-08 18:59:31 Processed: 8 OCT-08 10:59:27

Analyte: Cal: m8290-100708a

Sample text: CS2 S30-144C

	Typ	Name	Amount	Resp	Ion1	Ion2	RA	RT	S/N1?	S/N2?	RRF	Mod?
1	Unk	2,3,7,8-TCDD	2.00	2.84e+06	1.26e+06	1.58e-06	0.80 y	31:38	68 y	97 y	0.9886	n
2	Unk	1,2,3,7,8-PeCDD	10.00	1.09e+07	6.65e+06	4.24e-06	1.57 y	34:25	290 y	179 y	1.0408	n
3	Unk	1,2,3,4,7,8-HxCDD	10.00	1.03e+07	5.65e+06	4.69e-06	1.20 y	37:04	250 y	161 y	0.9821	n
4	Unk	1,2,3,6,7,8-HxCDD	10.00	1.03e+07	5.95e+06	4.39e-06	1.36 y	37:10	257 y	177 y	0.9828	n
5	Unk	1,2,3,7,8,9-HxCDD	10.00	1.02e+07	5.79e+06	4.44e-06	1.30 y	37:25	249 y	159 y	0.9723	n
6	Unk	1,2,3,4,6,7,8-HpCDD	10.00	8.44e+06	4.31e+06	4.13e-06	1.04 y	40:35	142 y	152 y	1.0469	n
7	Unk	OCDD	20.00	1.28e-07	5.97e+06	6.80e-06	0.88 y	44:60	141 y	202 y	1.0388	n
8	Unk	2,3,7,8-TCDF	2.00	4.63e+06	2.03e+06	2.60e+06	0.78 y	31:05	73 y	94 y	1.0252	n
9	Unk	1,2,3,7,8-PeCDF	10.00	1.69e+07	1.03e+07	6.57e+06	1.57 y	33:36	516 y	296 y	0.9826	n
10	Unk	2,3,4,7,8-PeCDF	10.00	1.74e+07	1.06e+07	6.77e+06	1.57 y	34:13	505 y	300 y	1.0065	n
11	Unk	1,2,3,4,7,8-HxCDF	10.00	1.44e+07	7.97e+06	6.43e+06	1.24 y	36:20	214 y	262 y	1.0245	n
12	Unk	1,2,3,6,7,8-HxCDF	10.00	1.55e+07	8.66e+06	6.80e+06	1.27 y	36:27	220 y	252 y	1.0991	n
13	Unk	2,3,4,6,7,8-HxCDF	10.00	1.47e+07	8.09e+06	6.60e+06	1.23 y	36:56	221 y	271 y	1.0446	n
14	Unk	1,2,3,7,8,9-HxCDF	10.00	1.28e+07	7.13e+06	5.65e+06	1.26 y	37:45	165 y	205 y	0.9089	n
15	Unk	1,2,3,4,6,7,8-HpCDF	10.00	1.38e+07	7.01e+06	6.80e+06	1.03 y	39:17	261 y	225 y	1.3797	n
16	Unk	1,2,3,4,7,8,9-HpCDF	10.00	1.07e-07	5.43e+06	5.25e+06	1.03 y	41:17	169 y	141 y	1.0667	n
17	Unk	OCDF	20.00	1.51e+07	7.19e+06	7.95e+06	0.90 y	45:19	238 y	180 y	1.2316	n
18	ES/RT	13C-2,3,7,8-TCDD	100.00	1.43e+08	6.37e+07	7.97e+07	0.80 y	31:37	3243 y	4111 y	1.0773	n
19	ES	13C-1,2,3,7,8-PeCDD	100.00	1.05e-08	6.41e+07	4.05e+07	1.59 y	34:24	3601 y	2214 y	0.7855	n
20	ES	13C-1,2,3,6,7,8-HxCDD	100.00	1.05e+08	5.70e+07	4.82e+07	1.18 y	37:09	2407 y	2315 y	1.0163	n
21	ES	13C-1,2,3,4,6,7,8-HpCDD	100.00	8.06e+07	4.15e+07	3.90e+07	1.06 y	40:34	1360 y	1122 y	0.7781	n
22	ES	13C-OCDD	200.00	1.23e-08	5.78e+07	6.51e-07	0.89 y	44:59	1750 y	1730 y	0.5936	n
23	ES/RT	13C-2,3,7,8-TCDF	100.00	2.26e+08	1.00e+08	1.25e+08	0.80 y	31:04	3961 y	4338 y	1.6944	n
24	ES	13C-1,2,3,7,8-PeCDF	100.00	1.72e+08	1.05e+08	6.71e+07	1.57 y	33:36	1106 y	1439 y	1.2932	n
25	ES	13C-1,2,3,6,7,8-HxCDF	100.00	1.41e-08	4.86e+07	9.21e+07	0.53 y	36:26	2106 y	4076 y	1.3581	n
26	ES	13C-1,2,3,4,6,7,8-HpCDF	100.00	1.00e+08	3.13e+07	6.88e+07	0.45 y	39:16	1058 y	1593 y	0.9666	n
27	JS	13C-1,2,3,4-TCDD	100.00	1.33e-08	5.91e+07	7.40e-07	0.80 y	31:12	2668 y	3259 y	-	n
28	JS	13C-1,2,3,7,8,9-HxCDD	100.00	1.04e+08	5.75e+07	4.60e+07	1.25 y	37:24	2130 y	2073 y	-	n
29	CS	37Cl-2,3,7,8-TCDD	2.00	3.13e+06	3.13e+06			31:38	161 y		1.1759	n
30	CS	13C-2,3,4,7,8-PeCDF	100.00	1.68e+08	1.03e+08	6.56e-07	1.57 y	34:13	1001 y	1360 y	1.2640	n
31	CS	13C-1,2,3,4,7,8-HxCDD	100.00	9.92e-07	5.73e+07	4.19e+07	1.37 y	37:03	2121 y	2030 y	0.9582	n
32	CS	13C-1,2,3,4,7,8-HxCDF	100.00	1.27e+08	4.36e+07	8.36e+07	0.52 y	36:20	1864 y	3685 y	1.2284	n
33	CS	13C-1,2,3,4,7,8,9-HpCDF	100.00	7.84e+07	2.44e+07	5.41e-07	0.45 y	41:16	701 y	1042 y	0.7573	n
34	SS	37Cl-2,3,7,8-TCDD	2.00	3.13e+06	3.13e+06			31:38	161 y		1.0915	n
35	SS	13C 2,3,4,7,8-PeCDF	100.00	1.68e+08	1.03e+08	6.56e-07	1.57 y	34:13	1001 y	1360 y	0.9774	n
36	SS	13C-1,2,3,4,7,8-HxCDD	100.00	9.92e-07	5.73e+07	4.19e+07	1.37 y	37:03	2121 y	2030 y	0.9428	n
37	SS	13C 1,2,3,4,7,8-HxCDF	100.00	1.27e+08	4.36e+07	8.36e+07	0.52 y	36:20	1864 y	3685 y	0.9045	n
38	SS	13C 1,2,3,4,7,8,9-HpCDF	100.00	7.84e+07	2.44e+07	5.41e+07	0.45 y	41:16	701 y	1042 y	0.7835	n
39	Tot	Total Tetra-Furans	0.00			-		n		n	1.0252	n
40	Tot	Total Tetra-Dioxins	0.00		-		-	n	-	n	0.9886	n
41	Tot	Total Penta Furans Fn1	0.00		-			n	-	n	0.9886	n
42	Tot	Total Penta-Furans Fn2	0.00		-			n	-	n	0.9886	n
43	Tot	Total Penta-Dioxins	0.00		-			n	-	n	1.0469	n
44	Tot	Total Hexa Furans	0.00		-			n		n	1.0469	n

1.2274

Filename a07oct08a - 6 Acquired: 7 OCT-08 19:47:49 Processed: 8 OCT 08 10:59:49
Analyte: Cal: m8290-100708a
Sample text: CS3 S30-144D

	Typ	Name	Amount	Resp	Ion1	Ion2	RA	RT	S/N1?	S/N2?	RRF	Mod?
1	Unk	2,3,7,8 TCDD	10.00	1.45e+07	6.26e+06	8.22e+06	0.76 y	31:38	351 y	433 y	0.9870	n
2	Unk	1,2,3,7,8-PeCDD	50.00	5.63e+07	3.44e+07	2.18e+07	1.58 y	34:25	1586 y	1063 y	1.0552	n
3	Unk	1,2,3,4,7,8 HxCDD	50.00	5.12e+07	2.84e+07	2.28e+07	1.25 y	37:04	986 y	960 y	0.9255	n
4	Unk	1,2,3,6,7,8-HxCDD	50.00	5.43e+07	3.02e+07	2.41e+07	1.25 y	37:10	987 y	947 y	0.9811	n
5	Unk	1,2,3,7,8,9-HxCDD	50.00	5.20e+07	2.87e+07	2.33e+07	1.23 y	37:25	983 y	953 y	0.9393	n
6	Unk	1,2,3,4,6,7,8 HpCDD	50.00	4.26e+07	2.16e+07	2.09e+07	1.04 y	40:35	765 y	761 y	1.0593	n
7	Unk	OCDD	100.00	6.73e-07	3.18e+07	3.55e+07	0.90 y	44:60	873 y	924 y	1.0701	n
8	Unk	2,3,7,8-TCDF	10.00	2.29e+07	1.01e+07	1.28e+07	0.78 y	31:05	337 y	444 y	1.0473	n
9	Unk	1,2,3,7,8-PeCDF	50.00	8.85e+07	5.41e+07	3.44e+07	1.57 y	33:36	1409 y	856 y	0.9980	n
10	Unk	2,3,4,7,8-PeCDF	50.00	8.78e+07	5.36e+07	3.42e+07	1.56 y	34:13	1388 y	854 y	0.9903	n
11	Unk	1,2,3,4,7,8-HxCDF	50.00	7.60e+07	4.24e+07	3.35e+07	1.27 y	36:20	1977 y	1354 y	1.0525	n
12	Unk	1,2,3,6,7,8-HxCDF	50.00	8.18e+07	4.56e+07	3.62e+07	1.26 y	36:27	2099 y	1475 y	1.1336	n
13	Unk	2,3,4,6,7,8-HxCDF	50.00	7.67e+07	4.27e+07	3.40e+07	1.26 y	36:56	1977 y	1347 y	1.0522	n
14	Unk	1,2,3,7,8,9-HxCDF	50.00	6.49e+07	3.62e+07	2.87e+07	1.26 y	37:45	1509 y	1053 y	0.8994	n
15	Unk	1,2,3,4,6,7,8 HpCDF	50.00	6.89e+07	3.50e+07	3.38e+07	1.04 y	39:17	1160 y	873 y	1.3705	n
16	Unk	1,2,3,4,7,8,9-HpCDF	50.00	5.41e+07	2.77e+07	2.64e+07	1.05 y	41:17	771 y	561 y	1.0764	n
17	Unk	OCDF	100.00	7.97e+07	3.83e+07	4.14e+07	0.93 y	45:19	1168 y	1148 y	1.2670	n
18	ES/RT	13C-2,3,7,8-TCDD	100.00	1.47e+08	6.53e+07	8.14e+07	0.80 y	31:37	2515 y	3190 y	1.0843	n
19	ES	13C-1,2,3,7,8-PeCDD	100.00	1.07e+08	6.52e+07	4.14e+07	1.58 y	34:24	3326 y	1859 y	0.7882	n
20	ES	13C-1,2,3,6,7,8-HxCDD	100.00	1.11e+08	6.18e+07	4.89e+07	1.26 y	37:09	1809 y	1963 y	1.0656	n
21	ES	13C-1,2,3,4,6,7,8-HpCDD	100.00	8.04e+07	4.13e+07	3.91e+07	1.06 y	40:34	1524 y	1177 y	0.7737	n
22	ES	13C-OCDD	200.00	1.26e+08	5.94e+07	6.64e+07	0.90 y	44:59	1930 y	1828 y	0.6053	n
23	ES/RT	13C-2,3,7,8-TCDF	100.00	2.18e+08	9.72e+07	1.21e+08	0.80 y	31:04	3640 y	5836 y	1.6150	n
24	ES	13C-1,2,3,7,8-PeCDF	100.00	1.77e+08	1.09e+08	6.88e+07	1.58 y	33:36	1081 y	1363 y	1.3112	n
25	ES	13C-1,2,3,6,7,8-HxCDF	100.00	1.44e+08	4.98e+07	9.46e+07	0.53 y	36:26	1808 y	3803 y	1.3896	n
26	ES	13C-1,2,3,4,6,7,8-HpCDF	100.00	1.01e+08	3.14e+07	6.91e+07	0.45 y	39:16	971 y	2216 y	0.9676	n
27	JS	13C-1,2,3,4-TCDD	100.00	1.35e+08	5.99e+07	7.54e+07	0.79 y	31:12	2045 y	2641 y	-	n
28	JS	13C-1,2,3,7,8,9-HxCDD	100.00	1.04e+08	5.79e+07	4.59e+07	1.26 y	37:24	1653 y	1827 y	-	n
29	CS	37Cl-2,3,7,8-TCDD	10.00	1.53e+07	1.53e+07			31:38	650 y		1.1306	n
30	CS	13C-2,3,4,7,8 PeCDF	100.00	1.71e+08	1.05e+08	6.64e+07	1.58 y	34:13	986 y	1285 y	1.2653	n
31	CS	13C-1,2,3,4,7,8 HxCDD	100.00	9.70e+07	5.43e+07	4.26e+07	1.27 y	37:03	1655 y	1799 y	0.9336	n
32	CS	13C-1,2,3,4,7,8-HxCDF	100.00	1.31e+08	4.47e+07	8.60e+07	0.52 y	36:20	1590 y	3366 y	1.2585	n
33	CS	13C-1,2,3,4,7,8,9-HpCDF	100.00	7.94e+07	2.47e+07	5.46e+07	0.45 y	41:16	648 y	1466 y	0.7639	n
34	SS	37Cl 2,3,7,8 TCDD	10.00	1.53e+07	1.53e+07			31:38	650 y		1.0427	n
35	SS	13C-2,3,4,7,8-PeCDF	100.00	1.71e+08	1.05e+08	6.64e+07	1.58 y	34:13	986 y	1285 y	0.9650	n
36	SS	13C 1,2,3,4,7,8 HxCDD	100.00	9.70e+07	5.43e+07	4.26e+07	1.27 y	37:03	1655 y	1799 y	0.8761	n
37	SS	13C-1,2,3,4,7,8 HxCDF	100.00	1.31e+08	4.47e+07	8.60e+07	0.52 y	36:20	1590 y	3366 y	0.9057	n
38	SS	13C-1,2,3,4,7,8,9-HpCDF	100.00	7.94e+07	2.47e+07	5.46e+07	0.45 y	41:16	648 y	1466 y	0.7895	n
39	Tot	Total Tetra Furans	0.00	-	-		n		n	n	1.0473	n
40	Tot	Total Tetra Dioxins	0.00	-	-		n	-	n	n	0.9870	n
41	Tot	Total Penta Furans Fn1	0.00	-			n		n	n	0.9841	n
42	Tot	Total Penta Furans Fn2	0.00				n		n	n	0.9841	n
43	Tot	Total Penta Dioxins	0.00				n	-	n	n	1.1750	n
44	Tot	Total Hexa Furans	0.00				n		n	n	1.0811	n

1.2671

Filename a07oct08a 7 Acquired: 7-OCT-08 20:36:05 Processed: 8-OCT-08 11:00:12

Analyte: Cal: m8290-100708a

Sample text: CS4 S30-144E

	Typ	Name	Amount	Resp	Ion1	Ion2	RA	RT	S/N1?	S/N2?	RRF	Mod?
1	Unk	2,3,7,8-TCDD	40.00	6.14e+07	2.68e+07	3.46e+07	0.77 y	31:38	836 y	1149 y	1.0061	n
2	Unk	1,2,3,7,8-PeCDD	200.00	2.37e+08	1.45e+08	9.25e+07	1.57 y	34:25	6001 y	6197 y	1.0467	n
3	Unk	1,2,3,4,7,8-HxCDD	200.00	2.16e+08	1.20e+08	9.62e+07	1.24 y	37:04	6696 y	4080 y	0.9200	n
4	Unk	1,2,3,6,7,8-HxCDD	200.00	2.26e+08	1.25e+08	1.01e+08	1.24 y	37:10	6300 y	3934 y	0.9656	n
5	Unk	1,2,3,7,8,9-HxCDD	200.00	2.17e+08	1.20e+08	9.69e+07	1.24 y	37:25	6201 y	3771 y	0.9268	n
6	Unk	1,2,3,4,6,7,8 HpCDD	200.00	1.80e+08	9.19e+07	8.80e+07	1.04 y	40:35	3157 y	3541 y	1.0587	n
7	Unk	OCDD	400.00	2.86e-08	1.35e+08	1.50e+08	0.90 y	44:60	3567 y	4051 y	1.0675	n
8	Unk	2,3,7,8-TCDF	40.00	9.45e+07	4.13e+07	5.32e+07	0.78 y	31:05	850 y	1181 y	1.0549	n
9	Unk	1,2,3,7,8-PeCDF	200.00	3.63e+08	2.21e+08	1.42e+08	1.56 y	33:36	1931 y	1751 y	0.9955	n
10	Unk	2,3,4,7,8-PeCDF	200.00	3.74e+08	2.28e+08	1.46e+08	1.56 y	34:13	2012 y	1843 y	1.0269	n
11	Unk	1,2,3,4,7,8-HxCDF	200.00	3.14e+08	1.74e+08	1.40e+08	1.24 y	36:20	8599 y	7623 y	1.0509	n
12	Unk	1,2,3,6,7,8-HxCDF	200.00	3.38e+08	1.89e+08	1.49e+08	1.26 y	36:27	8787 y	7579 y	1.1313	n
13	Unk	2,3,4,6,7,8-HxCDF	200.00	3.22e+08	1.79e+08	1.42e+08	1.26 y	36:56	8699 y	7545 y	1.0771	n
14	Unk	1,2,3,7,8,9-HxCDF	200.00	2.77e+08	1.55e+08	1.22e+08	1.27 y	37:45	6333 y	5434 y	0.9266	n
15	Unk	1,2,3,4,6,7,8-HpCDF	200.00	2.93e+08	1.50e+08	1.43e+08	1.04 y	39:17	2769 y	9982 y	1.3743	n
16	Unk	1,2,3,4,7,8,9-HpCDF	200.00	2.25e+08	1.15e+08	1.10e+08	1.05 y	41:17	1748 y	6206 y	1.0563	n
17	Unk	OCDF	400.00	3.48e+08	1.66e+08	1.82e+08	0.91 y	45:18	6259 y	5242 y	1.3005	n
18	ES/RT	13C-2,3,7,8-TCDD	100.00	1.53e+08	6.81e+07	8.46e+07	0.80 y	31:37	1558 y	1993 y	1.1106	n
19	ES	13C-1,2,3,7,8-PeCDD	100.00	1.13e+08	6.95e+07	4.38e+07	1.59 y	34:24	3737 y	2958 y	0.8244	n
20	ES	13C-1,2,3,6,7,8-HxCDD	100.00	1.17e+08	6.57e+07	5.16e+07	1.27 y	37:09	2846 y	3167 y	1.0960	n
21	ES	13C-1,2,3,4,6,7,8-HpCDD	100.00	8.49e+07	4.35e+07	4.15e+07	1.05 y	40:34	1487 y	1503 y	0.7939	n
22	ES	13C-OCDD	200.00	1.34e-08	6.30e+07	7.07e+07	0.89 y	44:58	2298 y	2572 y	0.6249	n
23	ES/RT	13C-2,3,7,8-TCDF	100.00	2.24e+08	1.00e+08	1.24e+08	0.81 y	31:04	2436 y	2226 y	1.6298	n
24	ES	13C-1,2,3,7,8-PeCDF	100.00	1.82e+08	1.12e+08	7.08e+07	1.58 y	33:36	2181 y	2091 y	1.3263	n
25	ES	13C-1,2,3,6,7,8-HxCDF	100.00	1.49e+08	5.16e+07	9.78e+07	0.53 y	36:26	2792 y	5323 y	1.3963	n
26	ES	13C-1,2,3,4,6,7,8-HpCDF	100.00	1.07e+08	3.33e+07	7.33e+07	0.45 y	39:16	1048 y	1963 y	0.9967	n
27	JS	13C-1,2,3,4-TCDD	100.00	1.37e+08	6.12e+07	7.63e+07	0.80 y	31:12	1168 y	1520 y	-	n
28	JS	13C-1,2,3,7,8,9-HxCDD	100.00	1.07e+08	6.00e+07	4.70e+07	1.28 y	37:24	2681 y	2971 y	-	n
29	CS	37Cl-2,3,7,8-TCDD	40.00	6.36e+07	6.36e+07			31:38	1361 y		1.1559	n
30	CS	13C-2,3,4,7,8 PeCDF	100.00	1.79e+08	1.09e+08	6.99e+07	1.56 y	34:13	1982 y	1971 y	1.3025	n
31	CS	13C-1,2,3,4,7,8-HxCDD	100.00	1.03e+08	5.74e+07	4.55e+07	1.26 y	37:03	2731 y	3035 y	0.9618	n
32	CS	13C-1,2,3,4,7,8-HxCDF	100.00	1.34e-08	4.60e+07	8.80e+07	0.52 y	36:20	2483 y	4804 y	1.2523	n
33	CS	13C-1,2,3,4,7,8,9-HpCDF	100.00	8.28e+07	2.57e+07	5.71e+07	0.45 y	41:16	684 y	1303 y	0.7740	n
34	SS	37Cl-2,3,7,8-TCDD	40.00	6.36e-07	6.36e+07			31:38	1361 y		1.0408	n
35	SS	13C-2,3,4,7,8 PeCDF	100.00	1.79e-08	1.09e-08	6.99e+07	1.56 y	34:13	1982 y	1971 y	0.9820	n
36	SS	13C-1,2,3,4,7,8 HxCDD	100.00	1.03e-08	5.74e+07	4.55e+07	1.26 y	37:03	2731 y	3035 y	0.8776	n
37	SS	13C-1,2,3,4,7,8-HxCDF	100.00	1.34e-08	4.60e+07	8.80e+07	0.52 y	36:20	2483 y	4804 y	0.8969	n
38	SS	13C 1,2,3,4,7,8,9-HpCDF	100.00	8.28e-07	2.57e+07	5.71e+07	0.45 y	41:16	684 y	1303 y	0.7766	n
39	Tot	Total Tetra-Furans	0.00	-		-	n		n	n	1.0549	n
40	Tot	Total Tetra-Dioxins	0.00				n	-	n	n	1.0061	n
41	Tot	Total Penta-Furans Fn1	0.00	-	-		n		n	n	1.0112	n
42	Tot	Total Penta-Furans Fn2	0.00				n		n	n	1.0112	n
43	Tot	Total Penta Dioxins	0.00		-	-	n		n	n	1.0447	n
44	Tot	Total Hexa-Furans	0.00				n		n	n	1.0464	n

1.2985

Filename a07oct08a - 8 Acquired: 7 OCT-08 21:24:17 Processed: 8-OCT-08 11:00:35
Analyte: Cal: m8290-100708a
Sample text: CS5 S30-144F

	Typ	Name	Amount	Resp	Ion1	Ion2	RA	RT	S/N1?	S/N2?	RRF	Mod?
1	Unk	2,3,7,8-TCDD	200.00	3.17e+08	1.38e+08	1.79e+08	0.77 y	31:38	8809 y	11139 y	1.0014	n
2	Unk	1,2,3,7,8-PeCDD	1000.00	1.29e+09	7.85e+08	5.02e+08	1.56 y	34:25	35105 y	34548 y	1.0562	n
3	Unk	1,2,3,4,7,8-HxCDD	1000.00	1.22e+09	6.79e+08	5.45e+08	1.25 y	37:04	34291 y	33472 y	0.9617	n
4	Unk	1,2,3,6,7,8-HxCDD	1000.00	1.25e+09	6.96e+08	5.52e+08	1.26 y	37:09	33529 y	32450 y	0.9806	n
5	Unk	1,2,3,7,8,9-HxCDD	1000.00	1.22e+09	6.77e+08	5.42e+08	1.25 y	37:25	33055 y	32424 y	0.9575	n
6	Unk	1,2,3,4,6,7,8-HpCDD	1000.00	1.03e+09	5.26e+08	5.00e+08	1.05 y	40:35	18773 y	22504 y	1.0791	n
7	Unk	OCDD	2000.00	1.75e+09	8.31e-08	9.24e+08	0.90 y	44:60	25961 y	29413 y	1.0832	n
8	Unk	2,3,7,8-TCDF	200.00	4.88e+08	2.15e-08	2.72e+08	0.79 y	31:05	8913 y	10892 y	1.0579	n
9	Unk	1,2,3,7,8-PeCDF	1000.00	2.00e+09	1.22e+09	7.82e+08	1.56 y	33:36	3442 y	3043 y	1.0024	n
10	Unk	2,3,4,7,8-PeCDF	1000.00	2.06e+09	1.26e-09	8.03e+08	1.57 y	34:13	3594 y	3185 y	1.0329	n
11	Unk	1,2,3,4,7,8-HxCDF	1000.00	1.76e+09	9.82e+08	7.79e+08	1.26 y	36:20	11722 y	17767 y	1.0784	n
12	Unk	1,2,3,6,7,8-HxCDF	1000.00	1.86e+09	1.04e+09	8.21e+08	1.26 y	36:27	13225 y	19865 y	1.1373	n
13	Unk	2,3,4,6,7,8-HxCDF	1000.00	1.76e+09	9.84e+08	7.78e+08	1.26 y	36:56	11464 y	17509 y	1.0792	n
14	Unk	1,2,3,7,8,9-HxCDF	1000.00	1.54e+09	8.59e+08	6.79e+08	1.26 y	37:45	9492 y	14037 y	0.9425	n
15	Unk	1,2,3,4,6,7,8-HpCDF	1000.00	1.63e+09	8.31e+08	7.96e+08	1.04 y	39:17	7651 y	10560 y	1.3580	n
16	Unk	1,2,3,4,7,8,9-HpCDF	1000.00	1.33e-09	6.80e+08	6.45e+08	1.05 y	41:17	5478 y	7467 y	1.1064	n
17	Unk	OCDF	2000.00	2.20e+09	1.05e+09	1.15e+09	0.91 y	45:18	29242 y	35230 y	1.3569	n
18	ES/RT	13C 2,3,7,8-TCDD	100.00	1.58e+08	7.05e+07	8.78e+07	0.80 y	31:37	3592 y	5724 y	1.1702	n
19	ES	13C-1,2,3,7,8-PeCDD	100.00	1.22e+08	7.46e+07	4.73e+07	1.58 y	34:24	4082 y	2555 y	0.9011	n
20	ES	13C-1,2,3,6,7,8-HxCDD	100.00	1.27e+08	7.09e+07	5.64e+07	1.26 y	37:09	3038 y	2295 y	1.0567	n
21	ES	13C-1,2,3,4,6,7,8-HpCDD	100.00	9.51e+07	4.90e+07	4.61e+07	1.06 y	40:33	1796 y	1829 y	0.7894	n
22	ES	13C-OCDD	200.00	1.62e+08	7.67e+07	8.53e+07	0.90 y	44:59	2283 y	2525 y	0.6722	n
23	ES/RT	13C-2,3,7,8-TCDF	100.00	2.31e+08	1.03e+08	1.28e+08	0.80 y	31:04	4161 y	5017 y	1.7041	n
24	ES	13C 1,2,3,7,8-PeCDF	100.00	2.00e+08	1.22e+08	7.76e+07	1.58 y	33:36	2174 y	1724 y	1.4776	n
25	ES	13C-1,2,3,6,7,8-HxCDF	100.00	1.63e+08	5.65e+07	1.07e+08	0.53 y	36:26	3867 y	6771 y	1.3552	n
26	ES	13C-1,2,3,4,6,7,8-HpCDF	100.00	1.20e+08	3.74e-07	8.24e+07	0.45 y	39:16	1354 y	3174 y	0.9945	n
27	JS	13C-1,2,3,4-TCDD	100.00	1.35e+08	6.03e+07	7.49e+07	0.81 y	31:12	2572 y	4032 y	-	n
28	JS	13C-1,2,3,7,8,9-HxCDD	100.00	1.20e+08	6.73e+07	5.32e+07	1.26 y	37:24	2874 y	2216 y	-	n
29	CS	37Cl-2,3,7,8-TCDD	200.00	3.35e+08	3.35e+08			31:38	17468 y		1.2399	n
30	CS	13C-2,3,4,7,8-PeCDF	100.00	1.98e-08	1.21e+08	7.68e-07	1.57 y	34:13	2183 y	1746 y	1.4608	n
31	CS	13C 1,2,3,4,7,8-HxCDD	100.00	1.15e-08	6.44e+07	5.35e+07	1.28 y	37:03	2831 y	2079 y	0.9533	n
32	CS	13C-1,2,3,4,7,8-HxCDF	100.00	1.49e+08	5.11e+07	9.80e+07	0.52 y	36:20	3198 y	5737 y	1.2378	n
33	CS	13C-1,2,3,4,7,8,9 HpCDF	100.00	9.64e+07	3.00e+07	6.63e+07	0.45 y	41:16	957 y	2180 y	0.8000	n
34	SS	37Cl 2,3,7,8-TCDD	200.00	3.35e+08	3.35e-08			31:38	17468 y		1.0596	n
35	SS	13C-2,3,4,7,8-PeCDF	100.00	1.98e+08	1.21e-08	7.68e-07	1.57 y	34:13	2183 y	1746 y	0.9886	n
36	SS	13C 1,2,3,4,7,8 HxCDD	100.00	1.15e-08	6.44e+07	5.05e+07	1.26 y	37:03	2831 y	2079 y	0.9022	n
37	SS	13C-1,2,3,4,7,8 HxCDF	100.00	1.49e+08	5.11e+07	9.80e-07	0.52 y	36:20	3198 y	5737 y	0.9134	n
38	SS	13C-1,2,3,4,7,8,9-HpCDF	100.00	9.64e-07	3.00e-07	6.63e+07	0.45 y	41:16	957 y	2180 y	0.8044	n
39	Tot	Total Tetra Furans	0.00					n	-	n	1.0579	n
40	Tot	Total Tetra Dioxins	0.00					n	-	n	1.0014	n
41	Tot	Total Penta Furans Fnl	0.00	-	-			n		n	1.0177	n
42	Tot	Total Penta Furans Fnl	0.00					n		n	1.0177	n
43	Tot	Total Penta Dioxins	0.00	-				n		n	1.0562	n
44	Tot	Total Hexa Furans	1.11					n		n	1.0794	n

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HRMS2 Sequence Log — SGS Environmental Services —

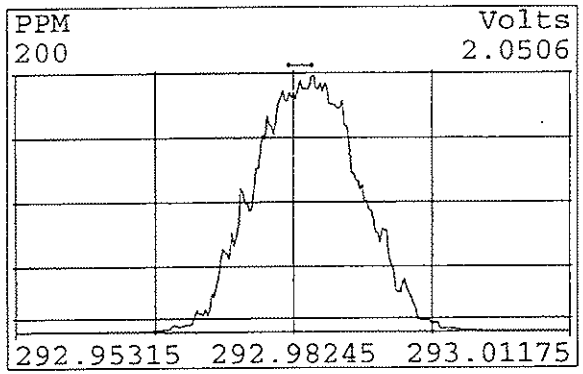
Data File S	Sample ID	Analyst	Acq. Date	Time
a02sep09c_2;1	;SB	;JWP	2-SEP-09	14:13:10
a02sep09c_2;2	;G296-641-1D	;JWP	2-SEP-09	15:01:30
a02sep09c_2;3	;G296-641-2D REX	;JWP	2-SEP-09	15:49:51
a02sep09c_2;4	;G296-641-3D	;JWP	2-SEP-09	16:38:11
a02sep09c_2;5	;G296-641-4D	;JWP	2-SEP-09	17:26:33
a02sep09c_2;6	;G296-641-5D	;JWP	2-SEP-09	18:14:54
a02sep09c_2;7	;G383-759-1C REX	;JWP	2-SEP-09	19:03:14
a02sep09c_2;8	;G383-759-2C	;JWP	2-SEP-09	19:51:36
a02sep09c_2;9	;G383-759-3C	;JWP	2-SEP-09	20:39:57
a02sep09c_2;10	*~~G1057~~-7-1X d5 QI	;JWP	2-SEP-09	21:28:18
a02sep09c_2;11	;~~G1057~~-7-5S	;JWP	2-SEP-09	22:16:39
a02sep09c_2;12	;~~G1057~~-7-9P	;JWP	2-SEP-09	23:04:59
a02sep09c_2;13	;~~G1057~~-7-12N	;JWP	2-SEP-09	23:53:20
a02sep09c_2;14	;RETCON S33-78D pass	;JWP	3-SEP-09	00:41:41

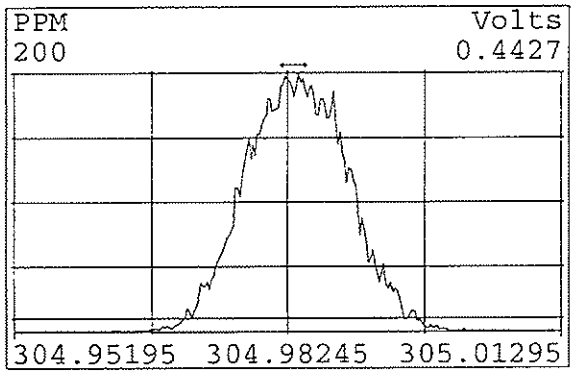
* G1053
TMG 9-3-09

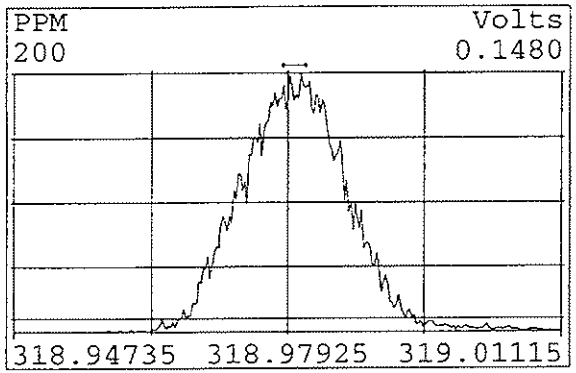
DS
9-3-09

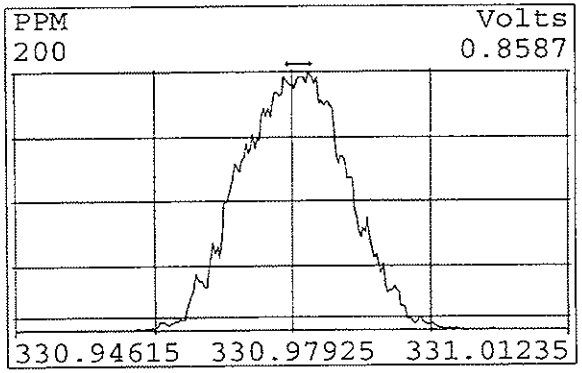
JW 9-3-09

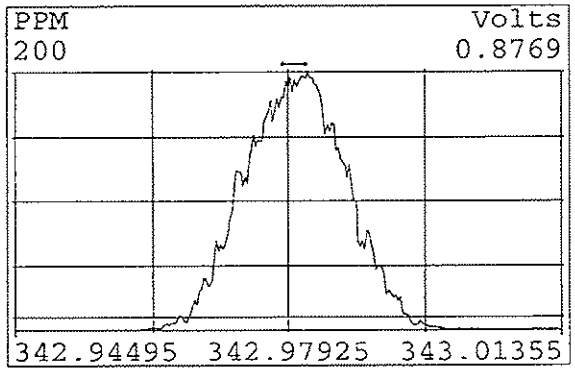
Peak Locate Examination: 2-SEP-2009:14:08 File:A02SEP09C_RES_CHECK
Experiment:EXP_DB5MS Function:1 Reference:PFK

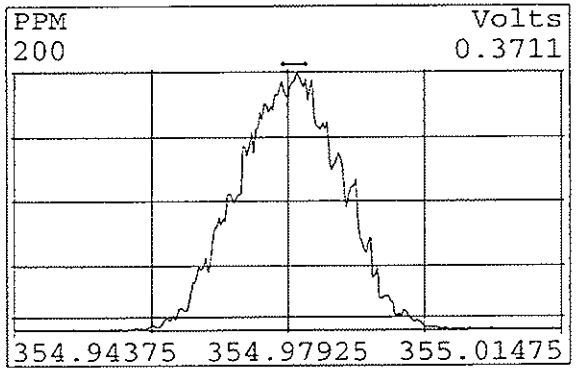


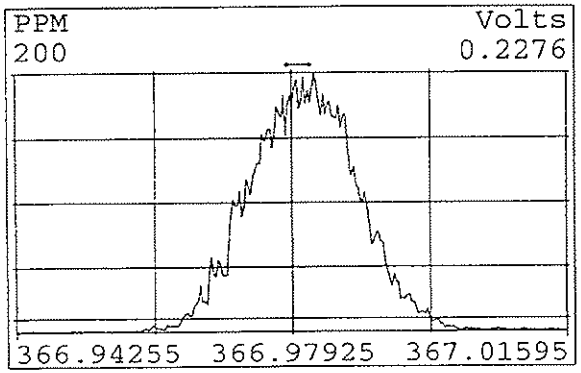


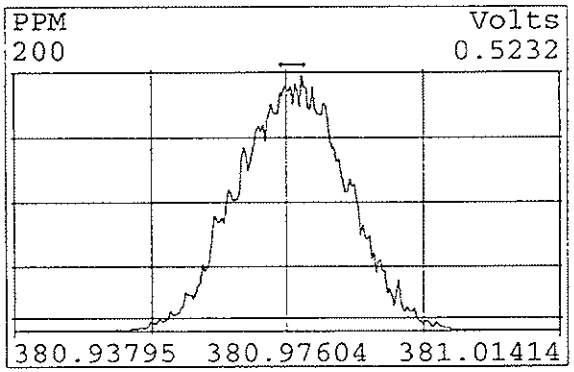




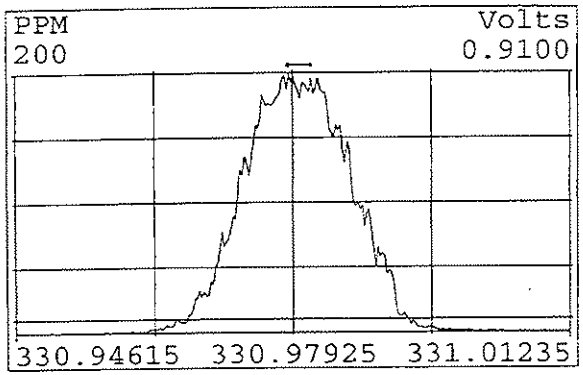


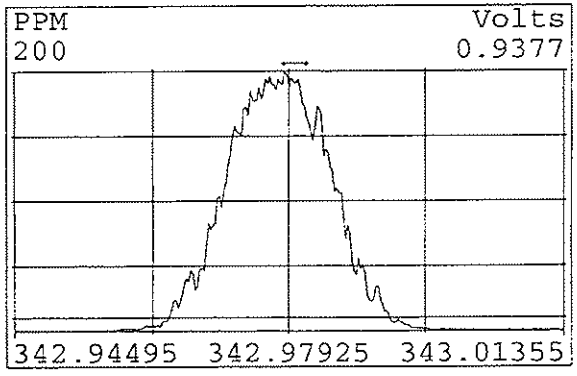


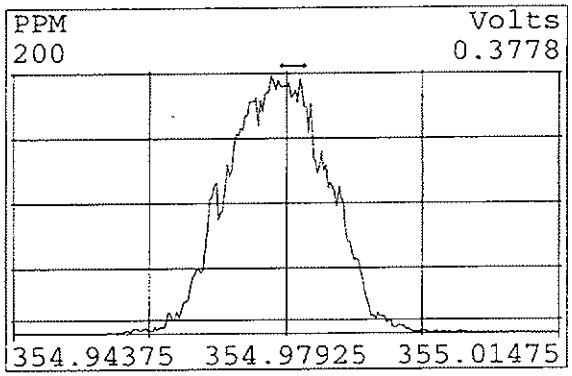


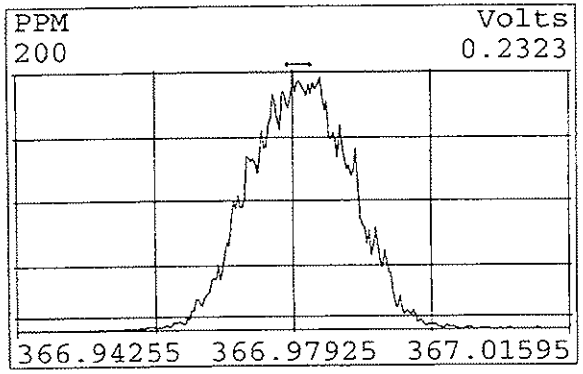


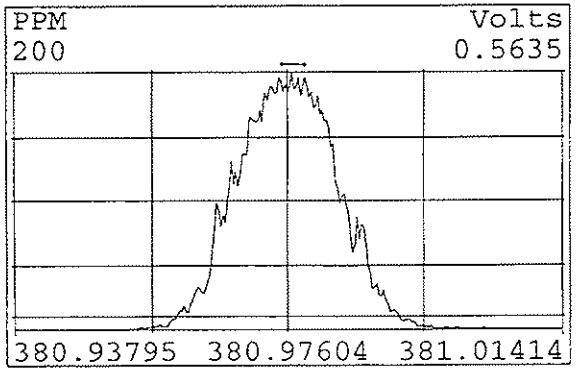
Peak Locate Examination: 2-SEP-2009:14:09 File:A02SEP09C_RES_CHECK
Experiment:EXP_DB5MS Function:2 Reference:PFK

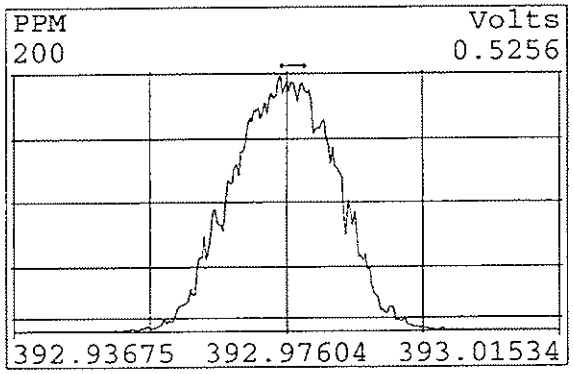


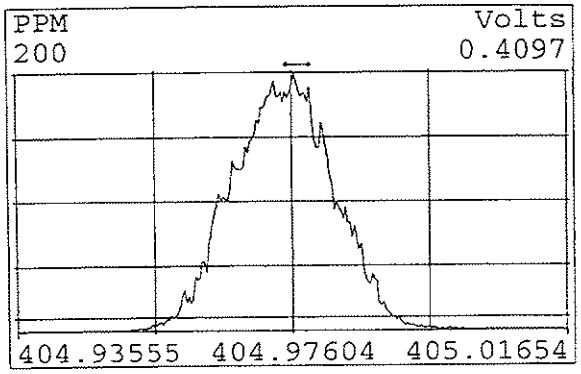


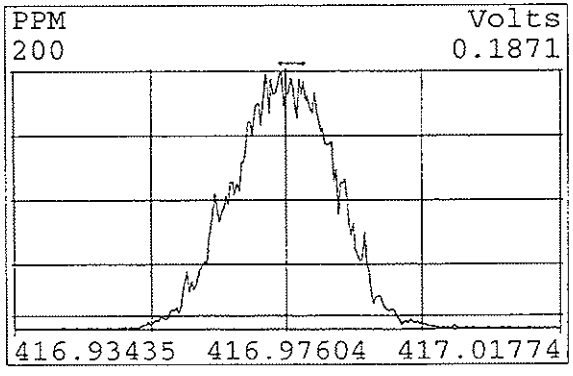




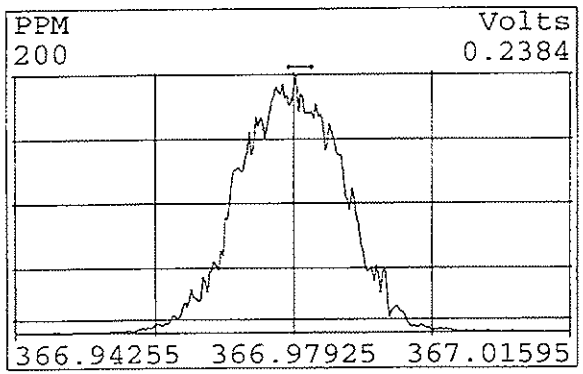


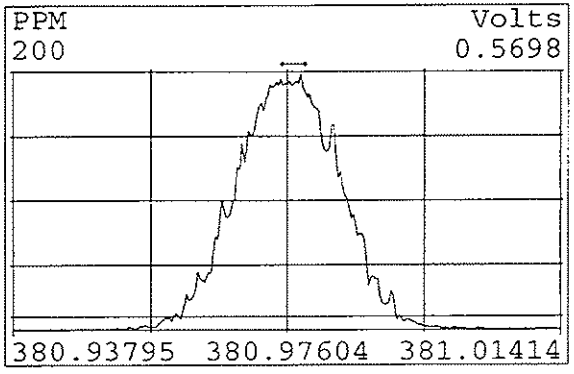


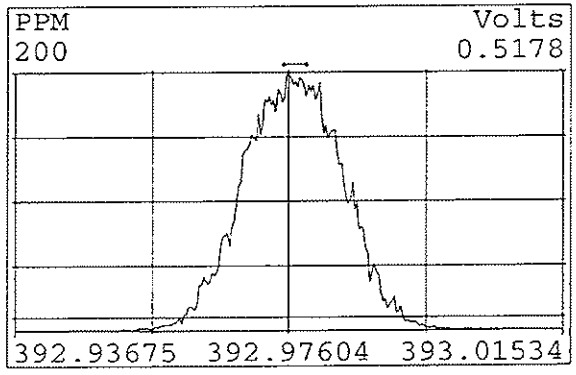


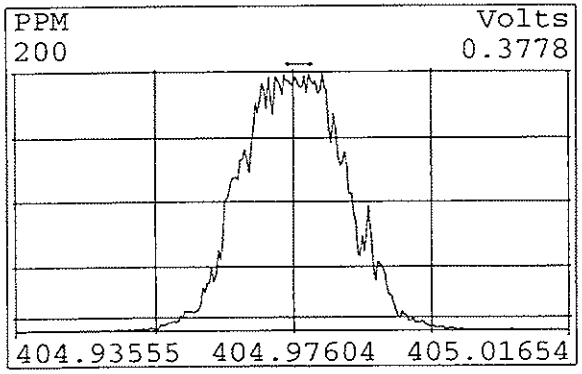


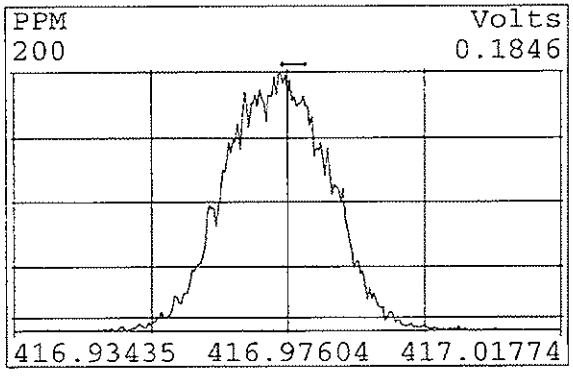
Peak Locate Examination: 2-SEP-2009:14:10 File:A02SEP09C_RES_CHECK
Experiment:EXP_DB5MS Function:3 Reference:PFK

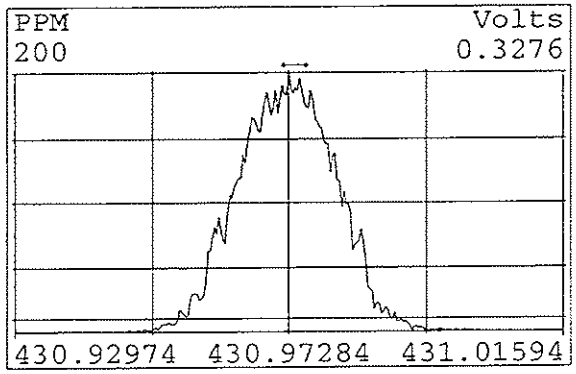


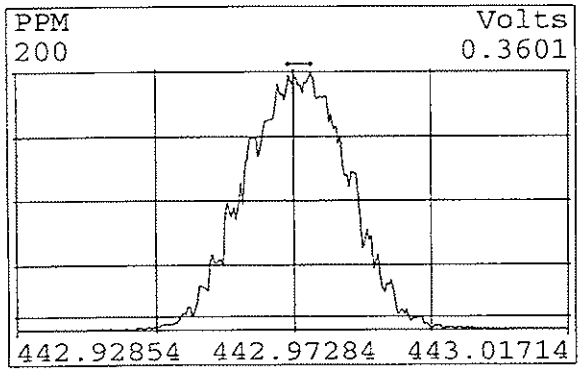


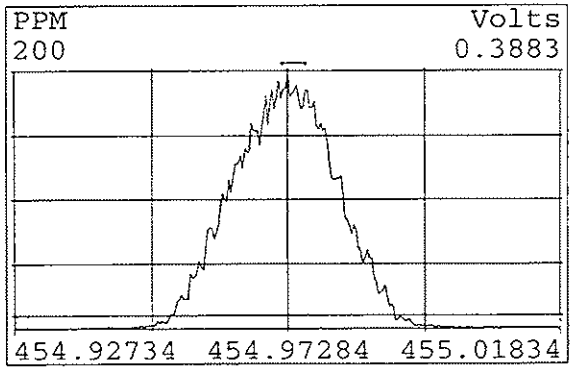




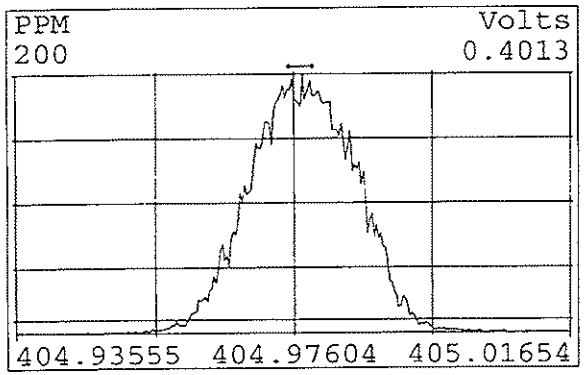


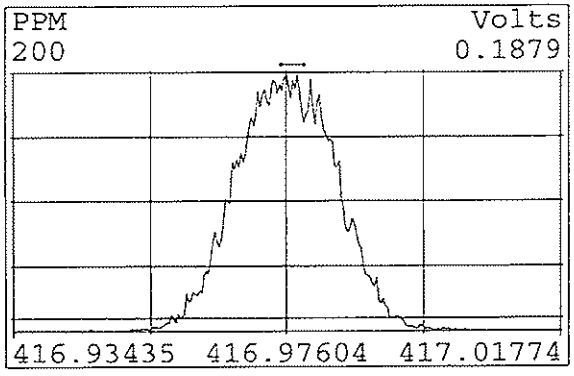


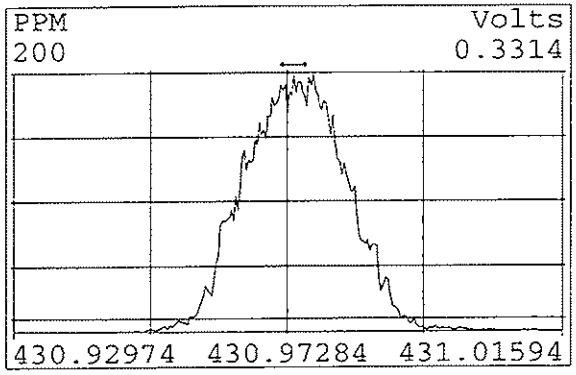


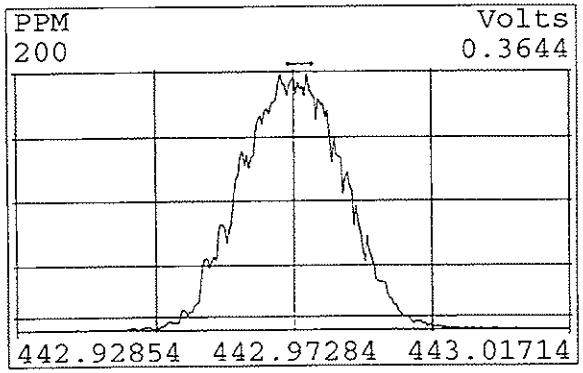


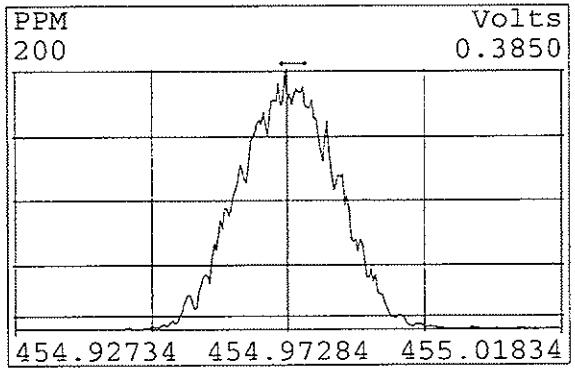
Peak Locate Examination: 2-SEP-2009:14:11 File:A02SEP09C_RES_CHECK
Experiment:EXP_DB5MS Function:4 Reference:PFK

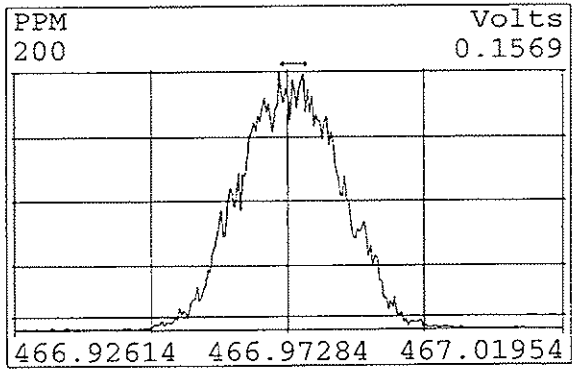


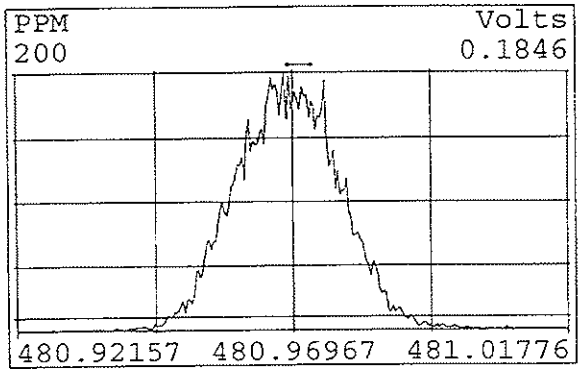




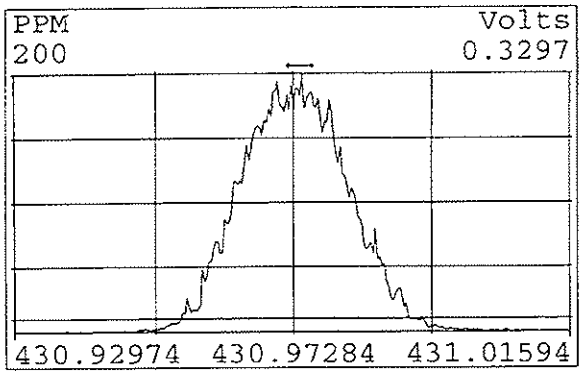


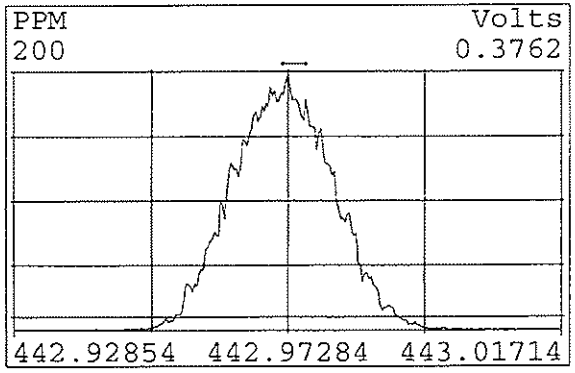


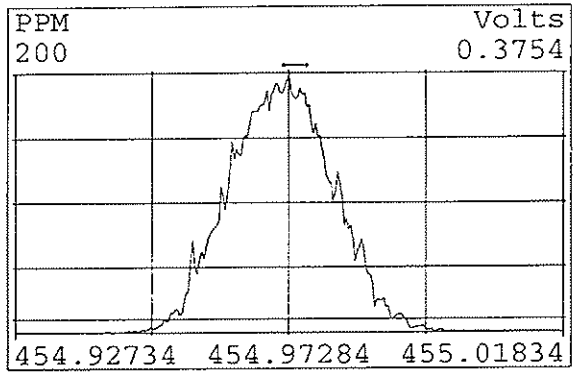


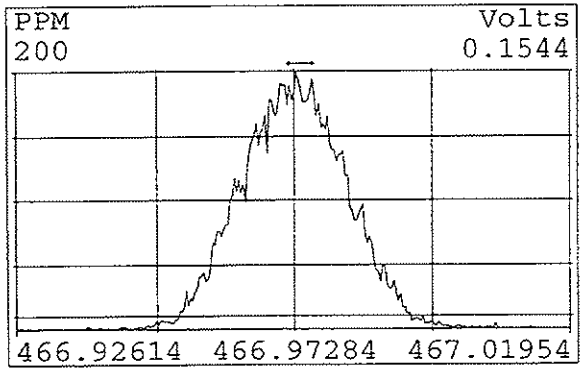


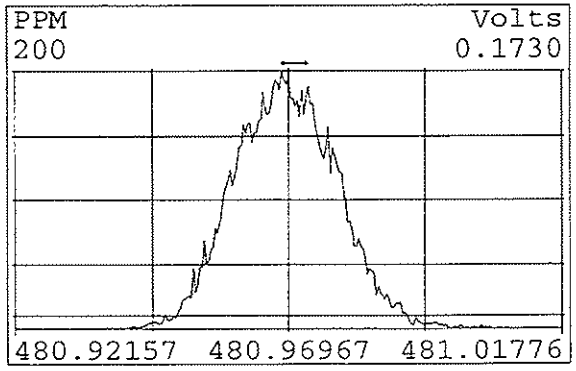
Peak Locate Examination: 2-SEP-2009:14:12 File:A02SEP09C_RES_CHECK
Experiment:EXP_DB5MS Function:5 Reference:PFK

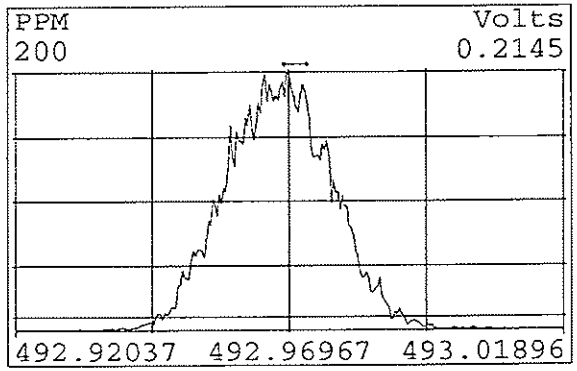


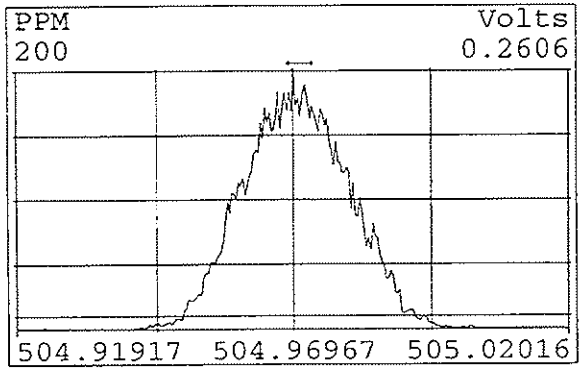


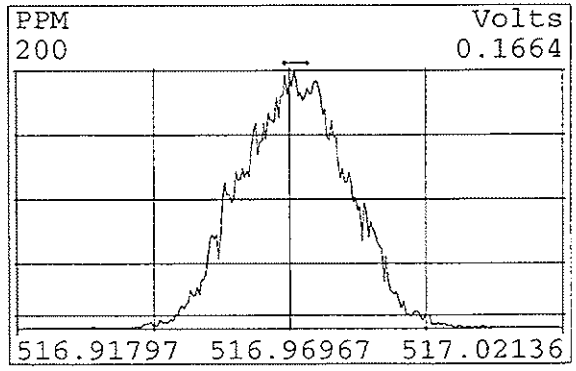




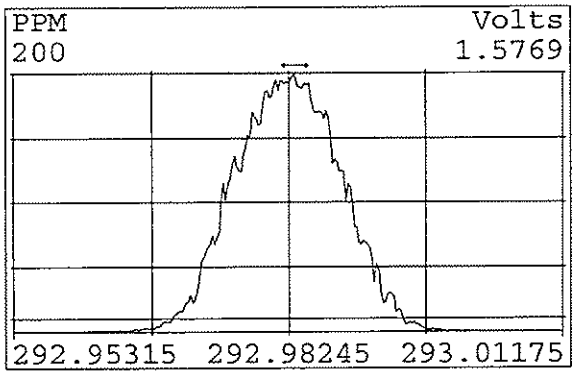


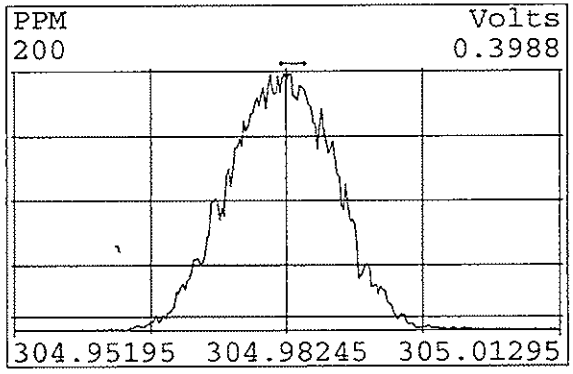


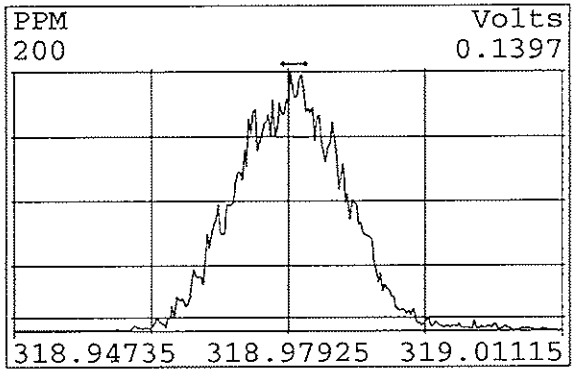


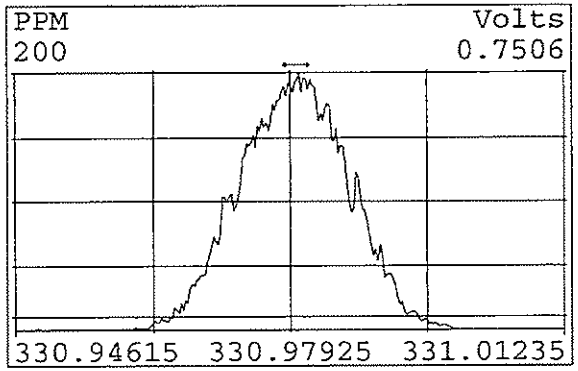


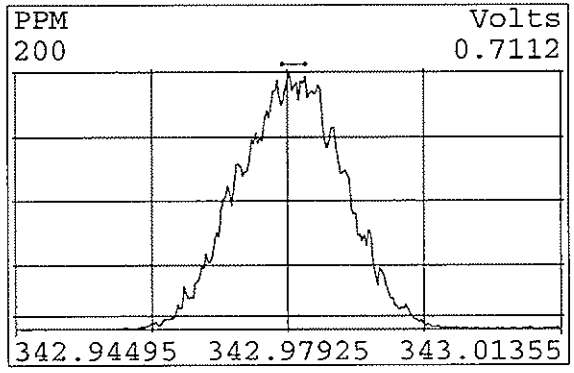
Peak Locate Examination: 3-SEP-2009:01:31 File:A02SEP09C_2_RES_CHECK
Experiment:EXP_DB5MS Function:1 Reference:PFK

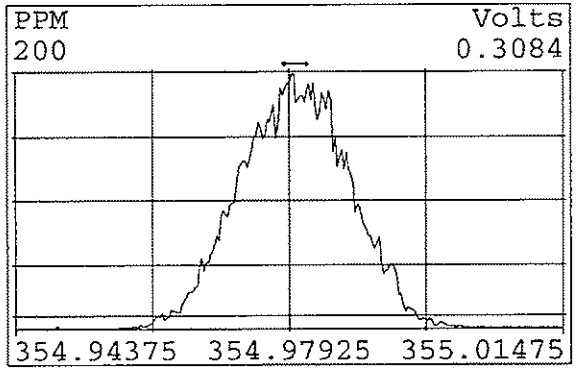


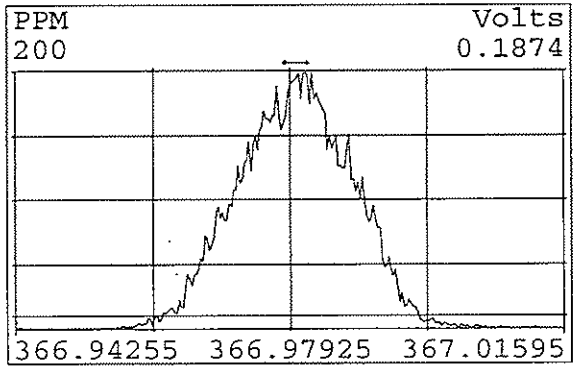


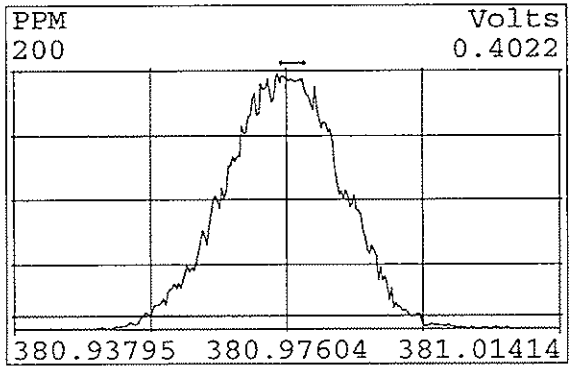




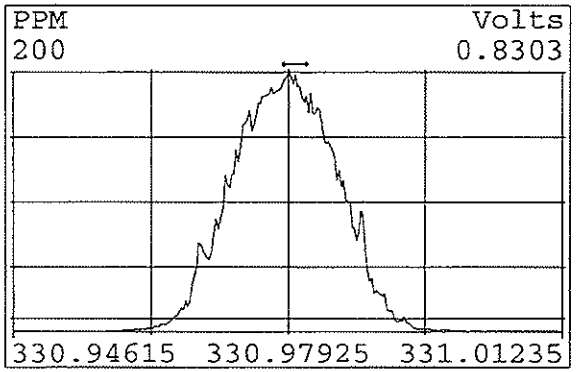


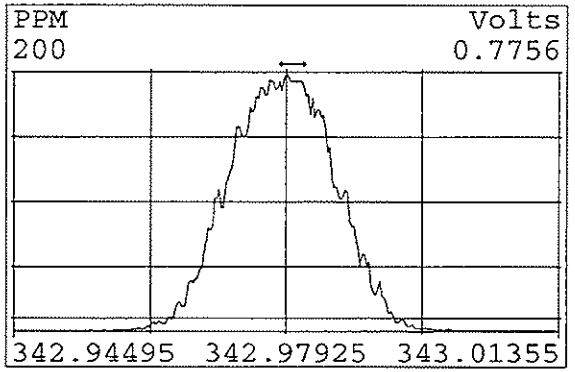


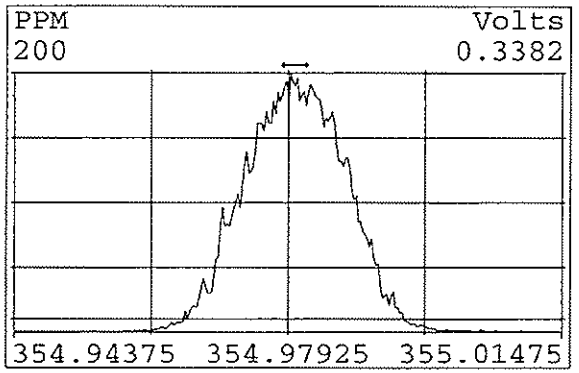


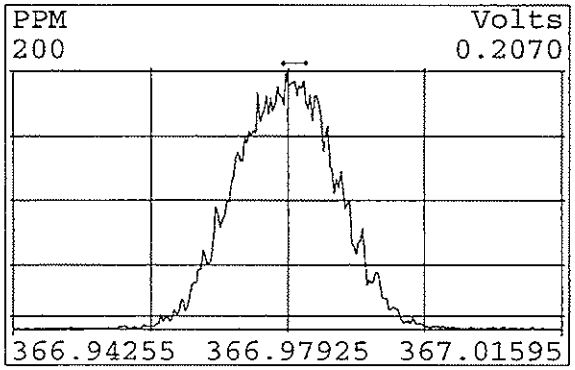


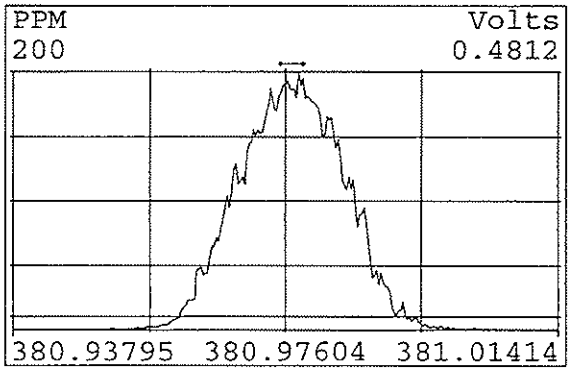
Peak Locate Examination: 3-SEP-2009:01:32 File:A02SEP09C_2_RES_CHECK
Experiment:EXP_DB5MS Function:2 Reference:PFK

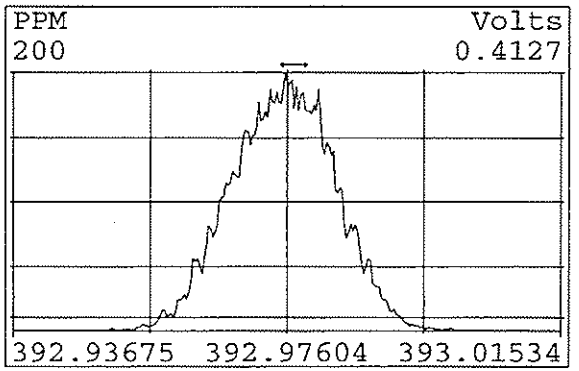


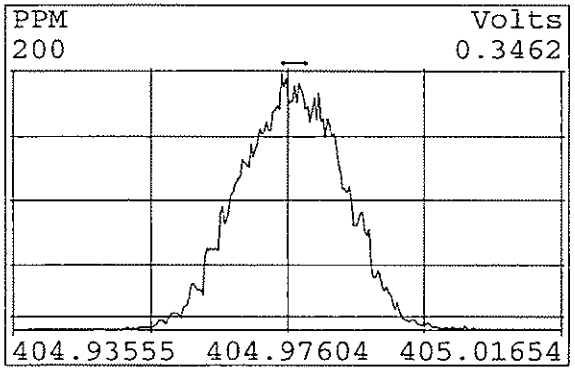


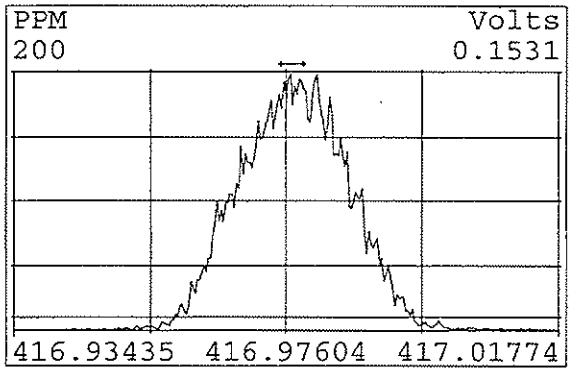




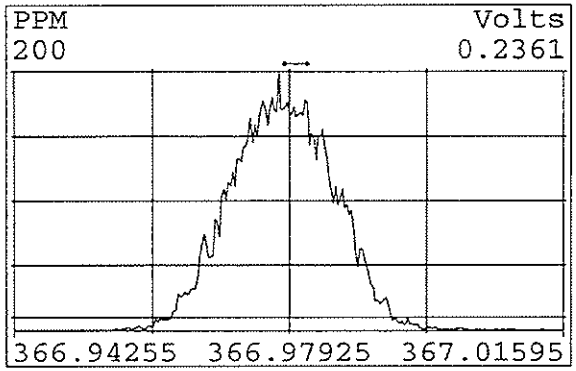


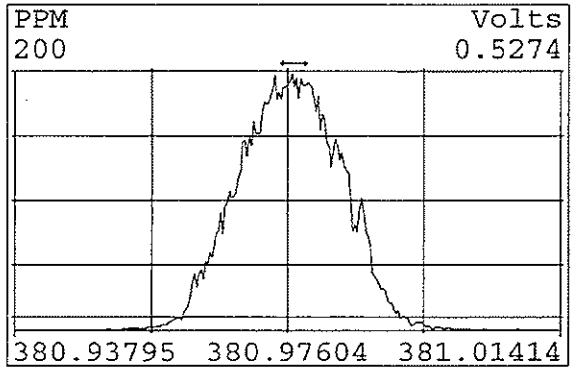


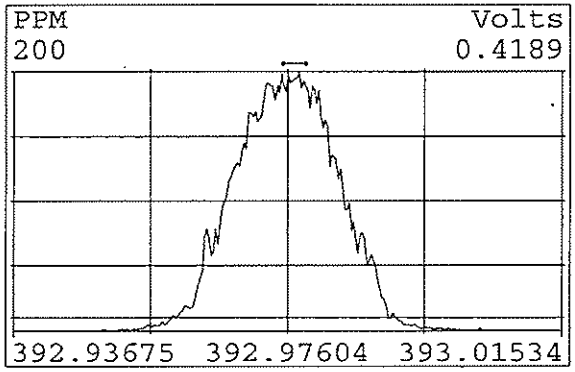


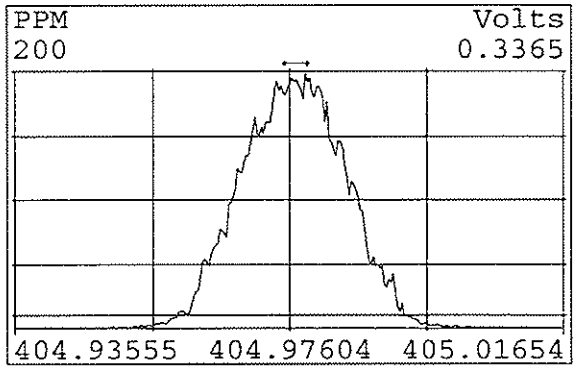


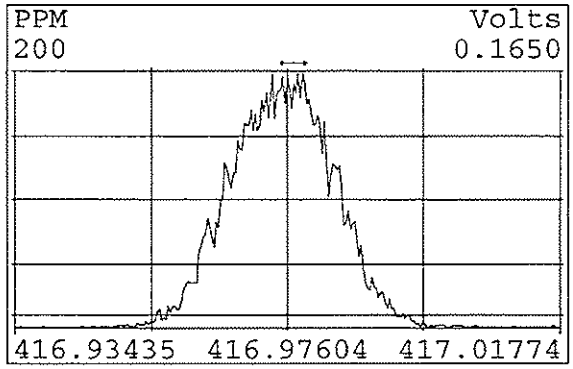
Peak Locate Examination: 3-SEP-2009:01:33 File:A02SEP09C_2_RES_CHECK
Experiment:EXP_DB5MS Function:3 Reference:PFK

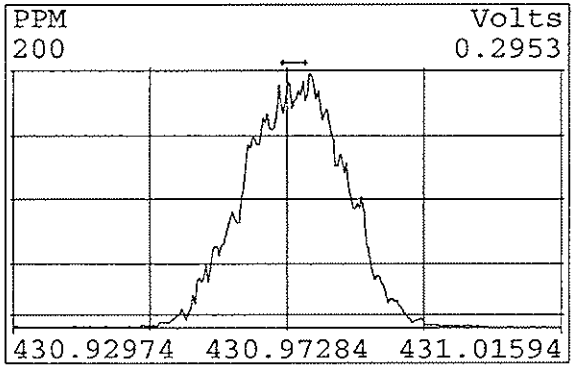


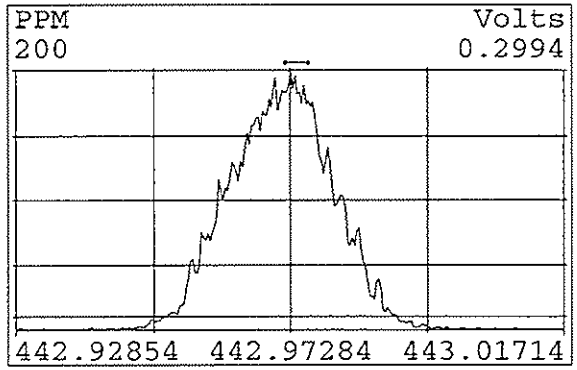


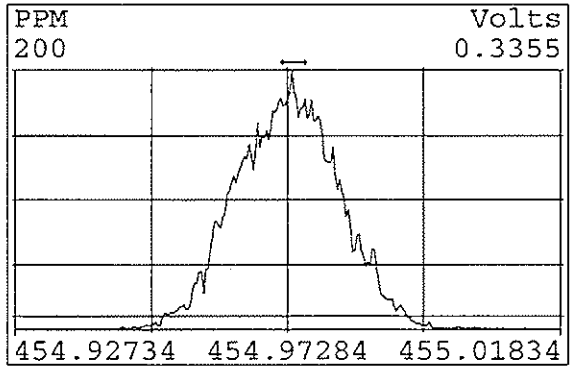




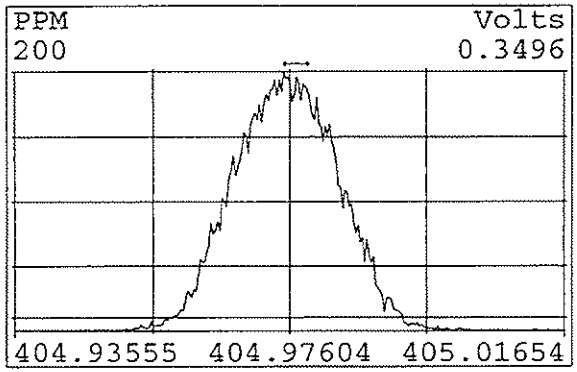


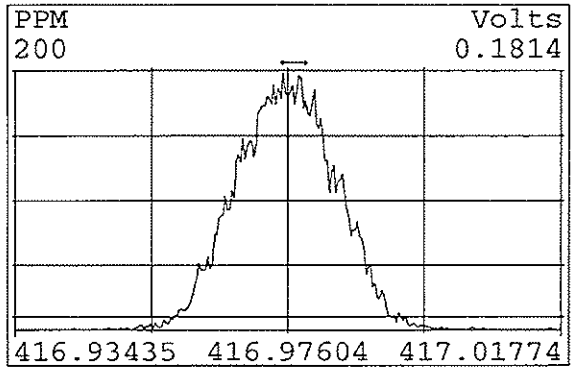


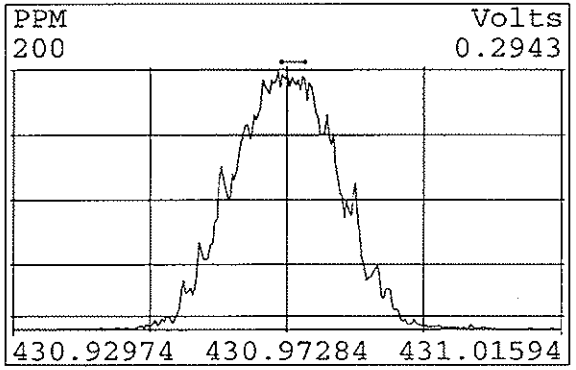


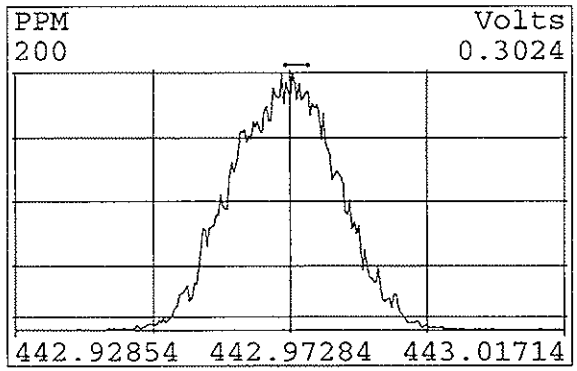


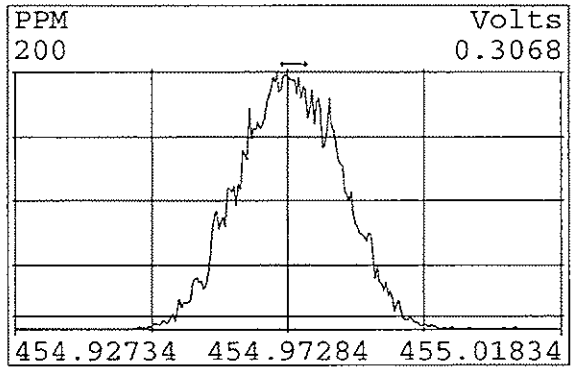
Peak Locate Examination: 3-SEP-2009:01:34 File:A02SEP09C_2_RES_CHECK
Experiment:EXP_DB5MS Function:4 Reference:PFK

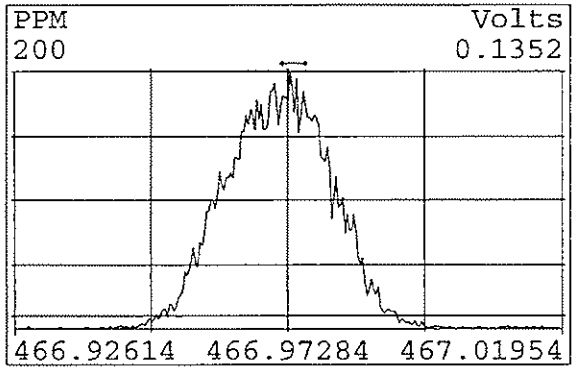


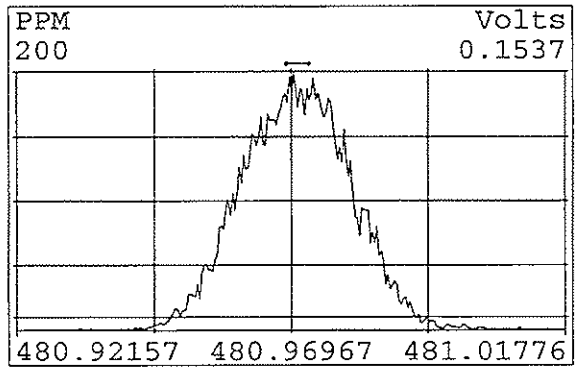




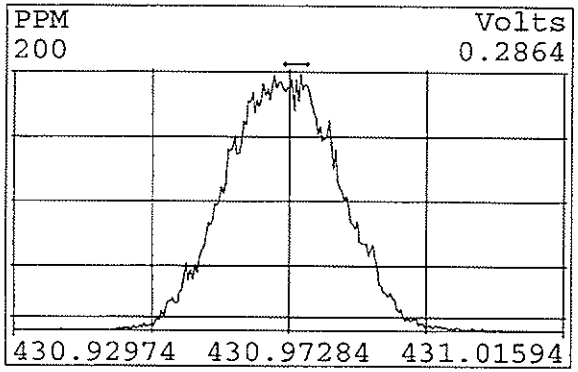


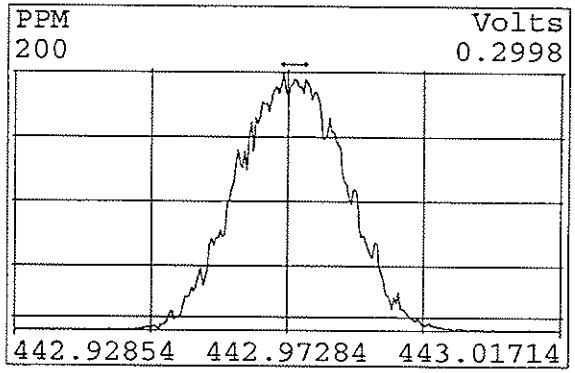


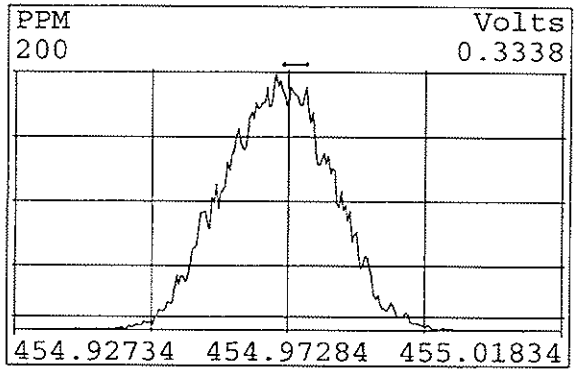


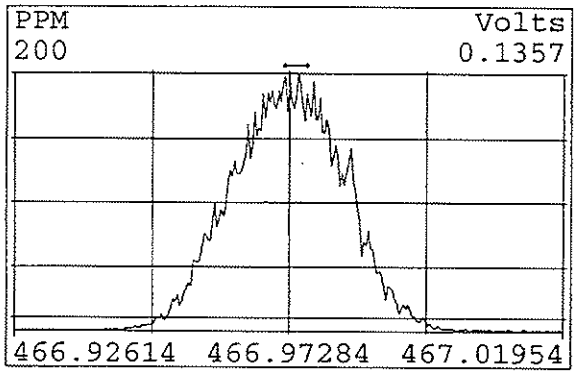


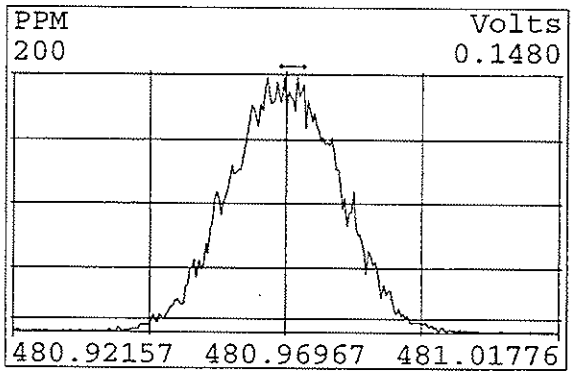
Peak Locate Examination: 3-SEP-2009:01:35 File:A02SEP09C_2_RES_CHECK
Experiment:EXP_DB5MS Function:5 Reference:PFK

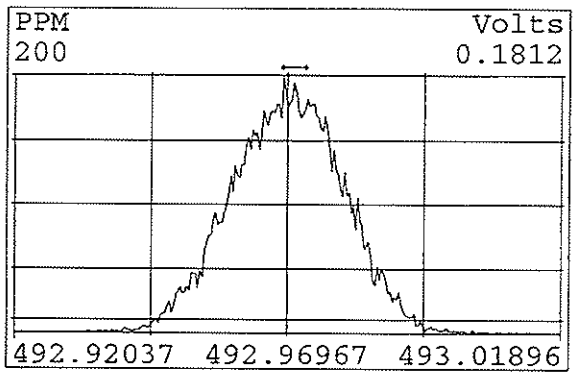


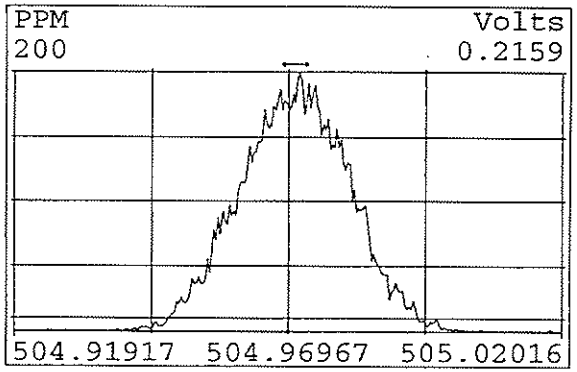


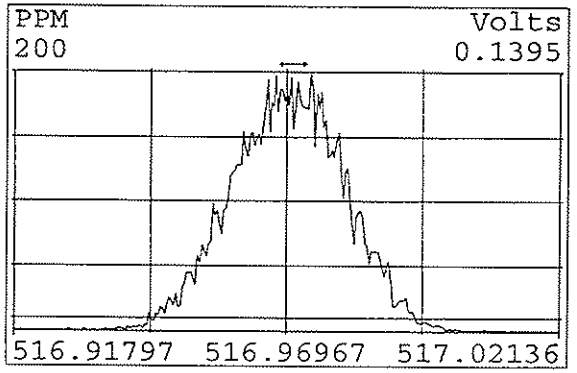






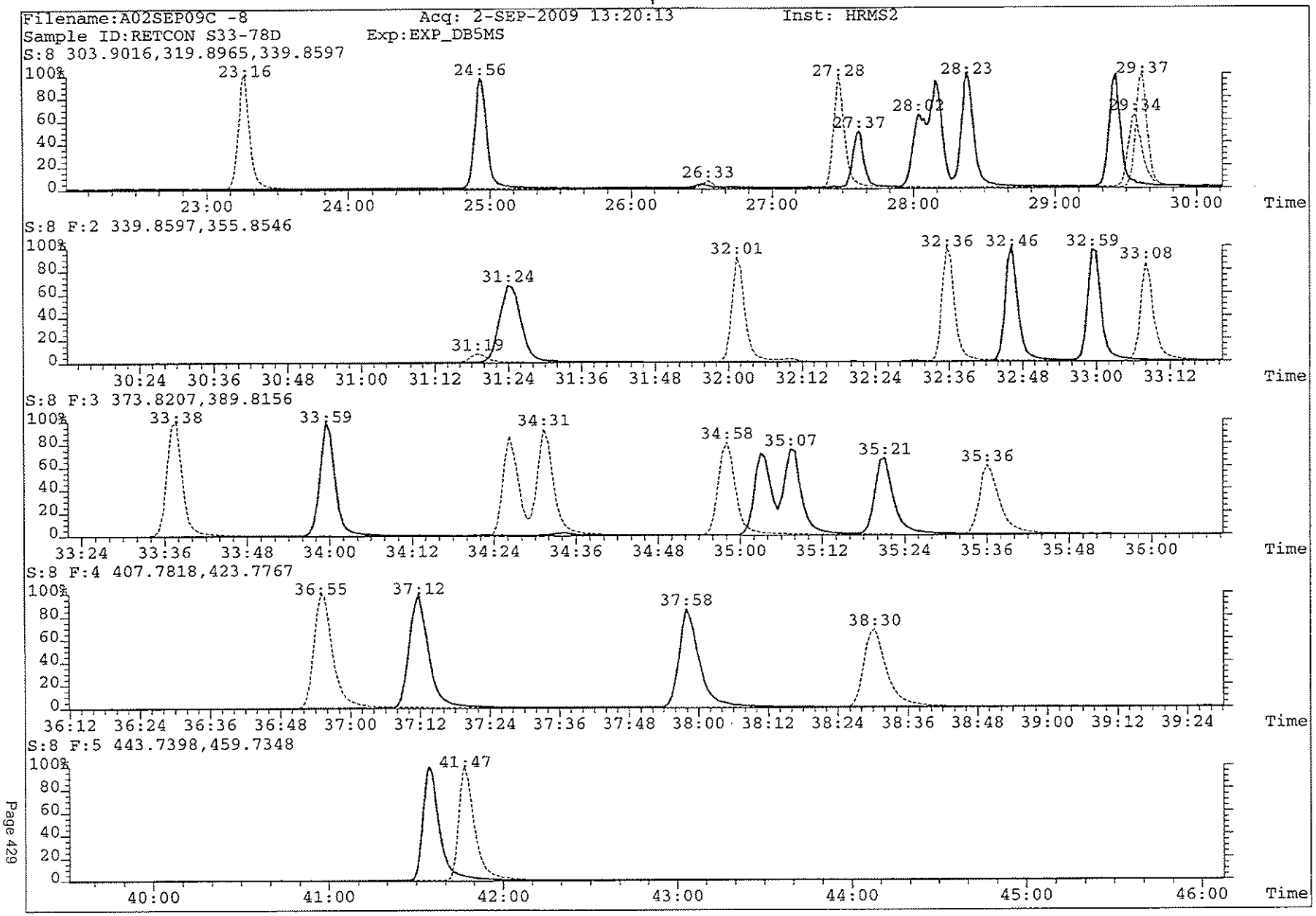


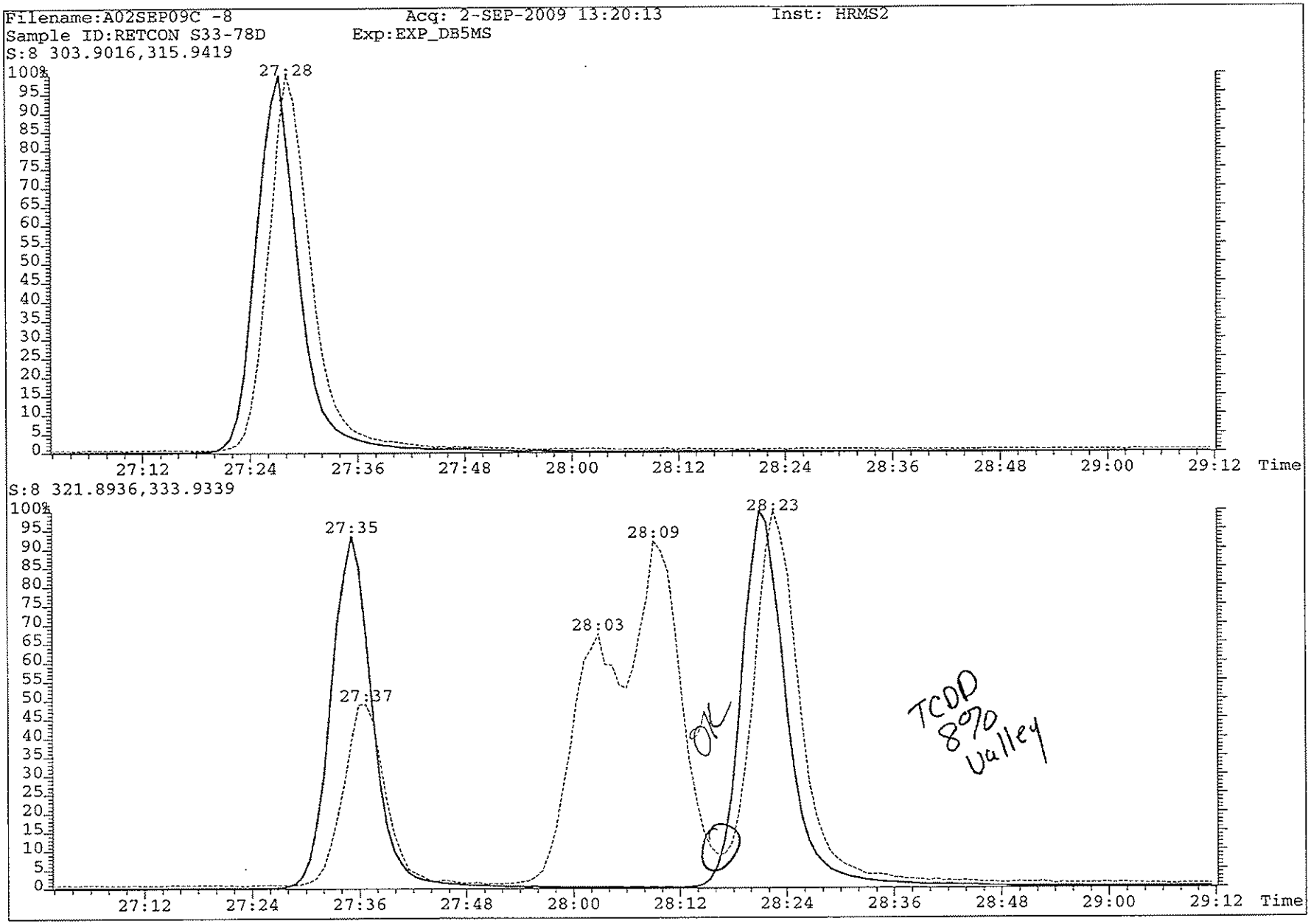




Filename ; a02sep09c
Sample ; 8
Acquired ; 2-SEP-09 13:20:13
Processed ; 2-SEP-09 14:35:31
Sample ID ; RETCON S33-78D

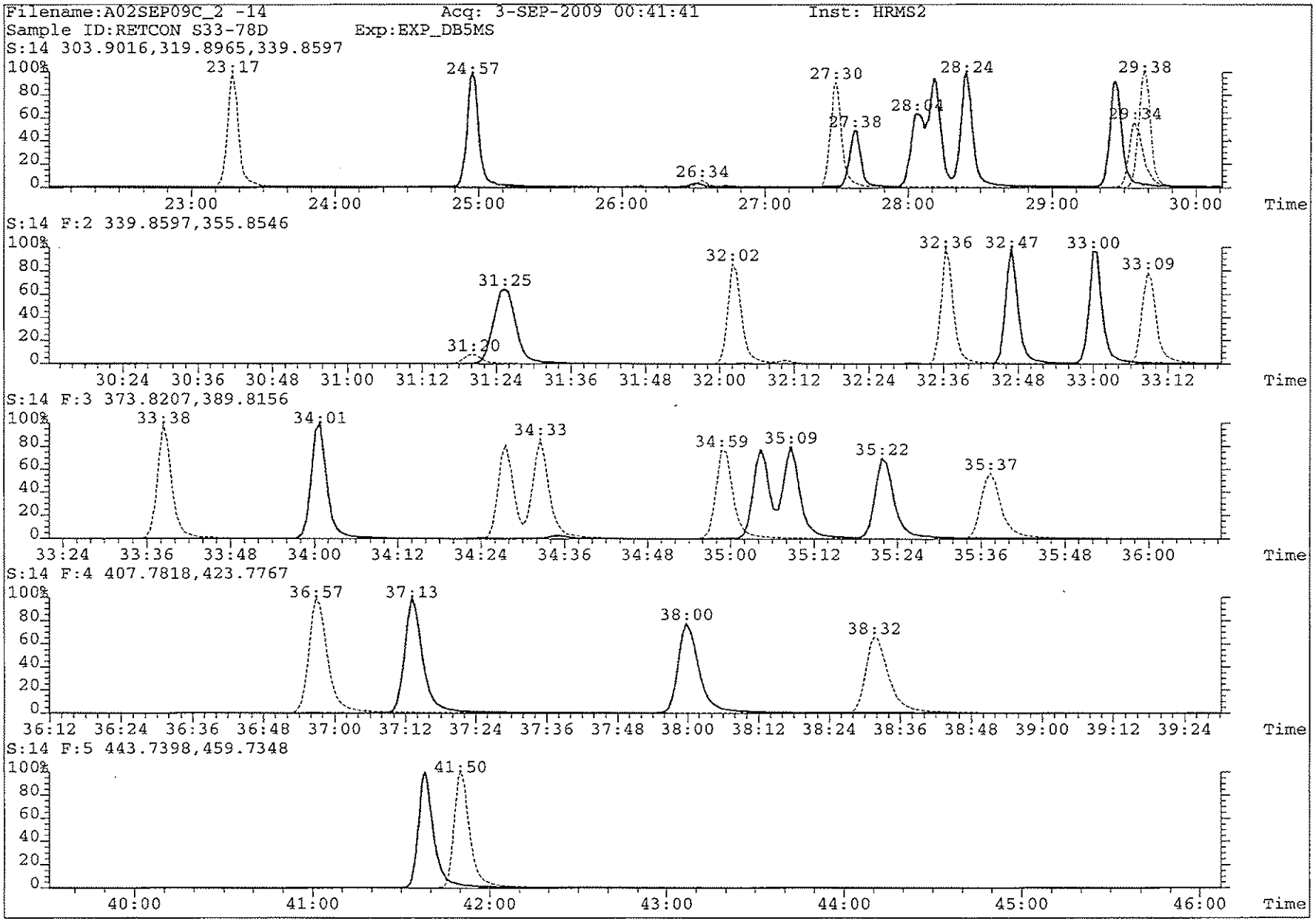
Name	First Eluter RT	Last Eluter RT
TCDD	24:56	29:26
PeCDD	31:24	32:59
HxCDD	33:59	35:21
HpCDD	37:12	37:58
OCDD	41:35	
TCDF	23:16	29:34
PeCDF	29:37	33:08
HxCDF	33:38	35:36
HpCDF	36:55	38:30
OCDF	41:47	

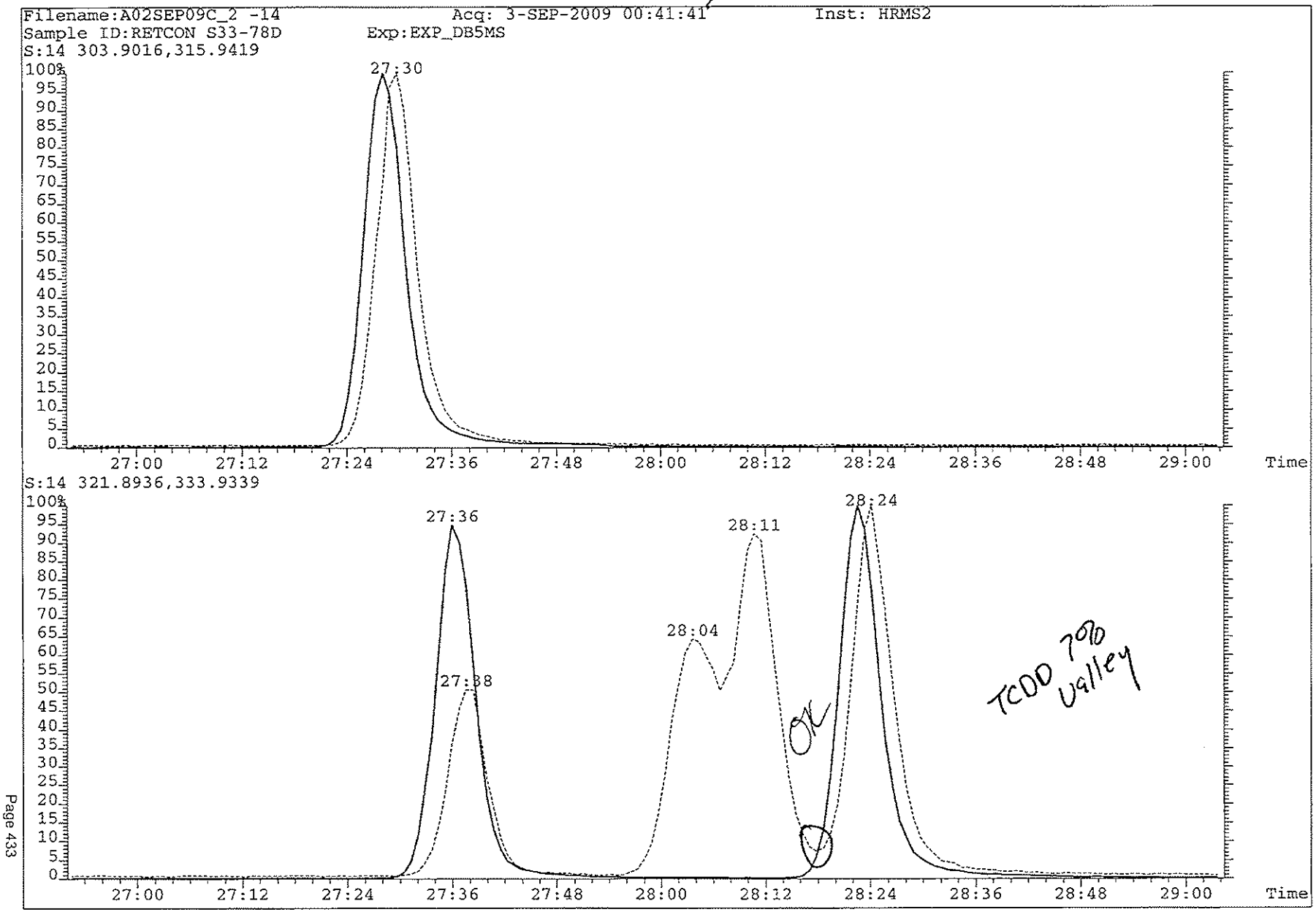

Filename:A02SEP09C -8
Acq: 2-SEP-2009 13:20:13
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
S:8 303.9016,319.8965,339.8597
23:16
24:56
26:33
27:28
27:37
28:02
28:23
29:34
29:37
Time
S:8 F:2 339.8597,355.8546
31:19
31:24
32:01
32:36
32:46
32:59
33:08
Time
S:8 F:3 373.8207,389.8156
33:38
33:59
34:31
34:58
35:07
35:21
35:36
Time
S:8 F:4 407.7818,423.7767
36:55
37:12
37:58
38:30
Time
S:8 F:5 443.7398,459.7348
41:47
Time


Filename:A02SEP09C -8
Acq: 2-SEP-2009 13:20:13
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
S:8 303.9016,315.9419
27:28
S:8 321.8936,333.9339
27:35
27:37
28:03
28:09
28:23
TCDD
8270
Valley
Time

Filename ; a02sep09c_2
Sample ; 14
Acquired ; 3-SEP-09 00:41:41
Processed ; 3-SEP-09 10:37:21
Sample ID ; RETCON S33-78D

Name	First Eluter RT	Last Eluter RT
TCDD	24:57	29:27
PeCDD	31:25	32:60
HxCDD	34:01	35:22
HpCDD	37:13	37:60
OCDD	41:38	
TCDF	23:17	29:34
PeCDF	29:38	33:09
HxCDF	33:38	35:37
HpCDF	36:57	38:32
OCDF	41:50	


Filename:A02SEP09C_2 -14
Acq: 3-SEP-2009 00:41:41
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
S:14 303.9016,319.8965,339.8597
23:17
24:57
26:34
27:30
27:38
28:04
28:24
29:34
29:38
Time
S:14 F:2 339.8597,355.8546
31:20
31:25
32:02
32:36
32:47
33:00
33:09
Time
S:14 F:3 373.8207,389.8156
33:38
34:01
34:33
34:59
35:09
35:22
35:37
Time
S:14 F:4 407.7818,423.7767
36:57
37:13
38:00
38:32
Time
S:14 F:5 443.7398,459.7348
41:50
Time


Filename:A02SEP09C_2 -14
Acq: 3-SEP-2009 00:41:41
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
S:14 303.9016,315.9419
27:30
S:14 321.8936,333.9339
27:36
27:38
28:04
28:11
28:24
OK
TCDD 7pp
Valley
Time

8290 CCAL

Sample text; RETCON S33-78D
Filename; a02sep09c -8 Acquired; 2-SEP-09 13:20:13 Processed; 3-SEP-09 05:54:10
ICAL; m8290-100708a Results;

Name;	Resp;	Ion 1;	Ion 2	; RA ;? ;	RT ;	Conc ;	Dev'n;	CCAL RRF;	ICAL RRF	;Mod
2,3,7,8-TCDD;	2.3e+07;	1.01e+07;	1.27e+07	; 0.80 ;y ;	28:23 ;	10.60 ;	6.0;	1.0688;	1.0087	;n
1,2,3,7,8-PeCDD;	1.0e+08;	6.12e+07;	3.88e+07	; 1.58 ;y ;	32:46 ;	50.03 ;	0.1;	1.0523;	1.0517	;n
1,2,3,4,7,8-HxCDD;	9.1e+07;	5.08e+07;	4.06e+07	; 1.25 ;y ;	35:03 ;	45.59 ;	-8.8;	0.8652;	0.9489	;n
1,2,3,6,7,8-HxCDD;	1.0e+08;	5.70e+07;	4.55e+07	; 1.25 ;y ;	35:08 ;	48.95 ;	-2.1;	0.9708;	0.9916	;n
1,2,3,7,8,9-HxCDD;	9.7e+07;	5.39e+07;	4.33e+07	; 1.25 ;y ;	35:21 ;	47.73 ;	-4.5;	0.9211;	0.9649	;n
1,2,3,4,6,7,8-HpCDD;	8.1e+07;	4.15e+07;	3.97e+07	; 1.05 ;y ;	37:58 ;	49.45 ;	-1.1;	1.0496;	1.0612	;n
OCDD;	1.3e+08;	6.34e+07;	7.09e+07	; 0.90 ;y ;	41:36 ;	99.43 ;	-0.6;	1.0582;	1.0643	;n
2,3,7,8-TCDF;	3.2e+07;	1.40e+07;	1.79e+07	; 0.78 ;y ;	27:29 ;	9.877 ;	-1.2;	1.0240;	1.0368	;n
1,2,3,7,8-PeCDF;	1.4e+08;	8.47e+07;	5.45e+07	; 1.55 ;y ;	32:02 ;	49.08 ;	-1.8;	0.9692;	0.9873	;n
2,3,4,7,8-PeCDF;	1.5e+08;	8.92e+07;	5.73e+07	; 1.56 ;y ;	32:36 ;	50.22 ;	0.4;	1.0199;	1.0154	;n
1,2,3,4,7,8-HxCDF;	1.3e+08;	6.99e+07;	5.62e+07	; 1.24 ;y ;	34:26 ;	45.16 ;	-9.7;	0.9457;	1.0470	;n
1,2,3,6,7,8-HxCDF;	1.5e+08;	8.31e+07;	6.64e+07	; 1.25 ;y ;	34:32 ;	49.58 ;	-0.8;	1.1216;	1.1310	;n
2,3,4,6,7,8-HxCDF;	1.3e+08;	7.43e+07;	5.98e+07	; 1.24 ;y ;	34:58 ;	47.22 ;	-5.6;	1.0057;	1.0650	;n
1,2,3,7,8,9-HxCDF;	1.2e+08;	6.55e+07;	5.29e+07	; 1.24 ;y ;	35:37 ;	48.20 ;	-3.6;	0.8888;	0.9220	;n
1,2,3,4,6,7,8-HpCDF;	1.2e+08;	6.31e+07;	6.05e+07	; 1.04 ;y ;	36:56 ;	47.73 ;	-4.5;	1.3126;	1.3752	;n
1,2,3,4,7,8,9-HpCDF;	1.0e+08;	5.20e+07;	4.99e+07	; 1.04 ;y ;	38:31 ;	50.43 ;	0.9;	1.0820;	1.0727	;n
OCDF;	1.6e+08;	7.61e+07;	8.43e+07	; 0.90 ;y ;	41:48 ;	99.89 ;	-0.1;	1.2640;	1.2654	;n
Extraction Standards										
13C-2,3,7,8-TCDD;	2.1e+08;	9.44e+07;	1.20e+08	; 0.79 ;y ;	28:22 ;	103.6 ;	3.6;	1.1553;	1.1153	;n
13C-1,2,3,7,8-PeCDD;	1.9e+08;	1.16e+08;	7.37e+07	; 1.58 ;y ;	32:46 ;	125.8 ;	25.8;	1.0263;	0.8155	;n
13C-1,2,3,6,7,8-HxCDD;	2.1e+08;	1.18e+08;	9.35e+07	; 1.26 ;y ;	35:07 ;	104.4 ;	4.4;	1.0898;	1.0442	;n
13C-1,2,3,4,6,7,8-HpCDD;	1.5e+08;	7.95e+07;	7.53e+07	; 1.06 ;y ;	37:58 ;	101.4 ;	1.4;	0.7990;	0.7878	;n
13C-OCDD;	2.5e+08;	1.20e+08;	1.34e+08	; 0.90 ;y ;	41:35 ;	209.0 ;	4.5;	0.6552;	0.6269	;n
13C-2,3,7,8-TCDF;	3.1e+08;	1.39e+08;	1.73e+08	; 0.80 ;y ;	27:27 ;	101.7 ;	1.7;	1.6810;	1.6529	;n
13C-1,2,3,7,8-PeCDF;	2.9e+08;	1.76e+08;	1.12e+08	; 1.57 ;y ;	32:01 ;	116.1 ;	16.1;	1.5506;	1.3359	;n
13C-1,2,3,6,7,8-HxCDF;	2.7e+08;	9.21e+07;	1.75e+08	; 0.53 ;y ;	34:31 ;	100.5 ;	0.5;	1.3761;	1.3697	;n
13C-1,2,3,4,6,7,8-HpCDF;	1.9e+08;	5.89e+07;	1.29e+08	; 0.46 ;y ;	36:55 ;	98.88 ;	-1.1;	0.9721;	0.9832	;n
Injection Standards										
13C-1,2,3,4-TCDD;	1.9e+08;	8.19e+07;	1.03e+08	; 0.79 ;y ;	27:35 ;	136.3 ;	-;	-;	-	;n
13C-1,2,3,7,8,9-HxCDD;	1.9e+08;	1.08e+08;	8.59e+07	; 1.26 ;y ;	35:20 ;	179.5 ;	-;	-;	-	;n
Cleanup Standards										
37Cl-2,3,7,8-TCDD;	2.2e+07;	2.23e+07;	-	; - ;- ;	28:23 ;	10.13 ;	1.3;	1.2045;	1.1889	;n
13C-2,3,4,7,8-PeCDF;	2.9e+08;	1.76e+08;	1.11e+08	; 1.58 ;y ;	32:35 ;	118.4 ;	18.4;	1.5490;	1.3078	;n
13C-1,2,3,4,7,8-HxCDD;	1.7e+08;	9.73e+07;	7.69e+07	; 1.27 ;y ;	35:03 ;	93.52 ;	-6.5;	0.8988;	0.9610	;n
13C-1,2,3,4,7,8-HxCDF;	2.2e+08;	7.48e+07;	1.45e+08	; 0.52 ;y ;	34:26 ;	91.25 ;	-8.8;	1.1323;	1.2409	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.6e+08;	4.89e+07;	1.07e+08	; 0.46 ;y ;	38:30 ;	103.7 ;	3.7;	0.8034;	0.7746	;n
Sampling Standards										
37Cl-2,3,7,8-TCDD;	2.2e+07;	2.23e+07;	-	; - ;- ;	28:23 ;	9.782 ;	-2.2;	1.0426;	1.0659	;n
13C-2,3,4,7,8-PeCDF;	2.9e+08;	1.76e+08;	1.11e+08	; 1.58 ;y ;	32:35 ;	102.1 ;	2.1;	0.9989;	0.9787	;n
13C-1,2,3,4,7,8-HxCDD;	1.7e+08;	9.73e+07;	7.69e+07	; 1.27 ;y ;	35:03 ;	89.44 ;	-10.6;	0.8247;	0.9221	;n
13C-1,2,3,4,7,8-HxCDF;	2.2e+08;	7.48e+07;	1.45e+08	; 0.52 ;y ;	34:26 ;	90.81 ;	-9.2;	0.8228;	0.9060	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.6e+08;	4.89e+07;	1.07e+08	; 0.46 ;y ;	38:30 ;	104.9 ;	4.9;	0.8265;	0.7878	;n

8290 CCAL

Sample text; RETCON S33-78D
Filename; a02sep09c_2 -14 Acquired; 3-SEP-09 00:41:41 Processed; 3-SEP-09 05:55:00
ICAL; m8290-100708a Results;

Name;	Resp;	Ion 1;	Ion 2	;	RA	;? ;	RT	;	Conc ;	Dev'n;	CCAL RRF;	ICAL RRF	;Mod
2,3,7,8-TCDD;	2.8e+07;	1.21e+07;	1.54e+07	;	0.79	;y ;	28:24	;	10.77	7.7;	1.0863;	1.0087	;n
1,2,3,7,8-PeCDD;	1.1e+08;	6.96e+07;	4.43e+07	;	1.57	;y ;	32:47	;	50.42	0.8;	1.0605;	1.0517	;n
1,2,3,4,7,8-HxCDD;	1.1e+08;	6.26e+07;	4.63e+07	;	1.35	;y ;	35:04	;	46.81	-6.4;	0.8884;	0.9489	;n
1,2,3,6,7,8-HxCDD;	1.2e+08;	6.55e+07;	5.55e+07	;	1.18	;y ;	35:09	;	49.77	-0.5;	0.9870;	0.9916	;n
1,2,3,7,8,9-HxCDD;	1.2e+08;	6.43e+07;	5.12e+07	;	1.25	;y ;	35:22	;	48.79	-2.4;	0.9415;	0.9649	;n
1,2,3,4,6,7,8-HpCDD;	9.8e+07;	5.00e+07;	4.78e+07	;	1.05	;y ;	38:00	;	49.84	-0.3;	1.0579;	1.0612	;n
OCDD;	1.5e+08;	6.97e+07;	7.78e+07	;	0.90	;y ;	41:39	;	101.3	1.3;	1.0786;	1.0643	;n
2,3,7,8-TCDF;	4.0e+07;	1.78e+07;	2.26e+07	;	0.79	;y ;	27:30	;	9.869	-1.3;	1.0232;	1.0368	;n
1,2,3,7,8-PeCDF;	1.7e+08;	1.01e+08;	6.48e+07	;	1.56	;y ;	32:03	;	50.06	0.1;	0.9885;	0.9873	;n
2,3,4,7,8-PeCDF;	1.7e+08;	1.05e+08;	6.73e+07	;	1.56	;y ;	32:37	;	50.55	1.1;	1.0266;	1.0154	;n
1,2,3,4,7,8-HxCDF;	1.6e+08;	8.70e+07;	6.97e+07	;	1.25	;y ;	34:28	;	47.75	-4.5;	0.9998;	1.0470	;n
1,2,3,6,7,8-HxCDF;	1.8e+08;	9.89e+07;	7.89e+07	;	1.25	;y ;	34:33	;	50.14	0.3;	1.1342;	1.1310	;n
2,3,4,6,7,8-HxCDF;	1.6e+08;	9.17e+07;	7.32e+07	;	1.25	;y ;	34:59	;	49.41	-1.2;	1.0525;	1.0650	;n
1,2,3,7,8,9-HxCDF;	1.5e+08;	8.08e+07;	6.44e+07	;	1.25	;y ;	35:38	;	50.25	0.5;	0.9267;	0.9220	;n
1,2,3,4,6,7,8-HpCDF;	1.5e+08;	7.67e+07;	7.38e+07	;	1.04	;y ;	36:57	;	48.39	-3.2;	1.3311;	1.3752	;n
1,2,3,4,7,8,9-HpCDF;	1.2e+08;	6.34e+07;	6.05e+07	;	1.05	;y ;	38:32	;	51.06	2.1;	1.0956;	1.0727	;n
OCDF;	1.8e+08;	8.51e+07;	9.35e+07	;	0.91	;y ;	41:51	;	103.3	3.3;	1.3069;	1.2654	;n
Extraction Standards													
13C-2,3,7,8-TCDD;	2.5e+08;	1.12e+08;	1.42e+08	;	0.79	;y ;	28:23	;	97.62	-2.4;	1.0888;	1.1153	;n
13C-1,2,3,7,8-PeCDD;	2.1e+08;	1.32e+08;	8.29e+07	;	1.59	;y ;	32:46	;	113.2	13.2;	0.9234;	0.8155	;n
13C-1,2,3,6,7,8-HxCDD;	2.5e+08;	1.33e+08;	1.12e+08	;	1.19	;y ;	35:08	;	103.6	3.6;	1.0813;	1.0442	;n
13C-1,2,3,4,6,7,8-HpCDD;	1.8e+08;	9.50e+07;	8.99e+07	;	1.06	;y ;	37:60	;	103.5	3.5;	0.8153;	0.7878	;n
13C-OCDD;	2.7e+08;	1.30e+08;	1.43e+08	;	0.91	;y ;	41:38	;	192.3	-3.9;	0.6026;	0.6269	;n
13C-2,3,7,8-TCDF;	3.9e+08;	1.75e+08;	2.19e+08	;	0.80	;y ;	27:29	;	102.6	2.6;	1.6966;	1.6529	;n
13C-1,2,3,7,8-PeCDF;	3.4e+08;	2.06e+08;	1.30e+08	;	1.58	;y ;	32:02	;	108.1	8.1;	1.4435;	1.3359	;n
13C-1,2,3,6,7,8-HxCDF;	3.1e+08;	1.08e+08;	2.05e+08	;	0.53	;y ;	34:32	;	100.9	0.9;	1.3818;	1.3697	;n
13C-1,2,3,4,6,7,8-HpCDF;	2.3e+08;	7.07e+07;	1.55e+08	;	0.45	;y ;	36:57	;	101.4	1.4;	0.9970;	0.9832	;n
Injection Standards													
13C-1,2,3,4-TCDD;	2.3e+08;	1.03e+08;	1.30e+08	;	0.79	;y ;	27:36	;	171.3	-;	-;	-	;n
13C-1,2,3,7,8,9-HxCDD;	2.3e+08;	1.26e+08;	1.01e+08	;	1.26	;y ;	35:22	;	210.1	-;	-;	-	;n
Cleanup Standards													
37Cl-2,3,7,8-TCDD;	2.7e+07;	2.67e+07;	-	;	-	;- ;	28:24	;	9.642	-3.6;	1.1463;	1.1889	;n
13C-2,3,4,7,8-PeCDF;	3.4e+08;	2.07e+08;	1.32e+08	;	1.57	;y ;	32:36	;	111.2	11.2;	1.4542;	1.3078	;n
13C-1,2,3,4,7,8-HxCDD;	2.0e+08;	1.18e+08;	8.59e+07	;	1.37	;y ;	35:04	;	93.48	-6.5;	0.8983;	0.9610	;n
13C-1,2,3,4,7,8-HxCDF;	2.7e+08;	9.21e+07;	1.77e+08	;	0.52	;y ;	34:27	;	95.45	-4.6;	1.1844;	1.2409	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.9e+08;	5.81e+07;	1.28e+08	;	0.45	;y ;	38:32	;	106.1	6.1;	0.8215;	0.7746	;n
Sampling Standards													
37Cl-2,3,7,8-TCDD;	2.7e+07;	2.67e+07;	-	;	-	;- ;	28:24	;	9.877	-1.2;	1.0528;	1.0659	;n
13C-2,3,4,7,8-PeCDF;	3.4e+08;	2.07e+08;	1.32e+08	;	1.57	;y ;	32:36	;	102.9	2.9;	1.0074;	0.9787	;n
13C-1,2,3,4,7,8-HxCDD;	2.0e+08;	1.18e+08;	8.59e+07	;	1.37	;y ;	35:04	;	90.10	-9.9;	0.8308;	0.9221	;n
13C-1,2,3,4,7,8-HxCDF;	2.7e+08;	9.21e+07;	1.77e+08	;	0.52	;y ;	34:27	;	94.61	-5.4;	0.8572;	0.9060	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.9e+08;	5.81e+07;	1.28e+08	;	0.45	;y ;	38:32	;	104.6	4.6;	0.8239;	0.7878	;n

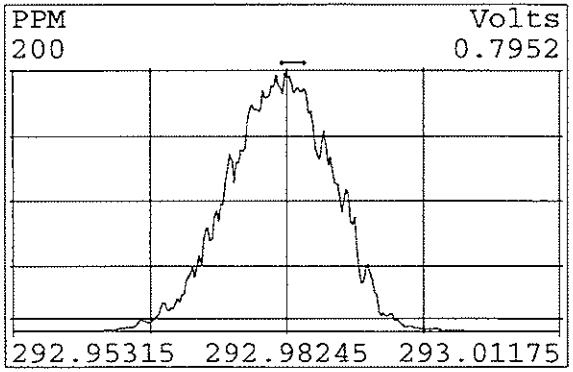
HRMS2 Sequence Log — SGS Environmental Services — Page 1 of 1

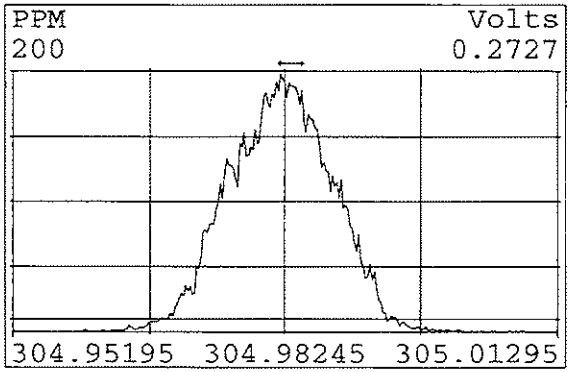
Data File S	Sample ID	Analyst	Acq. Date	Time
a10sep09d;1	;RETCON S33-78D pass	;JWP	10-SEP-09	17:30:58
a10sep09d;2	;OPR17287	;JWP	10-SEP-09	18:19:18
a10sep09d;3	;OPRD17287	;JWP	10-SEP-09	19:07:39
a10sep09d;4	;LMB17287	;JWP	10-SEP-09	19:56:00
a10sep09d;5	;G296-641-2F	;JWP	10-SEP-09	20:44:21
a10sep09d;6	;G383-759-1E	;JWP	10-SEP-09	21:32:37
a10sep09d;7	;G383-759-2E	;JWP	10-SEP-09	22:20:58
a10sep09d;8	;G383-759-3E	;JWP	10-SEP-09	23:09:19
a10sep09d;9	;G1089-4-11B	;JWP	10-SEP-09	23:57:39
a10sep09d;10	;G1089-4-12B	;JWP	11-SEP-09	00:46:00
a10sep09d;11	;G1089-4-13B	;JWP	11-SEP-09	01:34:21
a10sep09d;12	;G1089-4-18B	;JWP	11-SEP-09	02:22:41
a10sep09d;13	;G1089-4-19B	;JWP	11-SEP-09	03:10:58
a10sep09d;14	;RETCON S33-78D pass	;JWP	11-SEP-09	03:59:19

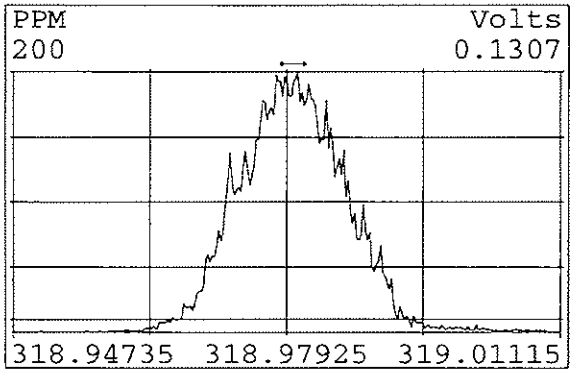
DS
9-11-09

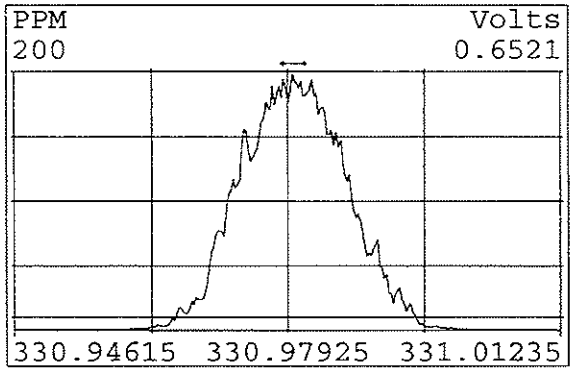
JM 9-11-09

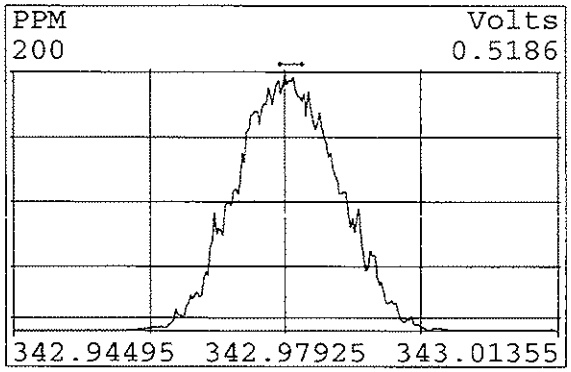
Peak Locate Examination:10-SEP-2009:17:28 File:A10SEP09D_L
Experiment:EXP_DB5MS Function:1 Reference:PFK

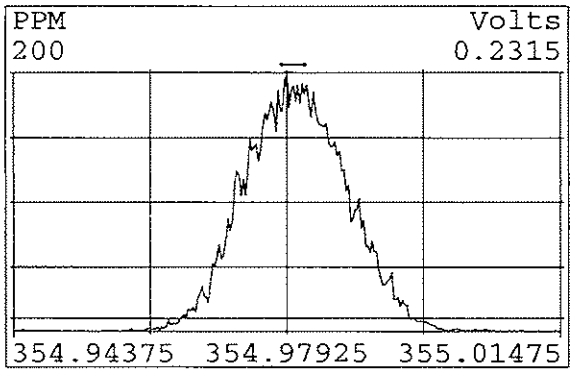


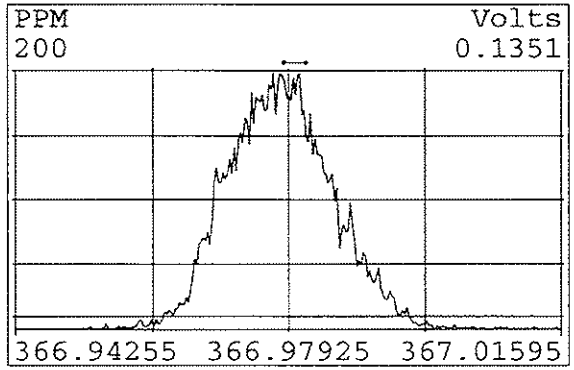


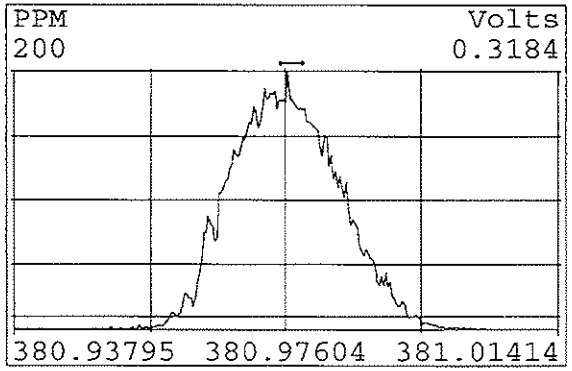




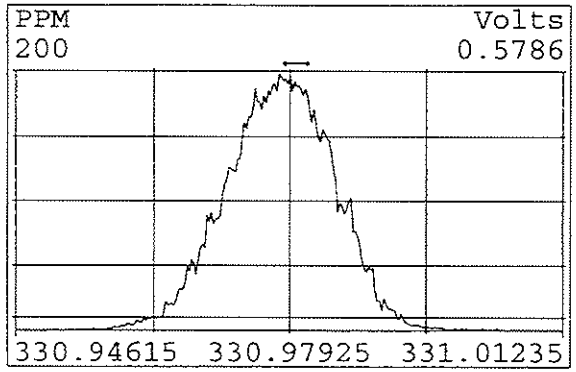


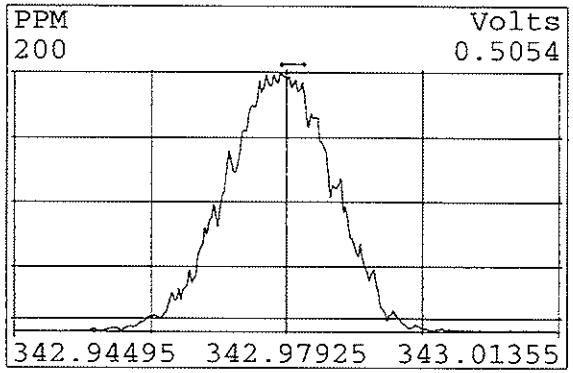


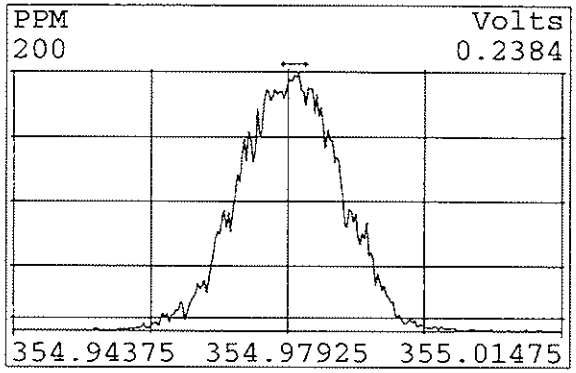


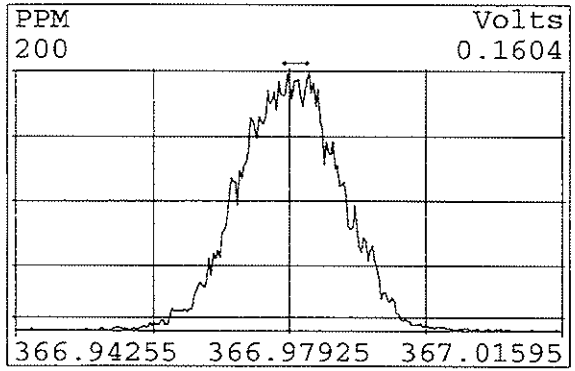


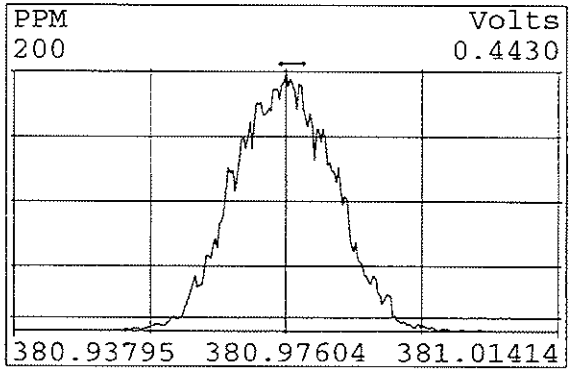
Peak Locate Examination:10-SEP-2009:17:28 File:A10SEP09D_L
Experiment:EXP_DB5MS Function:2 Reference:PFK

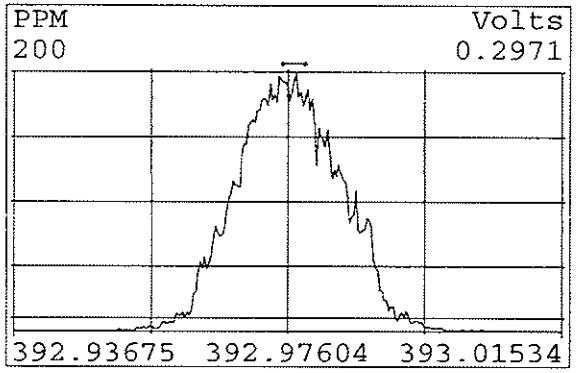


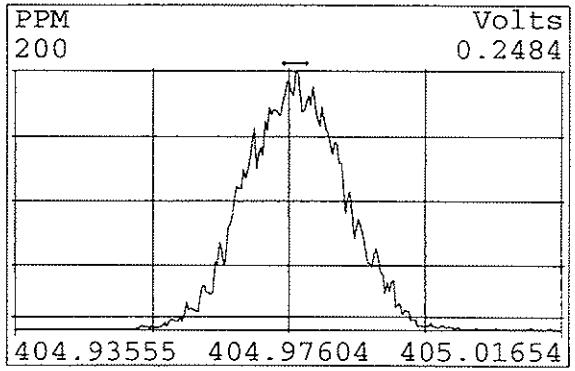


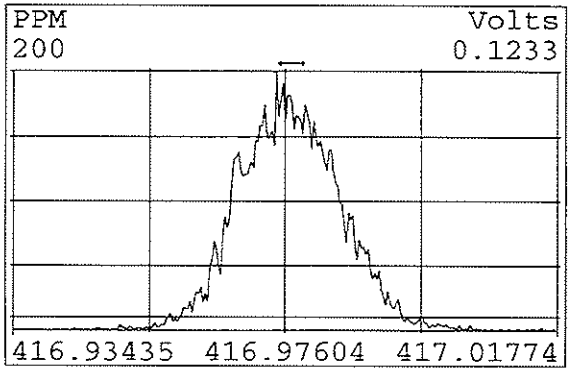




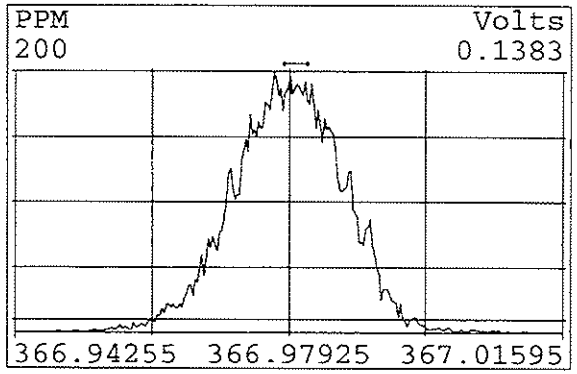


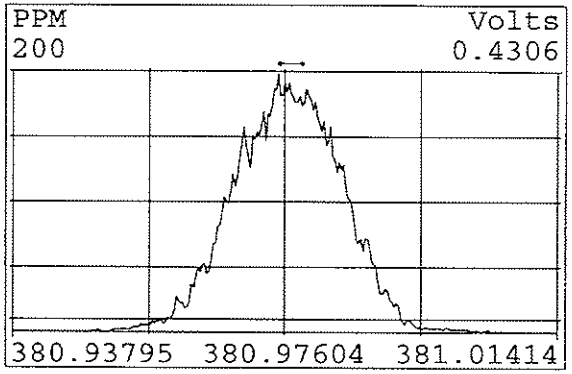


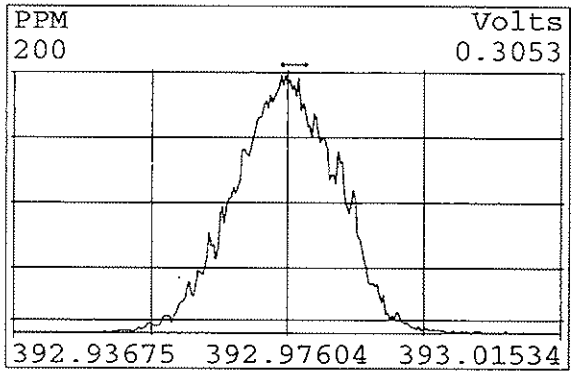


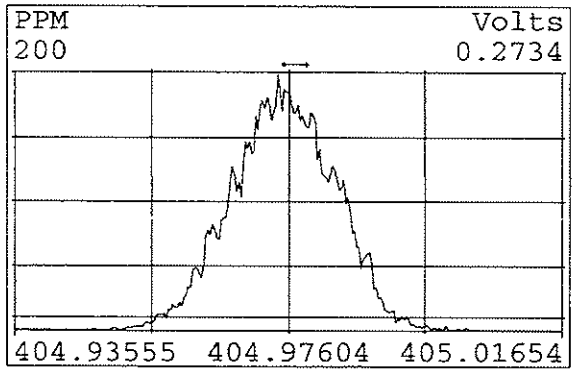


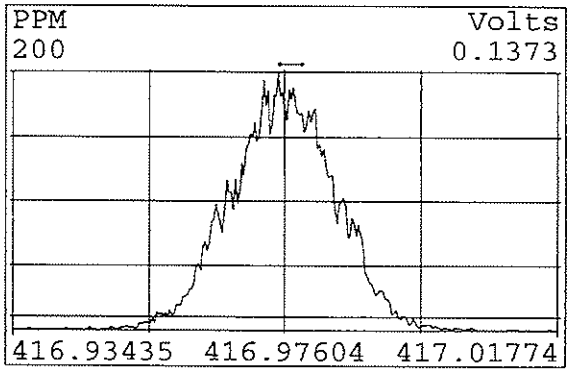
Peak Locate Examination:10-SEP-2009:17:28 File:A10SEP09D_L
Experiment:EXP_DB5MS Function:3 Reference:PFK

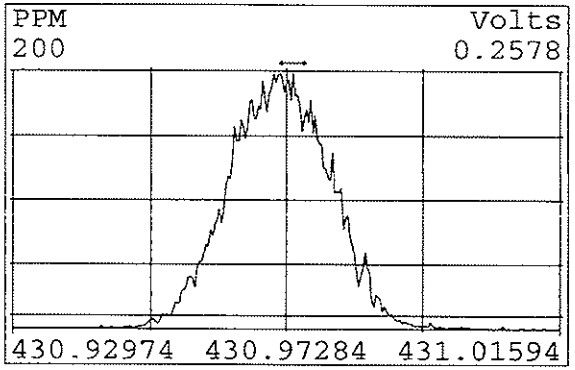


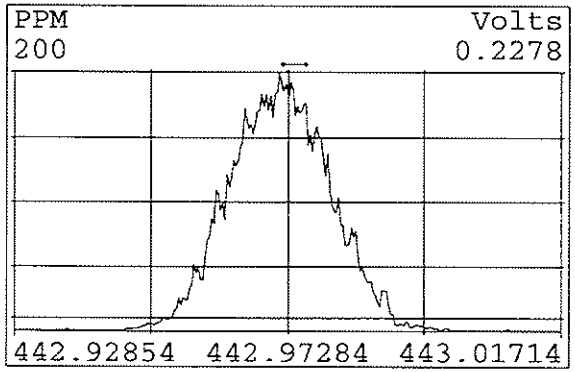


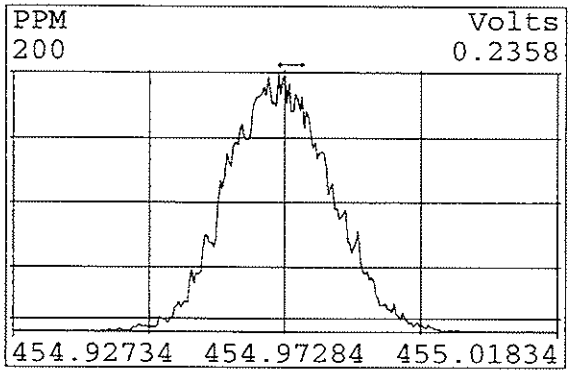




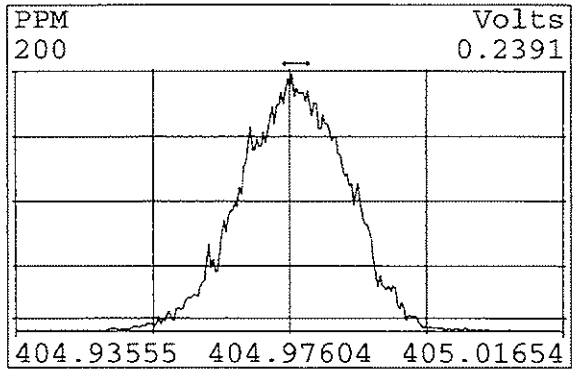


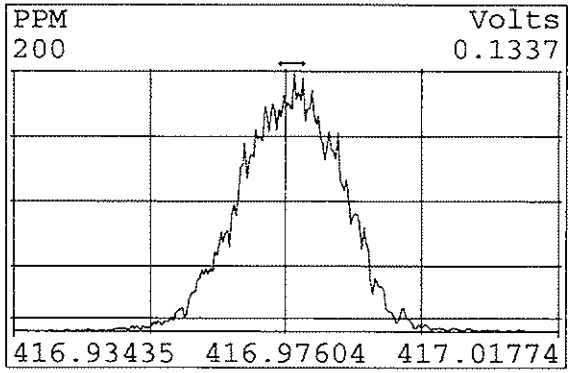


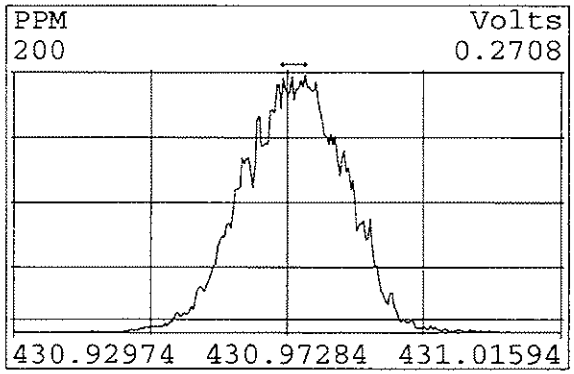


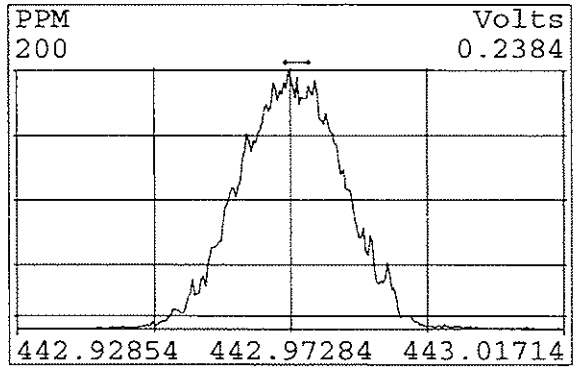


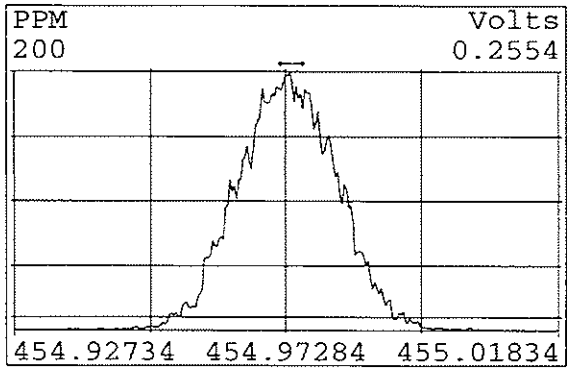
Peak Locate Examination:10-SEP-2009:17:29 File:A10SEP09D_L
Experiment:EXP_DB5MS Function:4 Reference:PFK

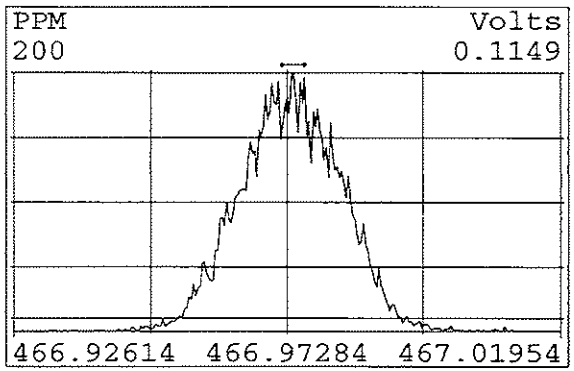


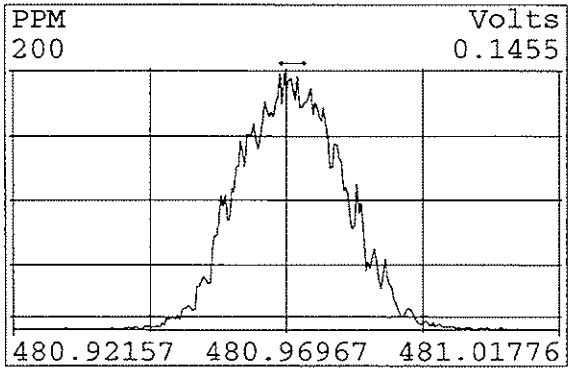




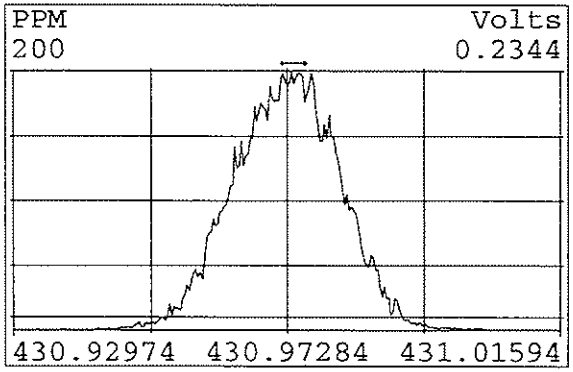


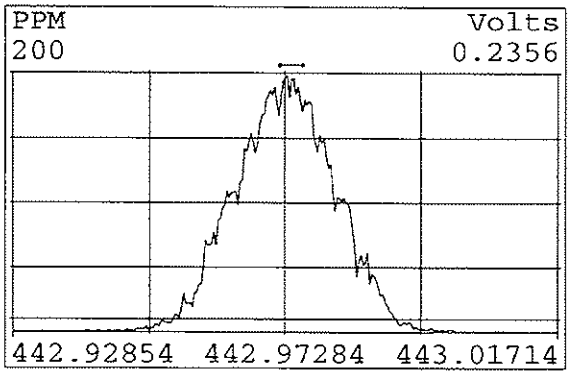


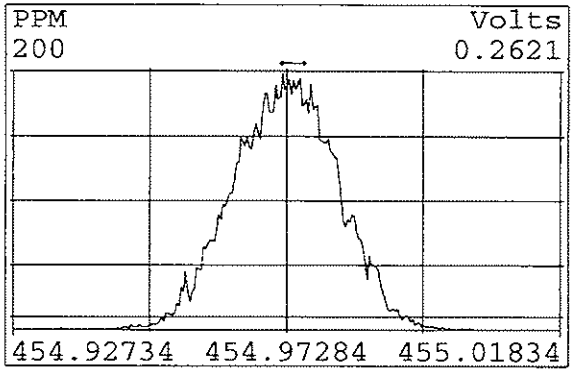


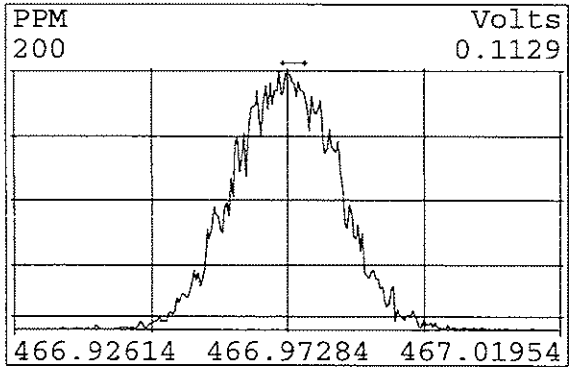


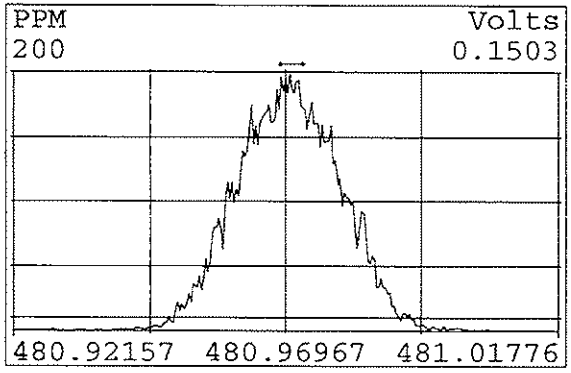
Peak Locate Examination:10-SEP-2009:17:30 File:A10SEP09D_L
Experiment:EXP_DB5MS Function:5 Reference:PFK

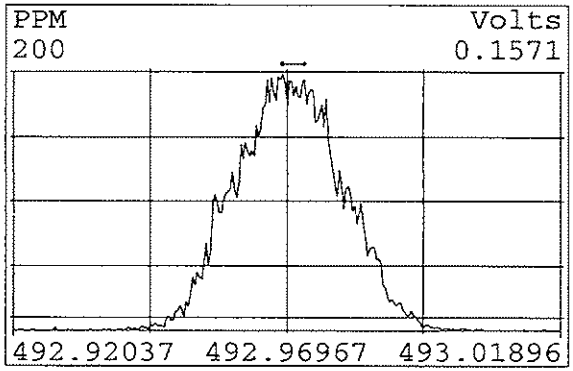


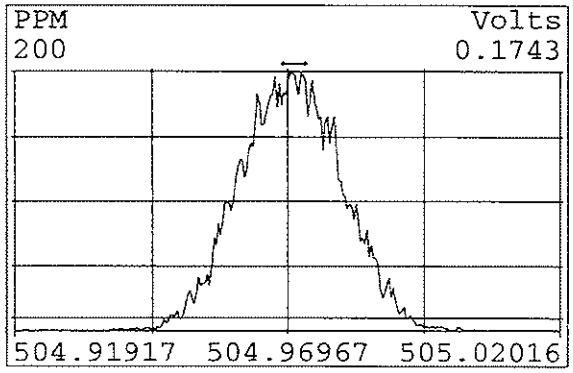


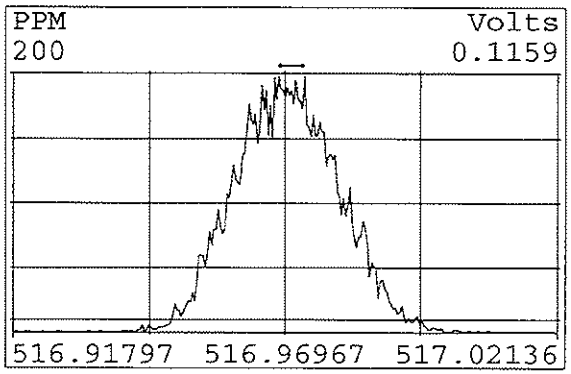




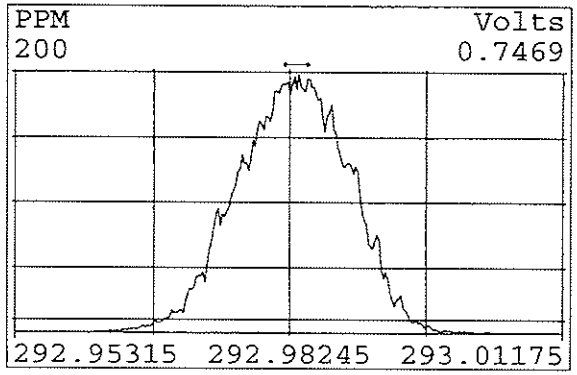


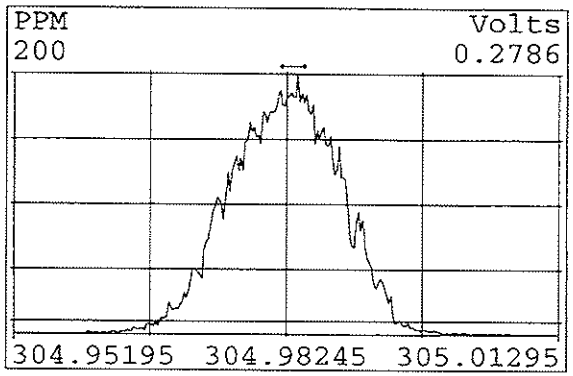


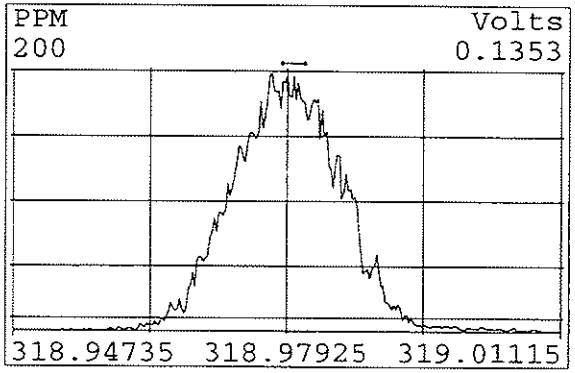


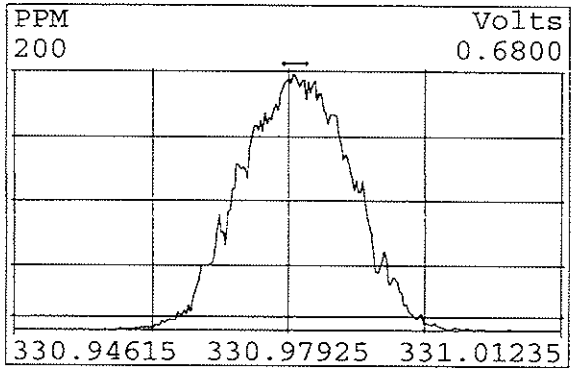


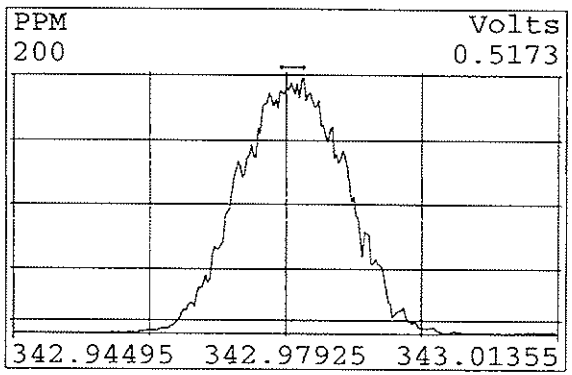
Peak Locate Examination:11-SEP-2009:04:48 File:A10SEP09D_RES_CHECK
Experiment:EXP_DB5MS Function:1 Reference:PFK

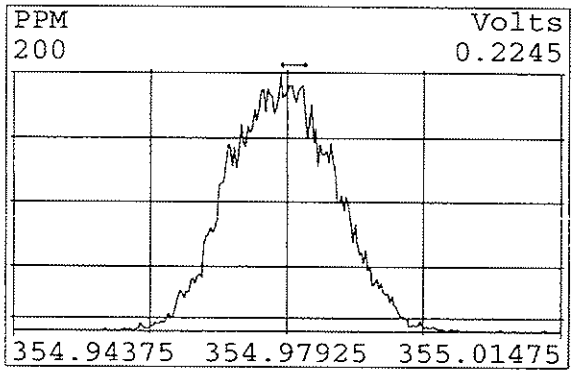


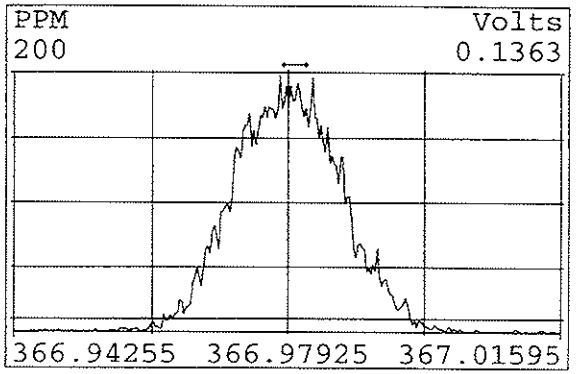


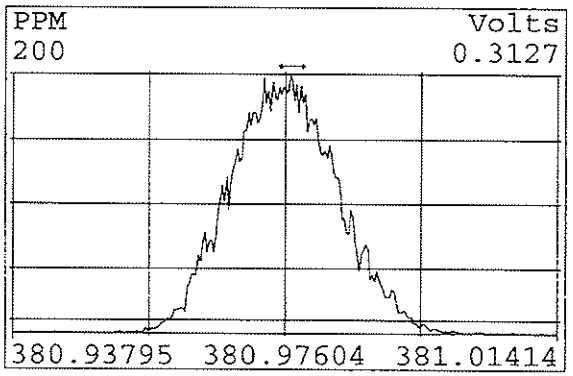




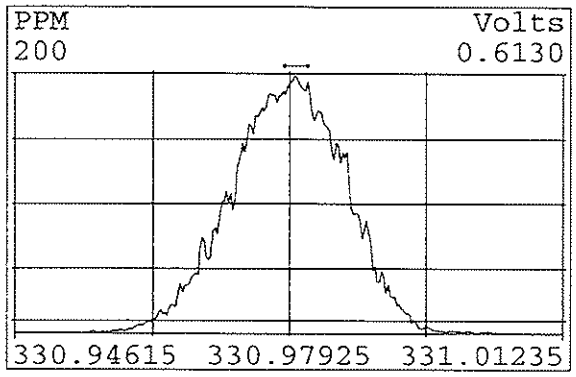


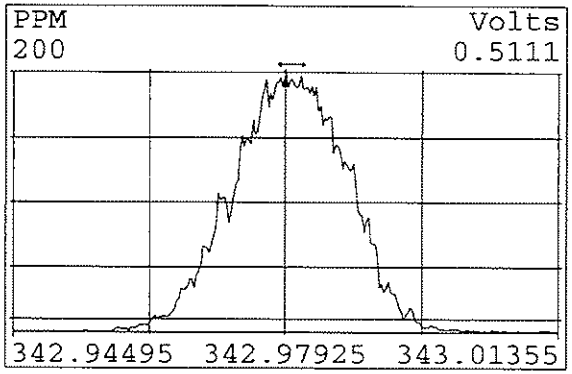


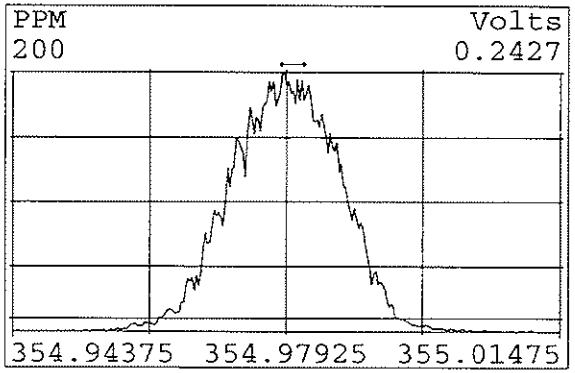


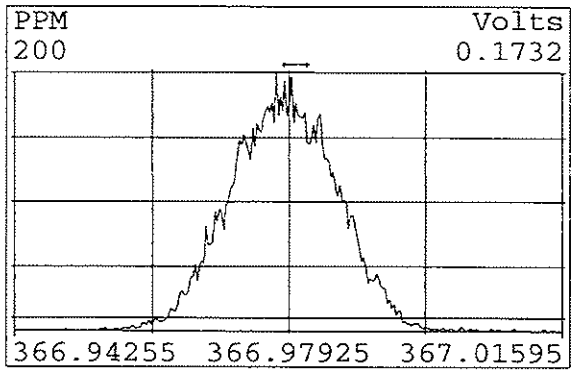


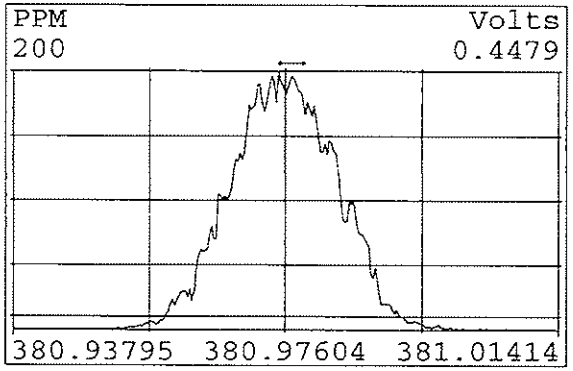
Peak Locate Examination:11-SEP-2009:04:49 File:A10SEP09D_RES_CHECK
Experiment:EXP_DB5MS Function:2 Reference:PFK

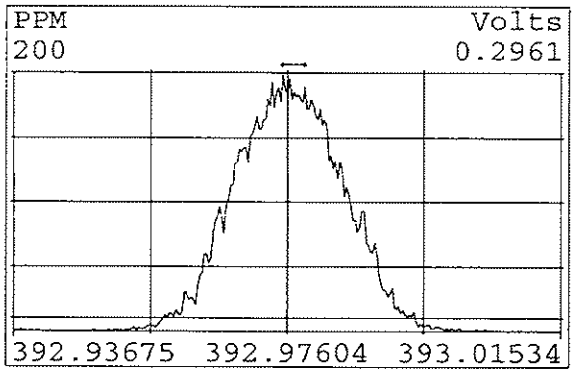


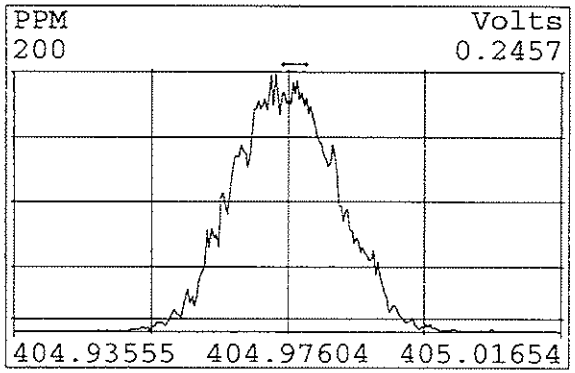


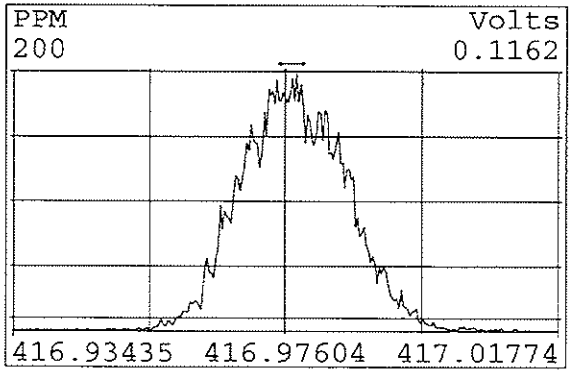




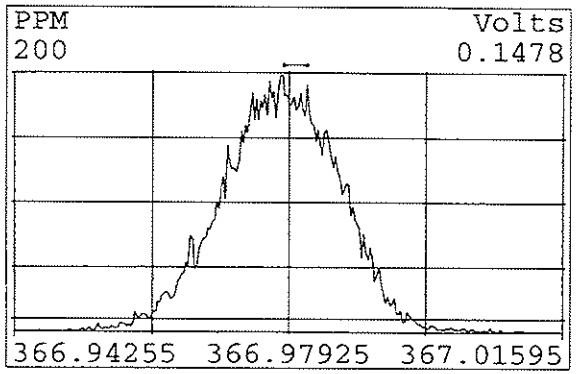


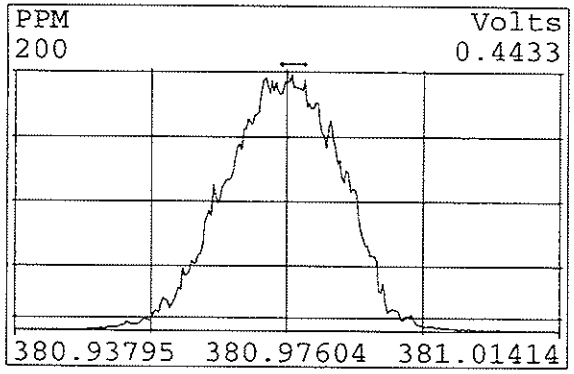


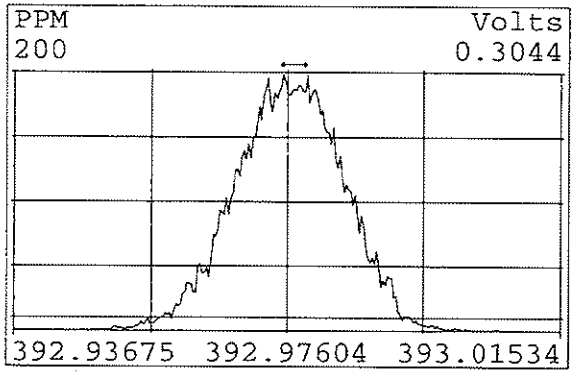


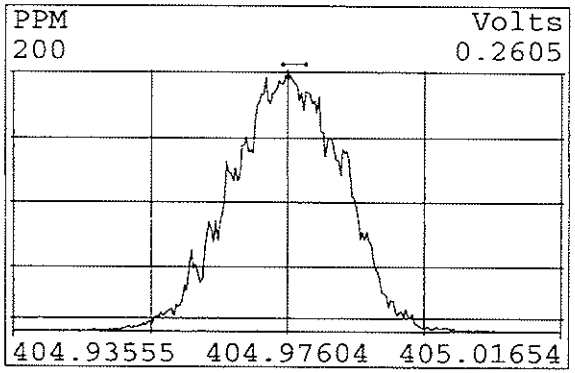


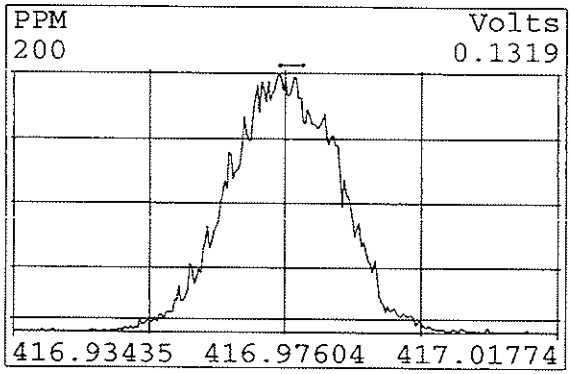
Peak Locate Examination:11-SEP-2009:04:50 File:A10SEP09D_RES_CHECK
Experiment:EXP_DB5MS Function:3 Reference:PFK

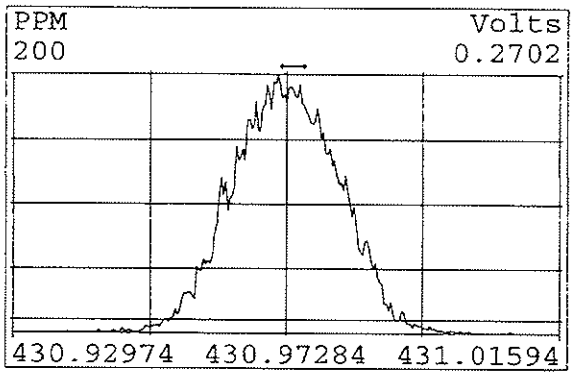


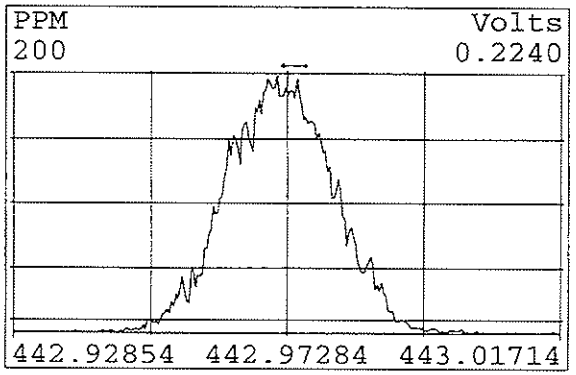


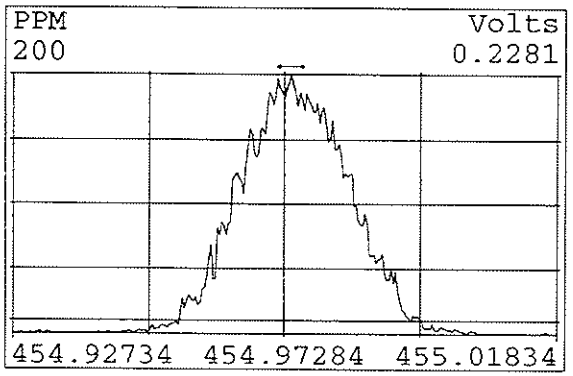




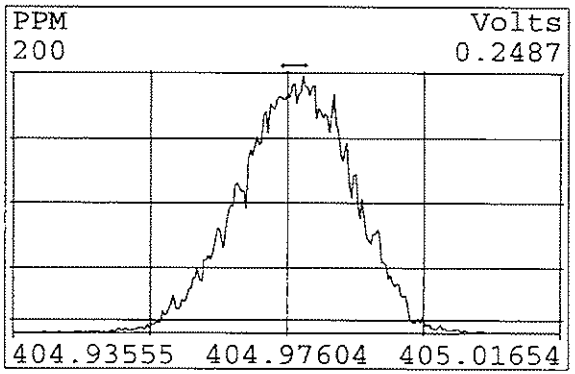


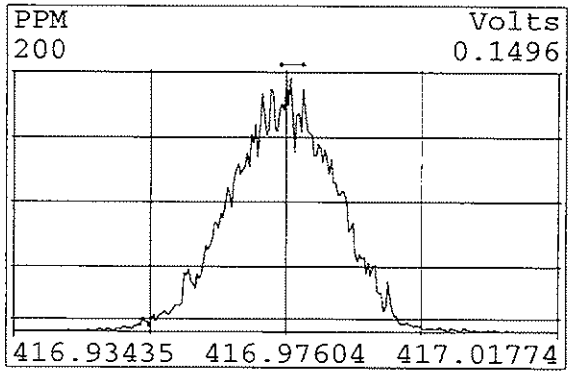


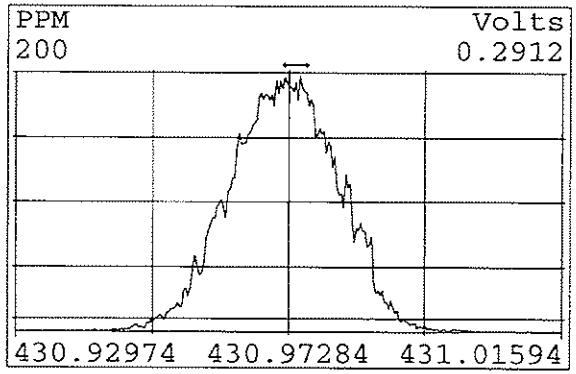


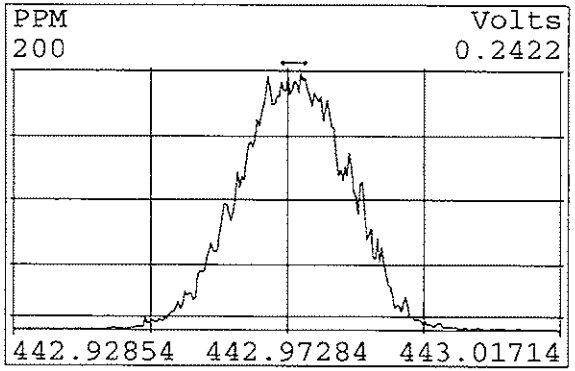


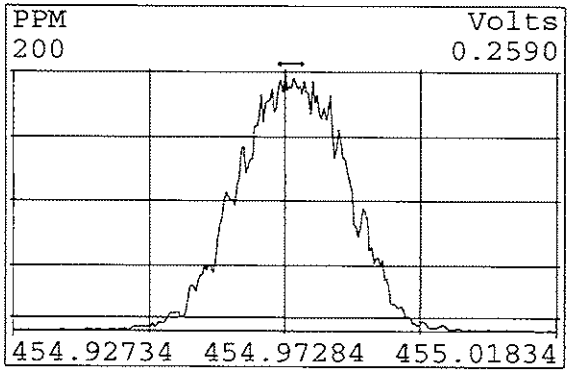
Peak Locate Examination:11-SEP-2009:04:51 File:A10SEP09D_RES_CHECK
Experiment:EXP_DB5MS Function:4 Reference:PFK

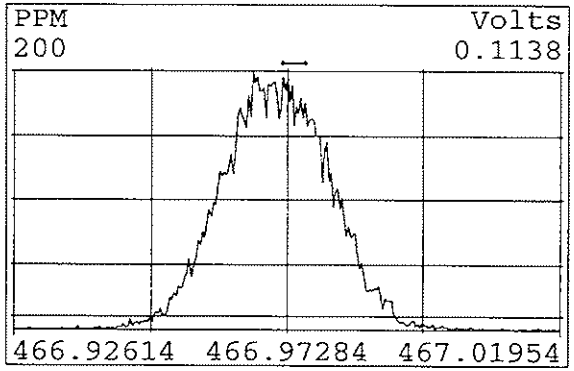


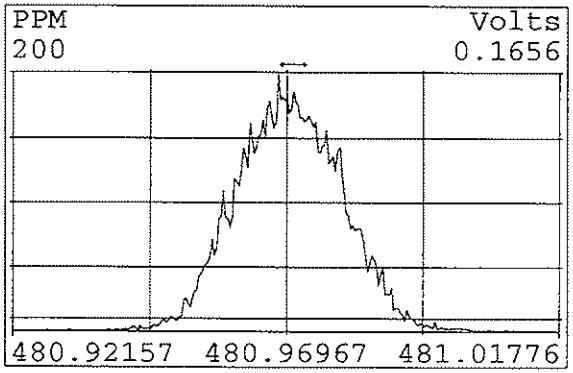




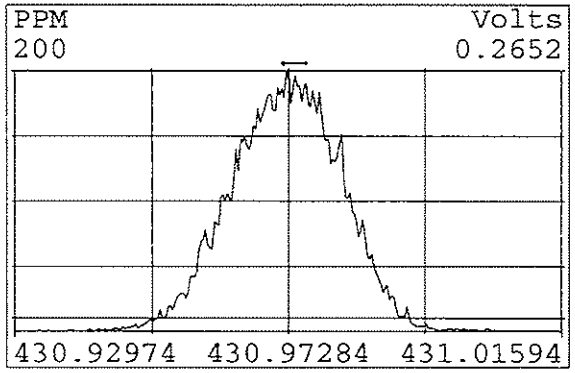


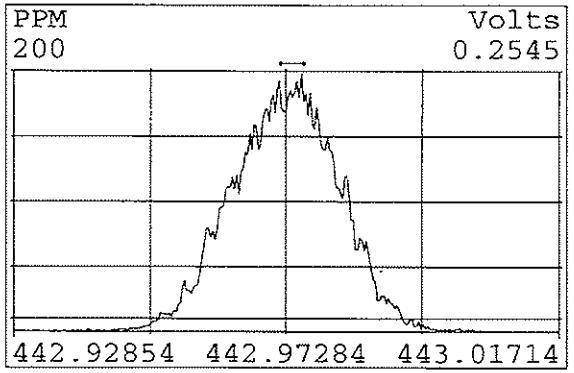


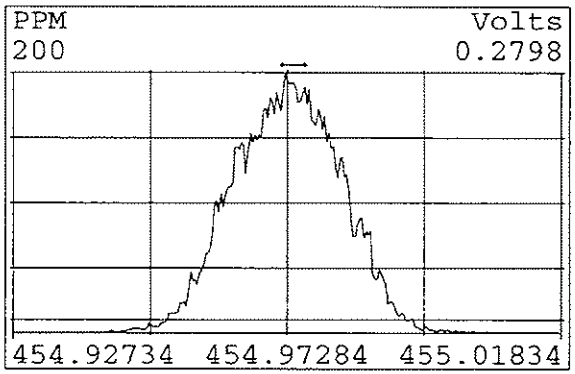


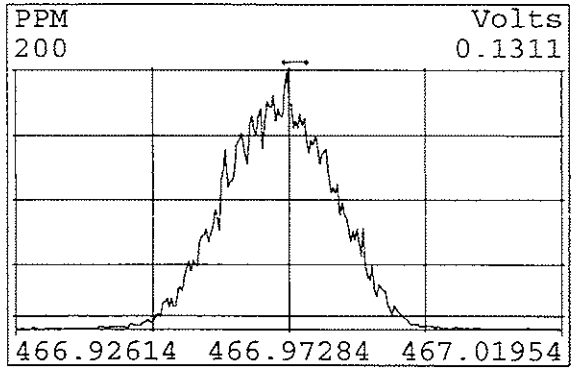


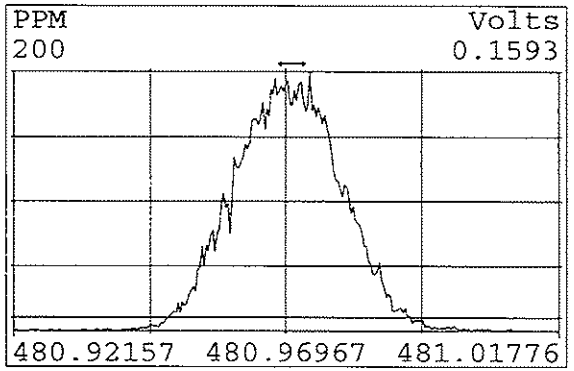
Peak Locate Examination:11-SEP-2009:04:52 File:A10SEP09D_RES_CHECK
Experiment:EXP_DB5MS Function:5 Reference:PFK

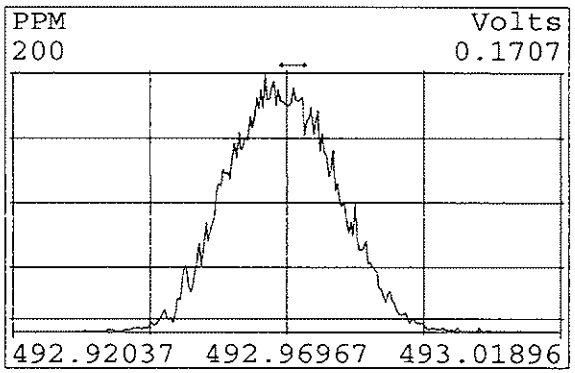


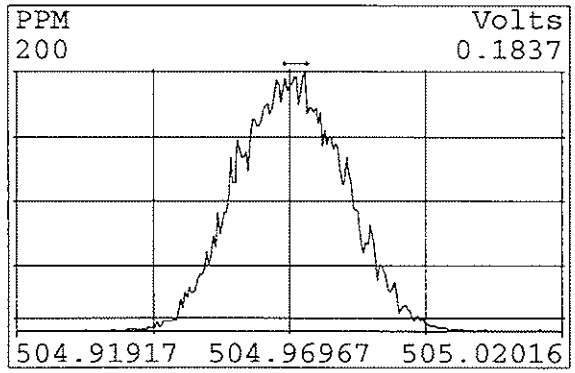


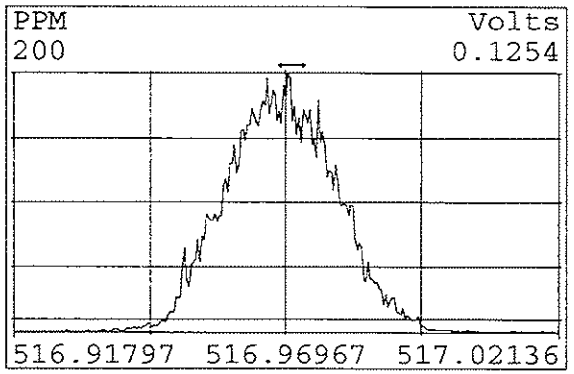






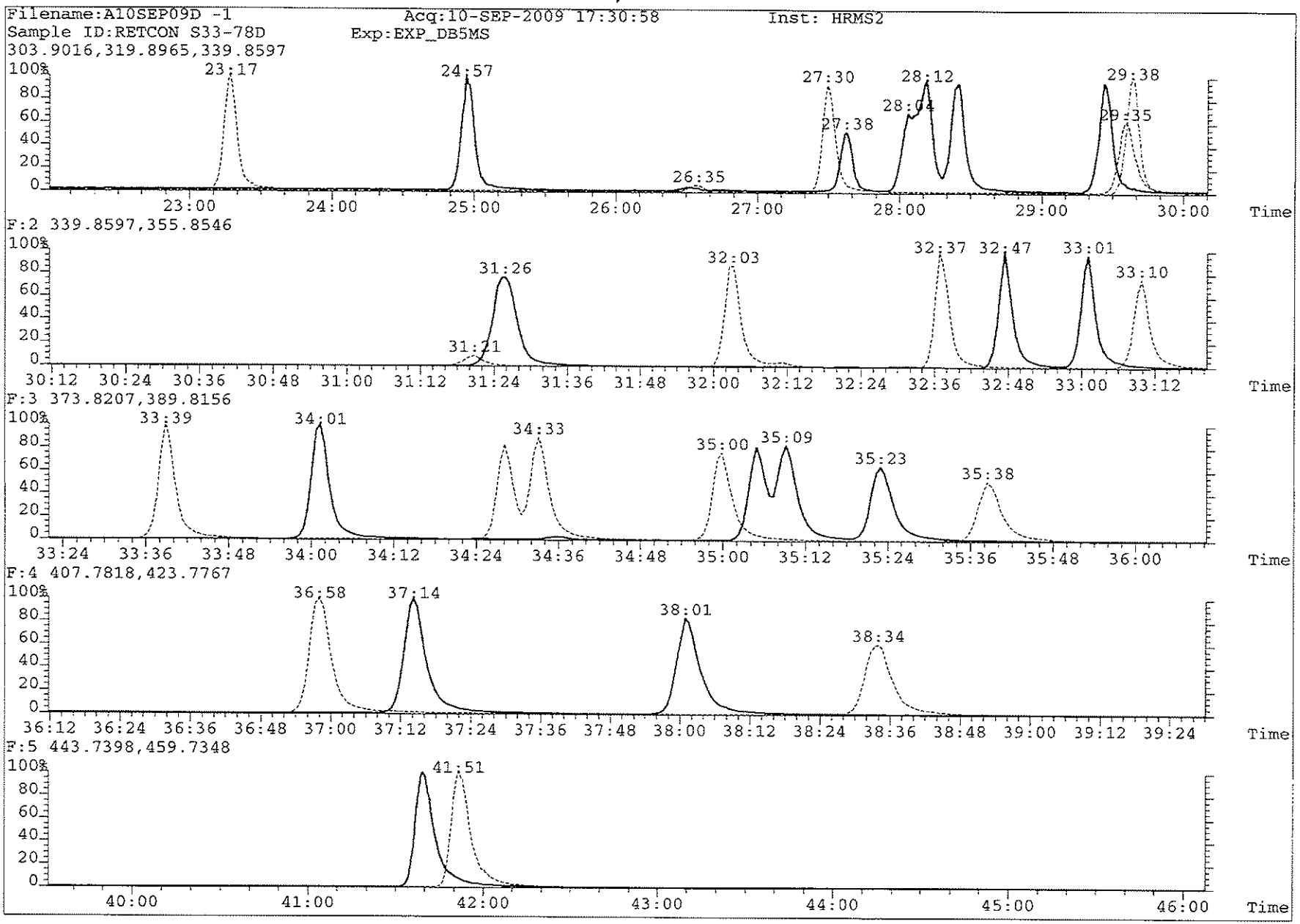


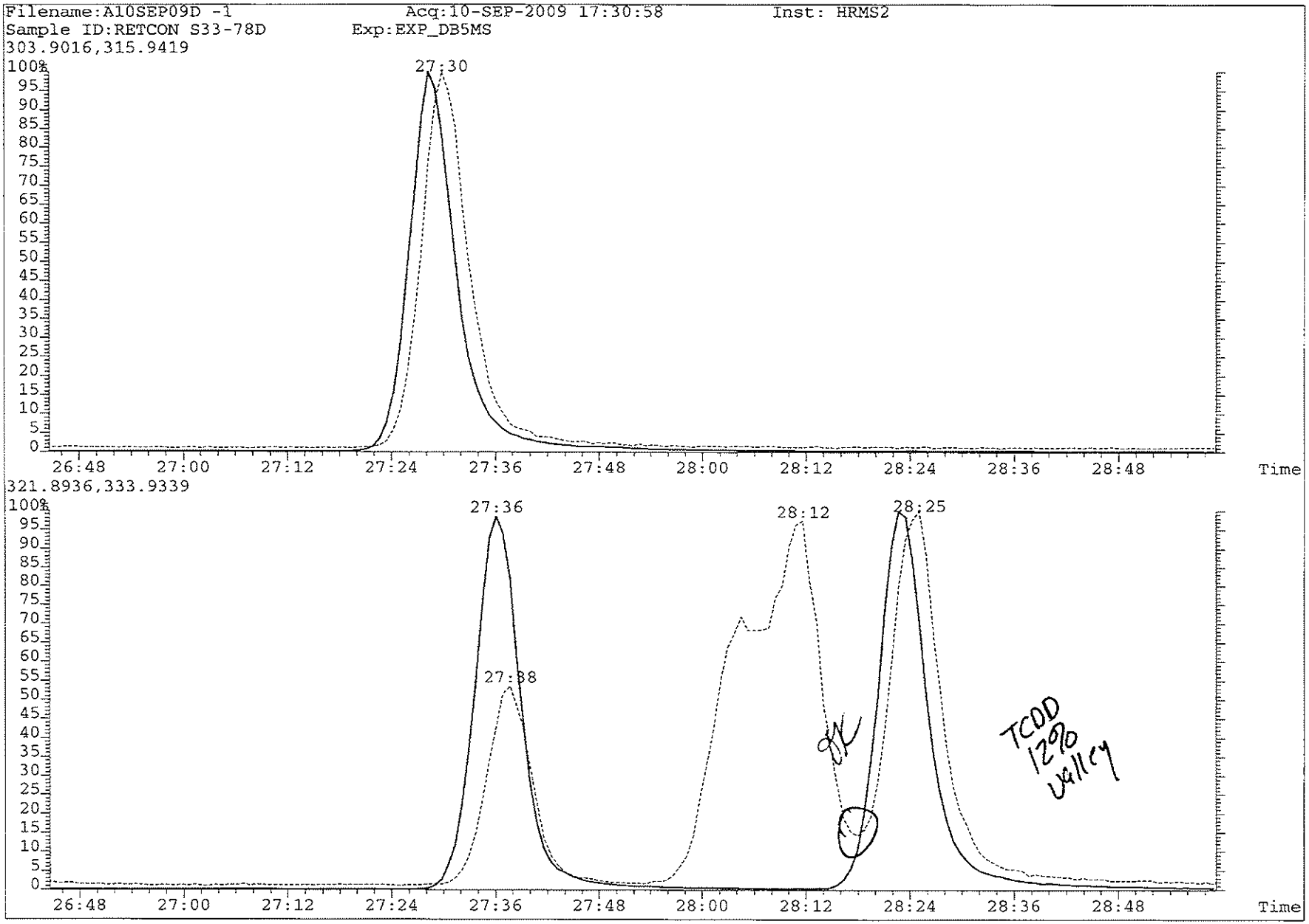




Filename ; a10sep09d
Sample ; 1
Acquired ; 10-SEP-09 17:30:58
Processed ; 11-SEP-09 06:33:22
Sample ID ; RETCON S33-78D

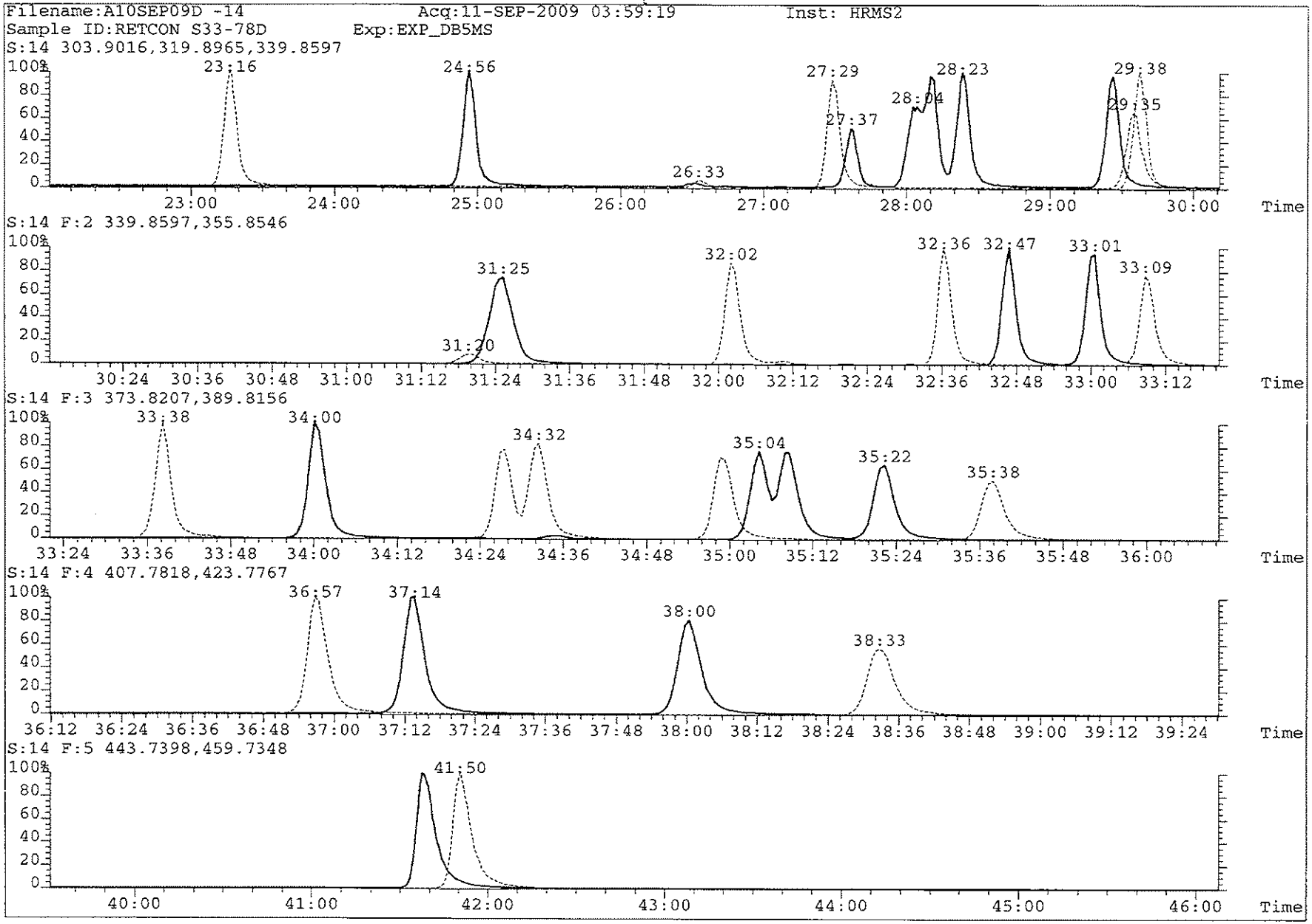
Name	First Eluter RT	Last Eluter RT
TCDD	24:57	29:27
PeCDD	31:26	33:01
HxCDD	34:01	35:23
HpCDD	37:14	38:01
OCDD	41:39	
TCDF	23:17	29:35
PeCDF	29:38	33:10
HxCDF	33:39	35:38
HpCDF	36:58	38:34
OCDF	41:51	

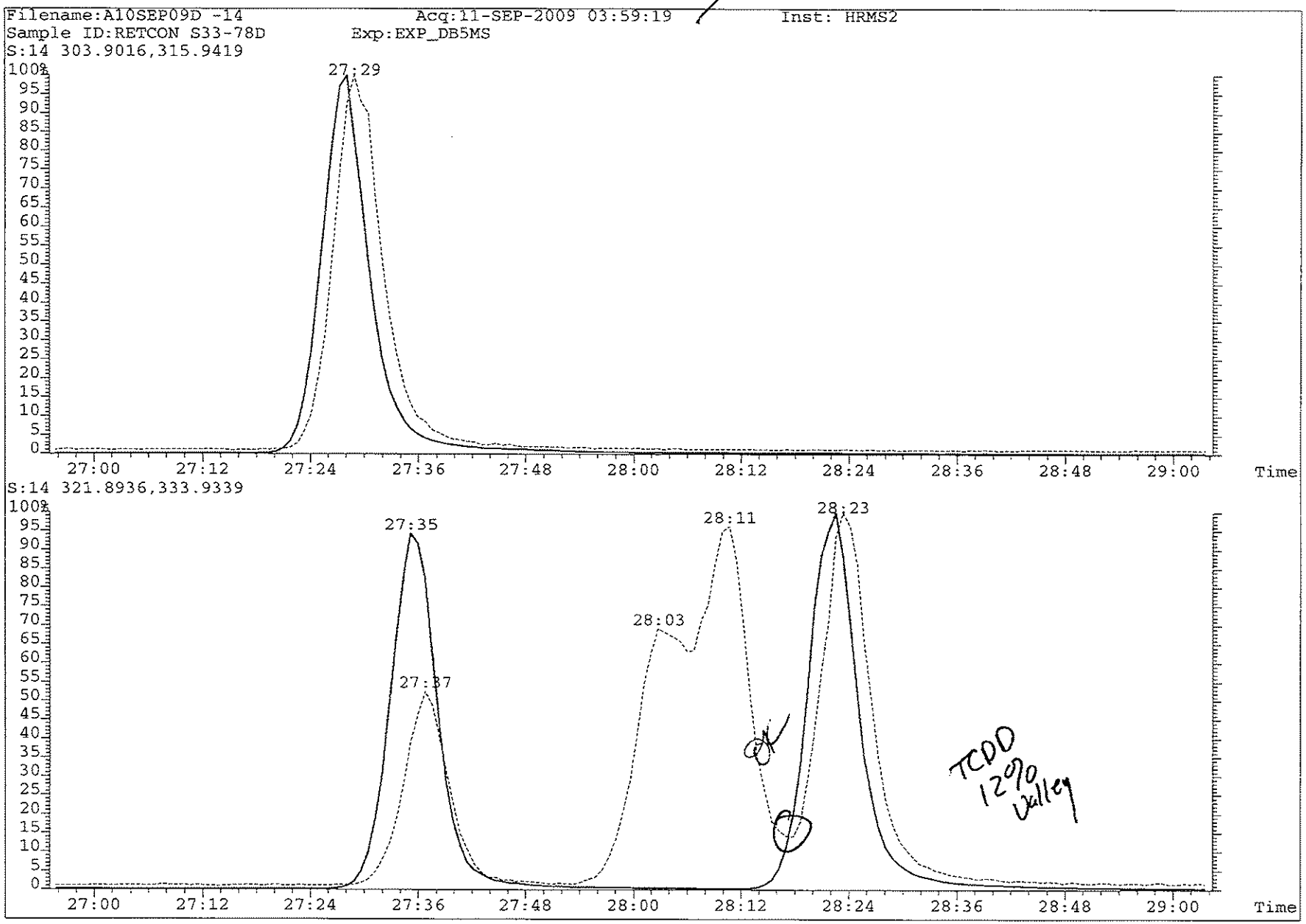

Filename:A10SEP09D -1
Acq:10-SEP-2009 17:30:58
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
303.9016,319.8965,339.8597
23:17
24:57
26:35
27:30
27:38
28:04
28:12
29:35
29:38
Time
F:2 339.8597,355.8546
31:21
31:26
32:03
32:37
32:47
33:01
33:10
Time
F:3 373.8207,389.8156
33:39
34:01
34:33
35:00
35:09
35:23
35:38
Time
F:4 407.7818,423.7767
36:58
37:14
38:01
38:34
Time
F:5 443.7398,459.7348
41:51
Time


Filename:A10SEP09D -1
Acq:10-SEP-2009 17:30:58
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
303.9016,315.9419
27:30
321.8936,333.9339
27:36
27:38
28:12
28:25
TCDD
1290
Valley
Time

Filename ; a10sep09d
Sample ; 14
Acquired ; 11-SEP-09 03:59:19
Processed ; 11-SEP-09 06:34:15
Sample ID ; RETCON S33-78D

Name	First Eluter RT	Last Eluter RT
TCDD	24:56	29:26
PeCDD	31:25	33:01
HxCDD	34:00	35:22
HpCDD	37:14	38:00
OCDD	41:38	
TCDF	23:16	29:35
PeCDF	29:38	33:09
HxCDF	33:38	35:38
HpCDF	36:57	38:33
OCDF	41:50	


Filename:A10SEP09D -14
Acq:11-SEP-2009 03:59:19
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
S:14 303.9016,319.8965,339.8597
23:16
24:56
26:33
27:29
27:37
28:04
28:23
29:35
29:38
Time
S:14 F:2 339.8597,355.8546
31:20
31:25
32:02
32:36
32:47
33:01
33:09
Time
S:14 F:3 373.8207,389.8156
33:38
34:00
34:32
35:04
35:22
35:38
Time
S:14 F:4 407.7818,423.7767
36:57
37:14
38:00
38:33
Time
S:14 F:5 443.7398,459.7348
41:50
Time


Filename:A10SEP09D -14
Acq:11-SEP-2009 03:59:19
Inst: HRMS2
Sample ID:RETCON S33-78D
Exp:EXP_DB5MS
S:14 303.9016,315.9419
27:29
S:14 321.8936,333.9339
27:35
27:37
28:03
28:11
28:23
TCDD
12%
Valley
Time

8290 CCAL

Sample text; RETCON S33-78D
Filename; a10sep09d -1 Acquired; 10-SEP-09 17:30:58 Processed; 10-SEP-09 18:15:41
ICAL; m8290-100708a Results; m8290-091009d

Name;	Resp;	Ion 1;	Ion 2	;	RA	;? ;	RT	;	Conc ;	Dev'n;	CCAL RRF;	ICAL RRF	;Mod
2,3,7,8-TCDD;	1.8e+07;	8.02e+06;	1.05e+07	;	0.77	;y ;	28:25	;	11.06 ;	10.6;	1.1153;	1.0087	;n
1,2,3,7,8-PeCDD;	6.5e+07;	3.94e+07;	2.52e+07	;	1.56	;y ;	32:48	;	49.17 ;	-1.7;	1.0343;	1.0517	;n
1,2,3,4,7,8-HxCDD;	5.9e+07;	3.41e+07;	2.47e+07	;	1.38	;y ;	35:05	;	40.41 ;	-19.2;	0.7668;	0.9489	;n
1,2,3,6,7,8-HxCDD;	7.4e+07;	3.93e+07;	3.43e+07	;	1.15	;y ;	35:10	;	48.42 ;	-3.2;	0.9602;	0.9916	;n
1,2,3,7,8,9-HxCDD;	6.5e+07;	3.58e+07;	2.88e+07	;	1.24	;y ;	35:24	;	43.61 ;	-12.8;	0.8416;	0.9649	;n
1,2,3,4,6,7,8-HpCDD;	5.4e+07;	2.73e+07;	2.62e+07	;	1.04	;y ;	38:02	;	49.16 ;	-1.7;	1.0435;	1.0612	;n
OCDD;	9.5e+07;	4.49e+07;	5.04e+07	;	0.89	;y ;	41:41	;	99.01 ;	-1.0;	1.0537;	1.0643	;n
2,3,7,8-TCDF;	2.5e+07;	1.09e+07;	1.42e+07	;	0.77	;y ;	27:30	;	9.311 ;	-6.9;	0.9653;	1.0368	;n
1,2,3,7,8-PeCDF;	9.9e+07;	6.02e+07;	3.86e+07	;	1.56	;y ;	32:03	;	48.92 ;	-2.2;	0.9661;	0.9873	;n
2,3,4,7,8-PeCDF;	1.0e+08;	6.06e+07;	3.93e+07	;	1.54	;y ;	32:37	;	48.05 ;	-3.9;	0.9758;	1.0154	;n
1,2,3,4,7,8-HxCDF;	8.0e+07;	4.41e+07;	3.60e+07	;	1.22	;y ;	34:28	;	40.28 ;	-19.4;	0.8436;	1.0470	;n
1,2,3,6,7,8-HxCDF;	1.0e+08;	5.66e+07;	4.57e+07	;	1.24	;y ;	34:33	;	47.61 ;	-4.8;	1.0769;	1.1310	;n
2,3,4,6,7,8-HxCDF;	8.9e+07;	4.93e+07;	4.01e+07	;	1.23	;y ;	35:00	;	44.18 ;	-11.6;	0.9410;	1.0650	;n
1,2,3,7,8,9-HxCDF;	7.4e+07;	4.11e+07;	3.32e+07	;	1.24	;y ;	35:39	;	42.47 ;	-15.1;	0.7831;	0.9220	;n
1,2,3,4,6,7,8-HpCDF;	8.0e+07;	4.04e+07;	3.92e+07	;	1.03	;y ;	36:58	;	45.88 ;	-8.2;	1.2619;	1.3752	;n
1,2,3,4,7,8,9-HpCDF;	6.3e+07;	3.20e+07;	3.10e+07	;	1.03	;y ;	38:35	;	46.59 ;	-6.8;	0.9996;	1.0727	;n
OCDF;	1.1e+08;	5.21e+07;	5.80e+07	;	0.90	;y ;	41:53	;	96.27 ;	-3.7;	1.2181;	1.2654	;n
Extraction Standards													
13C-2,3,7,8-TCDD;	1.7e+08;	7.33e+07;	9.25e+07	;	0.79	;y ;	28:23	;	97.04 ;	-3.0;	1.0823;	1.1153	;n
13C-1,2,3,7,8-PeCDD;	1.2e+08;	7.67e+07;	4.83e+07	;	1.59	;y ;	32:47	;	100.0 ;	0.0;	0.8159;	0.8155	;n
13C-1,2,3,6,7,8-HxCDD;	1.5e+08;	8.26e+07;	7.09e+07	;	1.16	;y ;	35:09	;	112.6 ;	12.6;	1.1755;	1.0442	;n
13C-1,2,3,4,6,7,8-HpCDD;	1.0e+08;	5.28e+07;	4.99e+07	;	1.06	;y ;	38:01	;	99.87 ;	-0.1;	0.7868;	0.7878	;n
13C-OCDD;	1.8e+08;	8.59e+07;	9.50e+07	;	0.90	;y ;	41:40	;	221.1 ;	10.5;	0.6930;	0.6269	;n
13C-2,3,7,8-TCDF;	2.6e+08;	1.15e+08;	1.46e+08	;	0.78	;y ;	27:29	;	102.9 ;	2.9;	1.7010;	1.6529	;n
13C-1,2,3,7,8-PeCDF;	2.0e+08;	1.26e+08;	7.90e+07	;	1.59	;y ;	32:03	;	100.0 ;	0.0;	1.3361;	1.3359	;n
13C-1,2,3,6,7,8-HxCDF;	1.9e+08;	6.53e+07;	1.25e+08	;	0.52	;y ;	34:33	;	106.3 ;	6.3;	1.4557;	1.3697	;n
13C-1,2,3,4,6,7,8-HpCDF;	1.3e+08;	3.89e+07;	8.72e+07	;	0.45	;y ;	36:58	;	98.31 ;	-1.7;	0.9666;	0.9832	;n
Injection Standards													
13C-1,2,3,4-TCDD;	1.5e+08;	6.80e+07;	8.51e+07	;	0.80	;y ;	27:36	;	112.7 ;	-;	-;	-	;n
13C-1,2,3,7,8,9-HxCDD;	1.3e+08;	7.24e+07;	5.81e+07	;	1.24	;y ;	35:23	;	120.9 ;	-;	-;	-	;n
Cleanup Standards													
37Cl-2,3,7,8-TCDD;	1.8e+07;	1.76e+07;	-	;	-	;- ;	28:25	;	9.652 ;	-3.5;	1.1475;	1.1889	;n
13C-2,3,4,7,8-PeCDF;	2.0e+08;	1.25e+08;	7.87e+07	;	1.59	;y ;	32:37	;	101.6 ;	1.6;	1.3291;	1.3078	;n
13C-1,2,3,4,7,8-HxCDD;	1.1e+08;	6.62e+07;	4.71e+07	;	1.41	;y ;	35:04	;	90.28 ;	-9.7;	0.8676;	0.9610	;n
13C-1,2,3,4,7,8-HxCDF;	1.4e+08;	4.92e+07;	9.55e+07	;	0.52	;y ;	34:27	;	89.32 ;	-10.7;	1.1083;	1.2409	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.0e+08;	3.13e+07;	6.98e+07	;	0.45	;y ;	38:34	;	100.0 ;	0.0;	0.7748;	0.7746	;n
Sampling Standards													
37Cl-2,3,7,8-TCDD;	1.8e+07;	1.76e+07;	-	;	-	;- ;	28:25	;	9.947 ;	-0.5;	1.0602;	1.0659	;n
13C-2,3,4,7,8-PeCDF;	2.0e+08;	1.25e+08;	7.87e+07	;	1.59	;y ;	32:37	;	101.6 ;	1.6;	0.9948;	0.9787	;n
13C-1,2,3,4,7,8-HxCDD;	1.1e+08;	6.62e+07;	4.71e+07	;	1.41	;y ;	35:04	;	80.05 ;	-20.0;	0.7381;	0.9221	;n
13C-1,2,3,4,7,8-HxCDF;	1.4e+08;	4.92e+07;	9.55e+07	;	0.52	;y ;	34:27	;	84.04 ;	-16.0;	0.7614;	0.9060	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.0e+08;	3.13e+07;	6.98e+07	;	0.45	;y ;	38:34	;	101.8 ;	1.8;	0.8016;	0.7878	;n

8290 CCAL

Sample text; RETCON S33-78D
Filename; a10sep09d -14 Acquired; 11-SEP-09 03:59:19 Processed; 11-SEP-09 06:06:09
ICAL; m8290-100708a Results; m8290-091009d

Name;	Resp;	Ion 1;	Ion 2	;	RA	;? ;	RT	;	Conc	;	Dev'n;	CCAL RRF;	ICAL RRF	;Mod
2,3,7,8-TCDD;	2.2e+07;	9.61e+06;	1.23e+07	;	0.78	;y ;	28:24	;	10.81	;	8.1;	1.0909;	1.0087	;n
1,2,3,7,8-PeCDD;	8.2e+07;	5.01e+07;	3.24e+07	;	1.54	;y ;	32:47	;	49.32	;	-1.4;	1.0373;	1.0517	;n
1,2,3,4,7,8-HxCDD;	7.4e+07;	4.09e+07;	3.28e+07	;	1.24	;y ;	35:04	;	42.25	;	-15.5;	0.8019;	0.9489	;n
1,2,3,6,7,8-HxCDD;	8.9e+07;	4.93e+07;	3.94e+07	;	1.25	;y ;	35:09	;	48.62	;	-2.8;	0.9642;	0.9916	;n
1,2,3,7,8,9-HxCDD;	8.0e+07;	4.41e+07;	3.57e+07	;	1.24	;y ;	35:22	;	44.98	;	-10.0;	0.8680;	0.9649	;n
1,2,3,4,6,7,8-HpCDD;	6.8e+07;	3.48e+07;	3.30e+07	;	1.05	;y ;	38:01	;	49.10	;	-1.8;	1.0421;	1.0612	;n
OCDD;	1.2e+08;	5.82e+07;	6.55e+07	;	0.89	;y ;	41:40	;	98.83	;	-1.2;	1.0519;	1.0643	;n
2,3,7,8-TCDF;	3.0e+07;	1.32e+07;	1.69e+07	;	0.78	;y ;	27:30	;	9.349	;	-6.5;	0.9693;	1.0368	;n
1,2,3,7,8-PeCDF;	1.2e+08;	7.32e+07;	4.69e+07	;	1.56	;y ;	32:02	;	48.38	;	-3.2;	0.9554;	0.9873	;n
2,3,4,7,8-PeCDF;	1.2e+08;	7.60e+07;	4.88e+07	;	1.56	;y ;	32:36	;	48.88	;	-2.2;	0.9926;	1.0154	;n
1,2,3,4,7,8-HxCDF;	1.1e+08;	5.80e+07;	4.71e+07	;	1.23	;y ;	34:27	;	45.71	;	-8.6;	0.9572;	1.0470	;n
1,2,3,6,7,8-HxCDF;	1.2e+08;	6.68e+07;	5.36e+07	;	1.25	;y ;	34:32	;	48.48	;	-3.0;	1.0967;	1.1310	;n
2,3,4,6,7,8-HxCDF;	1.1e+08;	6.01e+07;	4.88e+07	;	1.23	;y ;	34:59	;	46.53	;	-6.9;	0.9912;	1.0650	;n
1,2,3,7,8,9-HxCDF;	9.4e+07;	5.16e+07;	4.19e+07	;	1.23	;y ;	35:38	;	46.18	;	-7.6;	0.8516;	0.9220	;n
1,2,3,4,6,7,8-HpCDF;	9.9e+07;	5.02e+07;	4.91e+07	;	1.02	;y ;	36:57	;	45.89	;	-8.2;	1.2621;	1.3752	;n
1,2,3,4,7,8,9-HpCDF;	7.9e+07;	4.03e+07;	3.89e+07	;	1.04	;y ;	38:33	;	46.98	;	-6.0;	1.0079;	1.0727	;n
OCDF;	1.4e+08;	6.64e+07;	7.42e+07	;	0.89	;y ;	41:52	;	94.46	;	-5.5;	1.1953;	1.2654	;n
Extraction Standards														
13C-2,3,7,8-TCDD;	2.0e+08;	8.88e+07;	1.12e+08	;	0.79	;y ;	28:22	;	99.87	;	-0.1;	1.1139;	1.1153	;n
13C-1,2,3,7,8-PeCDD;	1.6e+08;	9.76e+07;	6.14e+07	;	1.59	;y ;	32:46	;	108.0	;	8.0;	0.8807;	0.8155	;n
13C-1,2,3,6,7,8-HxCDD;	1.8e+08;	1.03e+08;	8.13e+07	;	1.26	;y ;	35:08	;	109.2	;	9.2;	1.1407;	1.0442	;n
13C-1,2,3,4,6,7,8-HpCDD;	1.3e+08;	6.69e+07;	6.33e+07	;	1.06	;y ;	37:60	;	102.5	;	2.5;	0.8079;	0.7878	;n
13C-OCDD;	2.4e+08;	1.11e+08;	1.24e+08	;	0.90	;y ;	41:39	;	232.8	;	16.4;	0.7295;	0.6269	;n
13C-2,3,7,8-TCDF;	3.1e+08;	1.36e+08;	1.74e+08	;	0.78	;y ;	27:28	;	104.0	;	4.0;	1.7185;	1.6529	;n
13C-1,2,3,7,8-PeCDF;	2.5e+08;	1.54e+08;	9.75e+07	;	1.58	;y ;	32:02	;	104.2	;	4.2;	1.3926;	1.3359	;n
13C-1,2,3,6,7,8-HxCDF;	2.2e+08;	7.56e+07;	1.44e+08	;	0.52	;y ;	34:32	;	99.50	;	-0.5;	1.3628;	1.3697	;n
13C-1,2,3,4,6,7,8-HpCDF;	1.6e+08;	4.87e+07;	1.09e+08	;	0.45	;y ;	36:57	;	99.29	;	-0.7;	0.9761;	0.9832	;n
Injection Standards														
13C-1,2,3,4-TCDD;	1.8e+08;	8.02e+07;	1.00e+08	;	0.80	;y ;	27:36	;	132.9	;	-;	-;	-	;n
13C-1,2,3,7,8,9-HxCDD;	1.6e+08;	8.97e+07;	7.15e+07	;	1.26	;y ;	35:22	;	149.3	;	-;	-;	-	;n
Cleanup Standards														
37Cl-2,3,7,8-TCDD;	2.1e+07;	2.13e+07;	-	;	-	;- ;	28:24	;	9.910	;	-0.9;	1.1782;	1.1889	;n
13C-2,3,4,7,8-PeCDF;	2.5e+08;	1.54e+08;	9.73e+07	;	1.58	;y ;	32:36	;	106.3	;	6.3;	1.3907;	1.3078	;n
13C-1,2,3,4,7,8-HxCDD;	1.4e+08;	7.94e+07;	6.29e+07	;	1.26	;y ;	35:04	;	91.87	;	-8.1;	0.8829;	0.9610	;n
13C-1,2,3,4,7,8-HxCDF;	1.9e+08;	6.51e+07;	1.26e+08	;	0.52	;y ;	34:27	;	95.31	;	-4.7;	1.1827;	1.2409	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.3e+08;	3.94e+07;	8.78e+07	;	0.45	;y ;	38:33	;	101.9	;	1.9;	0.7891;	0.7746	;n
Sampling Standards														
37Cl-2,3,7,8-TCDD;	2.1e+07;	2.13e+07;	-	;	-	;- ;	28:24	;	9.923	;	-0.8;	1.0577;	1.0659	;n
13C-2,3,4,7,8-PeCDF;	2.5e+08;	1.54e+08;	9.73e+07	;	1.58	;y ;	32:36	;	102.0	;	2.0;	0.9986;	0.9787	;n
13C-1,2,3,4,7,8-HxCDD;	1.4e+08;	7.94e+07;	6.29e+07	;	1.26	;y ;	35:04	;	83.94	;	-16.1;	0.7740;	0.9221	;n
13C-1,2,3,4,7,8-HxCDF;	1.9e+08;	6.51e+07;	1.26e+08	;	0.52	;y ;	34:27	;	95.79	;	-4.2;	0.8678;	0.9060	;n
13C-1,2,3,4,7,8,9-HpCDF;	1.3e+08;	3.94e+07;	8.78e+07	;	0.45	;y ;	38:33	;	102.6	;	2.6;	0.8084;	0.7878	;n

mcf-c 042709a

Paradigm Analytical Runlog

Instrument: HRMS3

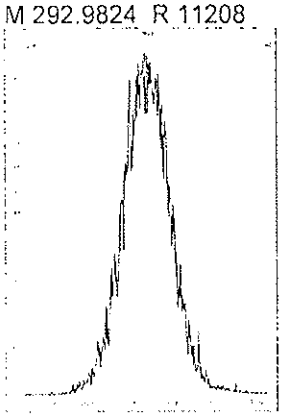
Data File	Sample ID	Analyst	Acqusistion Date/Time	Inj.Vol
c27apr09a-1	225 CPM	HMP	2009-04-27 08:28:01	1 uL
c27apr09a-1	225 CPM	HMP	2009-04-27 08:28:01	1 uL
c27apr09a-2	SB	HMP	2009-04-27 08:52:59	1 uL
c27apr09a-3	CS0.5 S29-232P 0.25 pg/uL	HMP	2009-04-27 09:18:42	1 uL
c27apr09a-4	CS2 S23-210G 2.0 pg/uL	HMP	2009-04-27 09:44:27	1 uL
c27apr09a-5	CS3 S32-114R 10 pg/uL	HMP	2009-04-27 10:10:17	1 uL
c27apr09a-6	CS4 S29-01U 40 pg/uL	HMP	2009-04-27 10:36:03	1 uL
c27apr09a-7	CS5 S29-01V 200 pg/uL	HMP	2009-04-27 11:01:58	1 uL

4/27.09

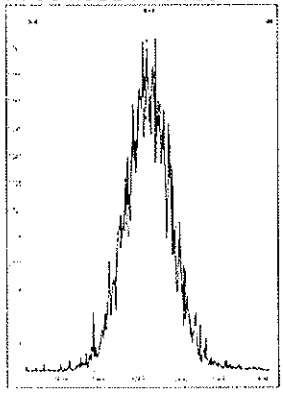
File: Experiment: tcdf_confirms.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, April 27, 2009 08:21:19 Eastern Standard Time

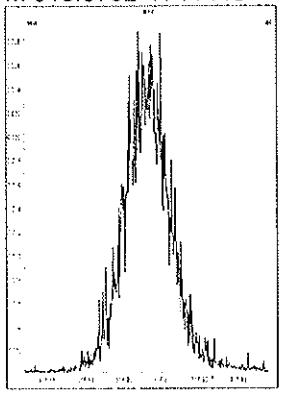
M 292.9824 R 11208



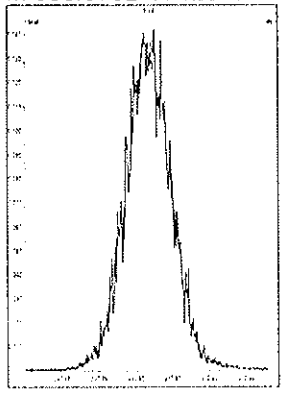
M 304.9824 R 12014



M 318.9792 R 11415

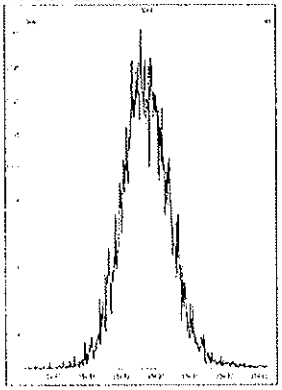


M 330.9792 R 12017

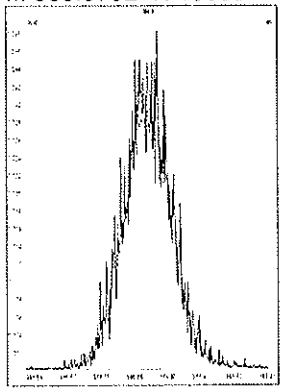


M 342.9792 R 11313

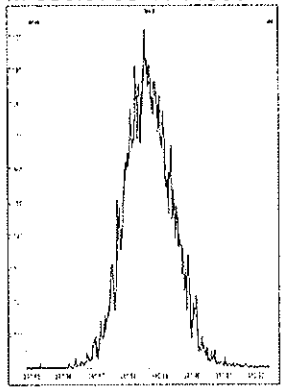
M 354.9792 R 11061



M 366.9792 R 10595



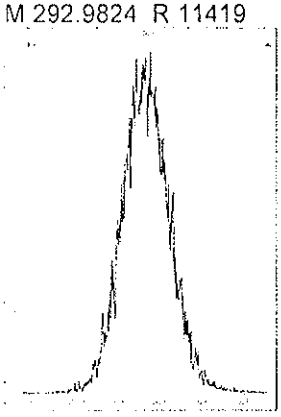
M 380.9760 R 11359



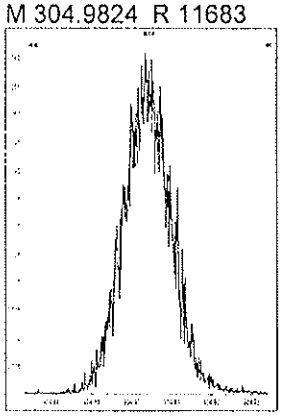
File: Experiment: tcdf_confirms.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Monday, April 27, 2009 13:00:04 Eastern Standard Time

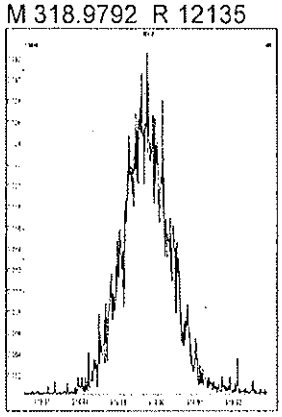
M 292.9824 R 11419



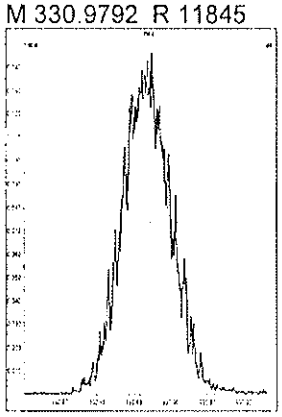
M 304.9824 R 11683



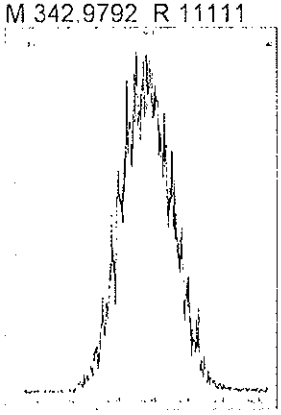
M 318.9792 R 12135



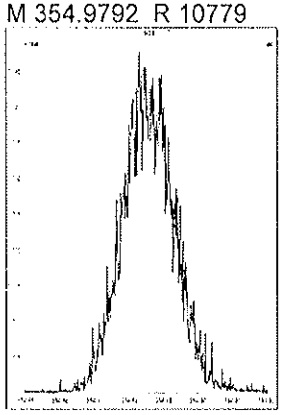
M 330.9792 R 11845



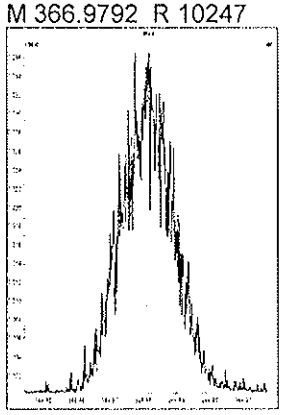
M 342.9792 R 11111



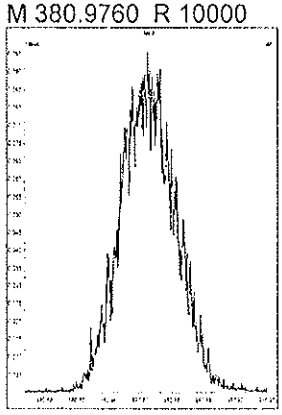
M 354.9792 R 10779

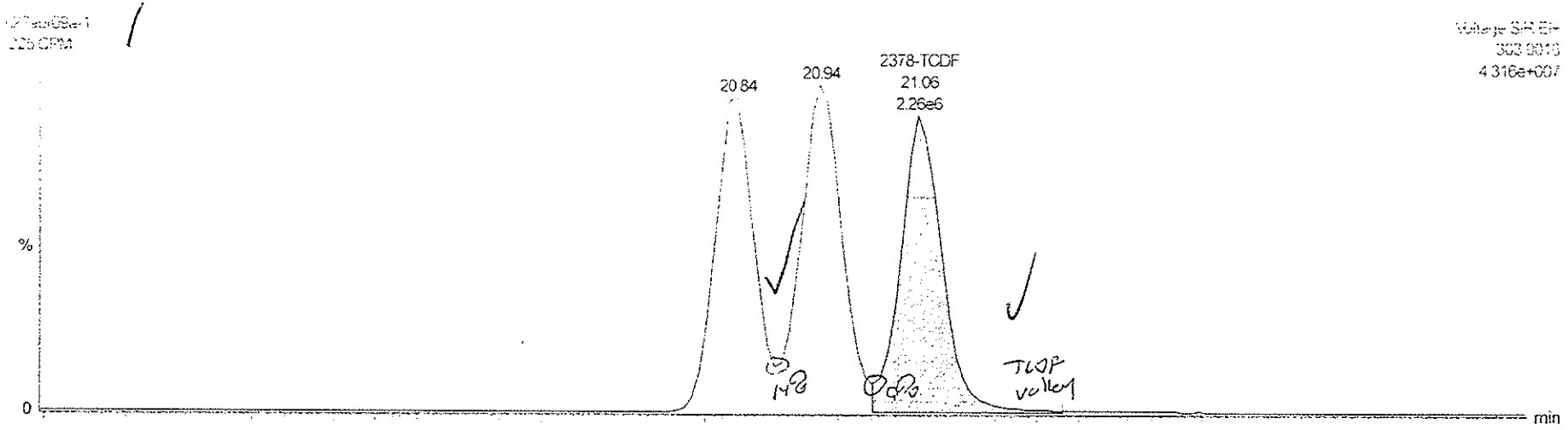


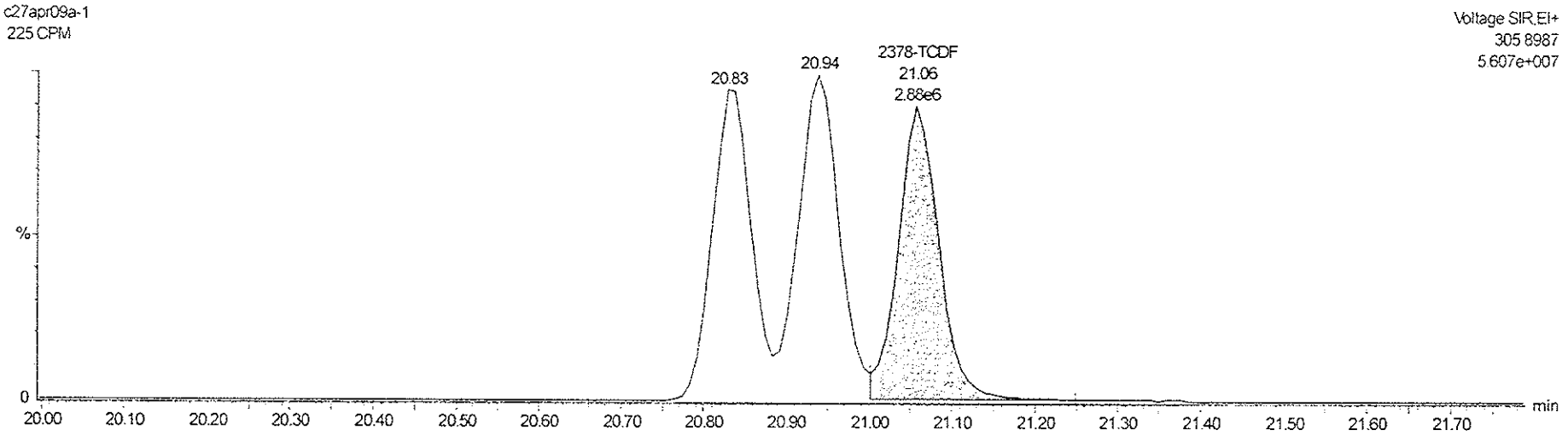
M 366.9792 R 10247



M 380.9760 R 10000




20.84
20.94
2378-TCDF
21.06
2.26e6
%
0
min
TCDP valley


c27apr09a-1
225 CPM
Voltage SIR,EI+
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20.83
20.94
2378-TCDF
21.06
2.88e6
%
0
min
20.00
20.10
20.20
20.30
20.40
20.50
20.60
20.70
20.80
20.90
21.00
21.10
21.20
21.30
21.40
21.50
21.60
21.70

Quantify Compound Summary Report MassLynx 4.1
CF ICAL Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c042709a qid

Last Altered: Monday, April 27, 2009 13:01:32 Eastern Standard Time
Printed: Monday, April 27, 2009 13:04:24 Eastern Standard Time

Method: Untitled 10 Apr 2009 16:04:41
Calibration: C:\MassLynx\Default.pro\Curvedb\mcf-c042708a.cdb 27 Apr 2009 13:01:32

Compound name: 2378-TCDF
Response Factor: 1.22917
RRF SD: 0.0993226, Relative SD: 8.08047
Response type: Internal Std (Ref 2), Area * (IS Conc. / IS Area)
Curve type: RF

$Avg\,RF = \frac{\Sigma RRF}{5} = \frac{6.147}{5} = 1.229$ cjm 4-27-09

Filename	Sample ID	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/uL	RRF	Height1	Noise1	SN1	Height2	Noise2	SN2	Acq.Date	Acq.Time	M
c27apr09a-3	CS0.5 S29-232P	7.675e3	3.117e3	4.558e3	0.68	NO	20.93	0.250	1.407	5.126e4	1356	37.8	8.276e4	1696	48.8	27-Apr-09	09:18:42	MM
c27apr09a-4	CS2 S23-210G	5.979e4	2.649e4	3.330e4	0.80	NO	20.93	2.000	1.188	4.474e5	1798	248.9	6.060e5	1835	330.2	27-Apr-09	09:44:27	bd
c27apr09a-5	CS3 S32-114R	2.253e5	9.832e4	1.270e5	0.77	NO	20.93	10.000	1.182	1.610e6	2516	640.1	2.088e6	1646	1268.5	27-Apr-09	10:10:17	bd
c27apr09a-6	CS4 S29-01U	1.212e6	5.321e5	6.800e5	0.78	NO	20.93	40.000	1.188	8.909e6	2698	3302.8	1.140e7	2389	4772.2	27-Apr-09	10:36:03	bd
c27apr09a-7	CS5 S29-01V	4.772e6	2.096e6	2.676e6	0.78	NO	20.93	200.000	1.182	3.632e7	4383	8286.2	4.622e7	3719	1243...	27-Apr-09	11:01:58	bs

Compound name: ES:13C-2378-TCDF
Response Factor: 1.47768
RRF SD: 0.079132, Relative SD: 5.35516
Response type: Internal Std (Ref 3), Area * (IS Conc. / IS Area)
Curve type: RF

$Avg\,RF = \frac{\Sigma RRF}{5} = \frac{7.388}{5} = 1.4776$ cjm 4-27-09

Filename	Sample ID	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/uL	RRF	Height1	Noise1	SN1	Height2	Noise2	SN2	Acq.Date	Acq.Time	M
c27apr09a-3	CS0.5 S29-232P	2.182e6	9.557e5	1.227e6	0.78	NO	20.91	100.000	1.463	1.566e7	5725	2735.8	2.058e7	5363	3837.0	27-Apr-09	09:18:42	bd
c27apr09a-4	CS2 S23-210G	2.517e6	1.112e6	1.405e6	0.79	NO	20.92	100.000	1.413	1.871e7	6464	2894.4	2.333e7	8038	2902.0	27-Apr-09	09:44:27	bd
c27apr09a-5	CS3 S32-114R	1.906e6	8.340e5	1.072e6	0.78	NO	20.92	100.000	1.423	1.380e7	5697	2422.8	1.809e7	6105	2963.0	27-Apr-09	10:10:17	bb
c27apr09a-6	CS4 S29-01U	2.551e6	1.109e6	1.443e6	0.77	NO	20.91	100.000	1.478	1.878e7	7245	2592.7	2.489e7	6699	3715.7	27-Apr-09	10:36:03	bs
c27apr09a-7	CS5 S29-01V	2.020e6	8.850e5	1.135e6	0.78	NO	20.91	100.000	1.611	1.514e7	5998	2525.0	1.921e7	6530	2941.8	27-Apr-09	11:01:58	bb

Compound name: JS:13C-1234-TCDD
Response Factor: 15182.9
RRF SD: 2316.58, Relative SD: 15.2578
Response type: External Std, Area
Curve type: RF

Filename	Sample ID	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/uL	RRF	Height1	Noise1	SN1	Height2	Noise2	SN2	Acq.Date	Acq.Time	M

Quantify Compound Summary Report MassLynx 4.1
CF ICAL Summary

Dataset. C:\MassLynx\Default.pro\Results\mCF-c042709a.qld

Last Altered. Monday, April 27, 2009 13:01:32 Eastern Standard Time
Printed: Monday, April 27, 2009 13:04:24 Eastern Standard Time

Compound name: JS:13C-1234-TCDD

Filename	Sample ID	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/uL	RRF	Height1	Noise1	SN1	Height2	Noise2	SN2	Acq.Date	Acq.Time	M
c27apr09a-3	CS0.5 S29-232P	1.492e6	6.549e5	8.371e5	0.78	NO	20.01	100.000	1491...	1.169e7	4779	2445.9	1.499e7	3946	3799.8	27-Apr-09	09:18:42	db
c27apr09a-4	CS2 S23-210G	1.781e6	7.739e5	1.007e6	0.77	NO	20.01	100.000	1780...	1.421e7	4627	3070.6	1.880e7	3824	4917.0	27-Apr-09	09:44:27	db
c27apr09a-5	CS3 S32-114R	1.339e6	5.963e5	7.429e5	0.80	NO	20.01	100.000	1339...	1.013e7	4611	2197.0	1.246e7	3782	3294.4	27-Apr-09	10:10:17	db
c27apr09a-6	CS4 S29-01U	1.726e6	7.551e5	9.706e5	0.78	NO	20.01	100.000	1725...	1.322e7	4762	2775.5	1.694e7	4531	3737.8	27-Apr-09	10:36:03	db
c27apr09a-7	CS5 S29-01V	1.254e6	5.584e5	6.954e5	0.80	NO	20.01	100.000	1253...	9.849e6	4882	2017.3	1.209e7	4005	3019.0	27-Apr-09	11:01:58	ds

Compound name: Hexa Ether
Response Factor: 19.0944
RRF SD: 7.53946, Relative SD: 39.4852
Response type: External Std, Area
Curve type: RF

Filename	Sample ID	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/uL	RRF	Height1	Noise1	SN1	Height2	Noise2	SN2	Acq.Date	Acq.Time	M
c27apr09a-3	CS0.5 S29-232P	1.487e1	1.487e1				15.35	1.000	14.868	6.390e2	0	0.0				27-Apr-09	09:18:42	bb
c27apr09a-4	CS2 S23-210G	2.053e1	2.053e1				15.19	1.000	20.533	9.840e2	0	0.0				27-Apr-09	09:44:27	bb
c27apr09a-5	CS3 S32-114R	2.344e1	2.344e1				15.78	1.000	23.436	1.192e3	0	0.0				27-Apr-09	10:10:17	bb
c27apr09a-6	CS4 S29-01U	2.800e1	2.800e1				15.04	1.000	27.997	1.754e3	0	0.0				27-Apr-09	10:36:03	bb
c27apr09a-7	CS5 S29-01V	8.638e0	8.638e0				15.12	1.000	8.638	8.420e2	0	0.0				27-Apr-09	11:01:58	bb

Compound name: F1 Lock Mass
Response Factor: 59637.2
RRF SD: 36856.3, Relative SD: 61.8009
Response type: External Std, Area
Curve type: RF

Filename	Sample ID	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/uL	RRF	Height1	Noise1	SN1	Height2	Noise2	SN2	Acq.Date	Acq.Time	M
c27apr09a-3	CS0.5 S29-232P	7.894e4	7.894e4				15.33	1.000	7893...	2.625e5	0	0.0				27-Apr-09	09:18:42	bb
c27apr09a-4	CS2 S23-210G	8.573e4	8.573e4				15.28	1.000	8573...	5.619e5	0	0.0				27-Apr-09	09:44:27	bb
c27apr09a-5	CS3 S32-114R	2.939e3	2.939e3				15.14	1.000	2939...	1.121e5	0	0.0				27-Apr-09	10:10:17	bb
c27apr09a-6	CS4 S29-01U	8.876e4	8.876e4				15.28	1.000	8875...	4.978e5	0	0.0				27-Apr-09	10:36:03	bb
c27apr09a-7	CS5 S29-01V	4.182e4	4.182e4				15.21	1.000	4182...	7.095e5	0	0.0				27-Apr-09	11:01:58	bd

Quantify Sample Summary Report MassLynx 4.1
CF ICAL Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c042709a.qld

Last Altered: Monday, April 27, 2009 13:01:32 Eastern Standard Time
Printed: Monday, April 27, 2009 13:04:24 Eastern Standard Time

Method: Untitled 10 Apr 2009 16:04:41
Calibration: C:\MassLynx\Default.pro\Curvedb\mcf-c042708a.cdb 27 Apr 2009 13:01:32

Name: c27apr09a-3
ID: CS0.5 S29-232P (0.25 pg/µl)
Date: 27-Apr-2009
Time: 09:18:42
Submitter:
Task: HRMS3

RRF TCDF = $\frac{7.675e3}{2.182e4}\left(\frac{100\ pg/\mu l}{0.25\ pg/\mu l}\right) = 1.407$ ✓ 4-27-09

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	RRF	Ical RRF	%RSD	Height1	Noise1	Height2	Noise2	SN1	SN2	M
1	2378-TCDF	7.675e3	3.117e3	4.558e3	0.68	NO	20.93	1.407	1.229	8.1	5.126e4	1356.0	8.276e4	1695.7	37.8	48.8	MM
2	ES:13C-2378-TCDF	2.182e6	9.557e5	1.227e6	0.78	NO	20.91	1.463	1.478	5.4	1.566e7	5724.9	2.058e7	5362.8	2735.8	3837.0	bd
3	JS:13C-1234-TCDD	1.492e6	6.549e5	8.371e5	0.78	NO	20.01	14919....	15182....	15.3	1.169e7	4778.6	1.499e7	3945.9	2445.9	3799.8	db
4	Hexa Ether	1.487e1	1.487e1				15.35	14.868			6.390e2	0.0			0.0		bb
5	F1 Lock Mass	7.894e4	7.894e4				15.33	78935....			2.625e5	0.0			0.0		bb

RRF $^{13}C_{12}$TCDF = $\frac{2.182e6}{1.4924e6}\left(\frac{100\ pg/\mu l}{100\ pg/\mu l}\right) = 1.4624$

4-27-09

Quantify Sample Summary Report MassLynx 4.1
CF ICAL Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c042709a.qld

Last Altered: Monday, April 27, 2009 13:01:32 Eastern Standard Time
Printed: Monday, April 27, 2009 13:04:24 Eastern Standard Time

Name: c27apr09a-4
ID: CS2 S23-210G
Date: 27-Apr-2009
Time: 09:44:27
Submitter:
Task: HRMS3

2.0 pg/µl

RRF TCDF = $\frac{5.979e4}{2.517e6}\left(\frac{100\ pg/\mu l}{2\ pg/\mu l}\right) = 1.188$

JM 4-27-09

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	RRF	Ical RRF	%RSD	Height1	Noise1	Height2	Noise2	SN1	SN2	M
1	2378-TCDF	5.979e4	2.649e4	3.330e4	0.80	NO	20.93	1.188	1.229	8.1	4.474e5	1797.8	6.060e5	1835.0	248.9	330.2	bd
2	ES:13C-2378-TCDF	2.517e6	1.112e6	1.405e6	0.79	NO	20.92	1.413	1.478	5.4	1.871e7	6464.0	2.333e7	8038.4	2894.4	2902.0	bd
3	JS:13C-1234-TCDD	1.781e6	7.739e5	1.007e6	0.77	NO	20.01	17807....	15182....	15.3	1.421e7	4627.0	1.880e7	3824.1	3070.6	4917.0	db
4	Hexa Ether	2.053e1	2.053e1				15.19	20.533			9.840e2	0.0			0.0		bb
5	F1 Lock Mass	8.573e4	8.573e4				15.28	85733....			5.619e5	0.0			0.0		bb

RKF $^{13}C_{12}$ TCDF = $\frac{1.112e4 + 1.405e6}{7.739e5 + 1.007e6}\left(\frac{100\ pg/\mu l}{100\ pg/\mu l}\right) = 1.413$

JM 4-27-09

Quantify Sample Summary Report MassLynx 4.1
CF ICAL Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c042709a.qld

Last Altered: Monday, April 27, 2009 13:01:32 Eastern Standard Time
Printed: Monday, April 27, 2009 13:04:24 Eastern Standard Time

Name: c27apr09a-5
ID: CS3 S32-114R
Date: 27-Apr-2009
Time: 10:10:17
Submitter:
Task: HRMS3

10 pg/µl

$$RRF\ TCDF = \frac{9.832e4 + 1.270e5}{5.340e5 + 1.072e6}\left(\frac{100\ pg/\mu l}{10\ pg/\mu l}\right) = 1.182$$

TM 4-27-09

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	RRF	Ical RRF	%RSD	Height1	Noise1	Height2	Noise2	SN1	SN2	M
1	2378-TCDF	2.253e5	9.832e4	1.270e5	0.77	NO	20.93	1.182	1.229	8.1	1.610e6	2515.6	2.088e6	1646.2	640.1	1268.5	bd
2	ES:13C-2378-TCDF	1.906e6	8.340e5	1.072e6	0.78	NO	20.92	1.423	1.478	5.4	1.380e7	5697.3	1.809e7	6105.3	2422.8	2963.0	bb
3	JS:13C-1234-TCDD	1.339e6	5.963e5	7.429e5	0.80	NO	20.01	13391....	15182....	15.3	1.013e7	4610.6	1.246e7	3781.9	2197.0	3294.4	db
4	Hexa Ether	2.344e1	2.344e1				15.78	23.436			1.192e3	0.0			0.0		bb
5	F1 Lock Mass	2.939e3	2.939e3				15.14	2939.0...			1.121e5	0.0			0.0		bb

$$RRF\ {}^{13}C_{12}\ TCDF = \frac{8.340e5 + 1.072e6}{5.963e5 + 7.429e5}\left(\frac{100\ pg/\mu l}{100\ pg/\mu l}\right) = 1.423$$

TM 4-27-09

Quantify Sample Summary Report MassLynx 4.1
CF ICAL Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c042709a.qid

Last Altered: Monday, April 27, 2009 13:01:32 Eastern Standard Time
Printed: Monday, April 27, 2009 13:04:24 Eastern Standard Time

Name: c27apr09a-6
ID: CS4 S29-01U
Date: 27-Apr-2009
Time: 10:36:03
Submitter:
Task: HRMS3

40pg/µl

$$RRF\ TCDF = \frac{5.321e5 + 6.800e5}{1.109e6 + 1.443e4}\left(\frac{100\ pg/\mu l}{40\ pg/\mu l}\right) = 1.187$$

TM 4-27-09

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	RRF	Ical RRF	%RSD	Height1	Noise1	Height2	Noise2	SN1	SN2	M
1	2378-TCDF	1.212e6	5.321e5	6.800e5	0.78	NO	20.93	1.188	1.229	8.1	8.909e6	2697.5	1.140e7	2388.8	3302.8	4772.2	bd
2	ES:13C-2378-TCDF	2.551e6	1.109e6	1.443e6	0.77	NO	20.91	1.478	1.478	5.4	1.878e7	7245.2	2.489e7	6699.4	2592.7	3715.7	bs
3	JS:13C-1234-TCDD	1.726e6	7.551e5	9.706e5	0.78	NO	20.01	17257....	15182....	15.3	1.322e7	4762.2	1.694e7	4531.3	2775.5	3737.8	db
4	Hexa Ether	2.800e1	2.800e1				15.04	27.997			1.754e3	0.0			0.0		bb
5	F1 Lock Mass	8.876e4	8.876e4				15.28	88757....			4.978e5	0.0			0.0		bb

$$RRF\ ^{13}C_{12}TCDF = \frac{1.109e6 + 1.443e4}{7.551e5 + 9.706e5}\left(\frac{100\ pg/\mu l}{100\ pg/\mu l}\right) = 1.478$$

TM 4-27-09

Quantify Sample Summary Report MassLynx 4.1
CF ICAL Summary

Dataset: C:\MassLynx\Default.pro\Results\mCF-c042709a.qid

Last Altered: Monday, April 27, 2009 13:01:32 Eastern Standard Time
Printed: Monday, April 27, 2009 13:04:24 Eastern Standard Time

Name: c27apr09a-7
ID: CS5 S29-01V
Date: 27-Apr-2009
Time: 11:01:58
Submitter:
Task: HRMS3

200 pg/ul

$RRF\ TCDF = \frac{2.096e6 + 2.676e6}{8.850e5 + 1.135e6}\left(\frac{100\ pg/ul}{200\ pg/ul}\right) = 1.181$

TM 4-27-09

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	RRF	Ical RRF	%RSD	Height1	Noise1	Height2	Noise2	SN1	SN2	M
1	2378-TCDF	4.772e6	2.096e6	2.676e6	0.78	NO	20.93	1.182	1.229	8.1	3.632e7	4383.3	4.622e7	3718.6	8286.2	12430.0	bs
2	ES:13C-2378-TCDF	2.020e6	8.850e5	1.135e6	0.78	NO	20.91	1.611	1.478	5.4	1.514e7	5997.6	1.921e7	6530.4	2525.0	2941.8	bb
3	JS:13C-1234-TCDD	1.254e6	5.584e5	6.954e5	0.80	NO	20.01	12537....	15182....	15.3	9.849e6	4882.1	1.209e7	4004.9	2017.3	3019.0	ds
4	Hexa Ether	8.638e0	8.638e0				15.12	8.638			8.420e2	0.0			0.0		bb
5	F1 Lock Mass	4.182e4	4.182e4				15.21	41820....			7.095e5	0.0			0.0		bd

$RRF_{Re}\ TCDF = \frac{8.850e5 + 1.135e6}{5.584e5 + 6.954e5}\left(\frac{100\ pg/ul}{100\ pg/ul}\right) = 1.611$

TM 4-27-09

SGS North America, Inc.

Instrument: HRMS3

Data File	Sample ID	Analyst	Acquisition Date/Time	Inj.Vol
c04sep09a-1	225 CS3 pass	JWP	2009-09-04 06:25:20	1 uL
c04sep09a-2	225 CPM ↓	JWP	2009-09-04 06:50:16	1 uL
c04sep09a-3	SB	JWP	2009-09-04 07:16:00	1 uL
c04sep09a-4	G1053-7-1X	JWP	2009-09-04 07:41:47	1 uL
c04sep09a-5	G1053-7-5S	JWP	2009-09-04 08:07:32	1 uL
c04sep09a-6	G1053-7-9P	JWP	2009-09-04 08:33:16	1 uL
c04sep09a-7	Full Test	JWP	2009-09-04 08:59:02	1 uL
c04sep09a-8	G296-641-1D	JWP	2009-09-04 09:24:47	1 uL
c04sep09a-9	G296-641-3D	JWP	2009-09-04 09:50:32	1 uL
c04sep09a-10	G296-641-4D	JWP	2009-09-04 10:16:13	1 uL
c04sep09a-11	G296-641-5D	JWP	2009-09-04 10:41:58	1 uL
c04sep09a-12	225 CS3 pass	JWP	2009-09-04 11:07:43	1 uL

DS
9-4-09

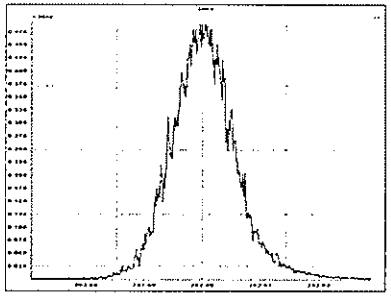
Page 502

TM
9-4-09

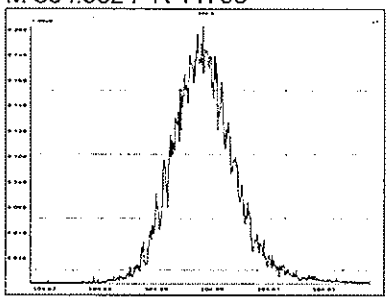
File: Experiment: tcdf_confirms.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, September 04, 2009 06:24:48 Eastern Standard Time

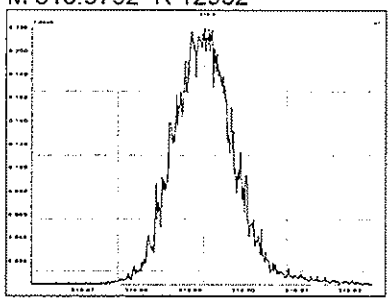
M 292.9824 R 11577



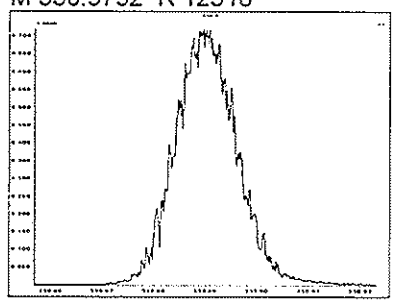
M 304.9824 R 11793



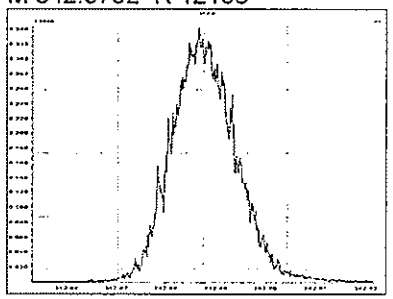
M 318.9792 R 12952



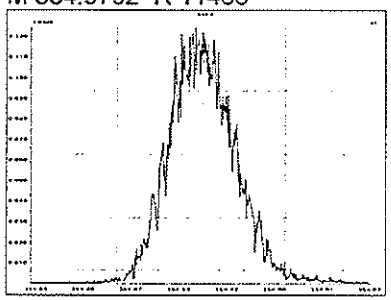
M 330.9792 R 12318



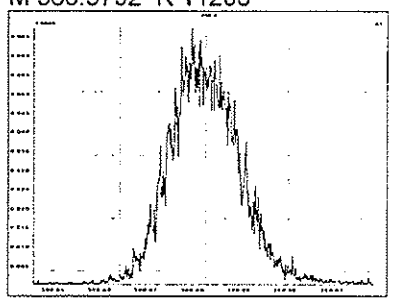
M 342.9792 R 12136



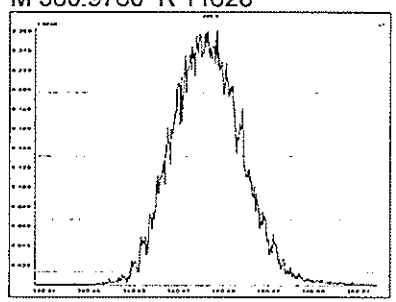
M 354.9792 R 11466



M 366.9792 R 11208

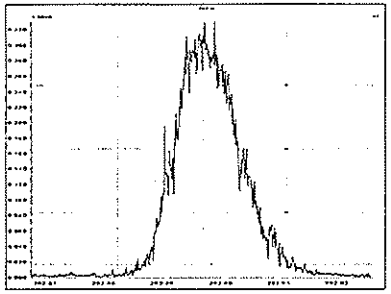


M 380.9760 R 11628

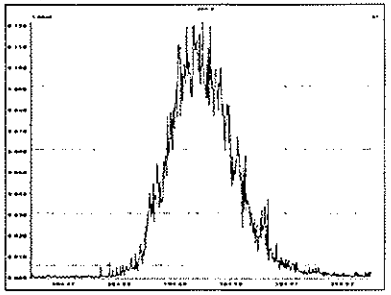


Printed: Friday, September 04, 2009 11:35:12 Eastern Standard Time

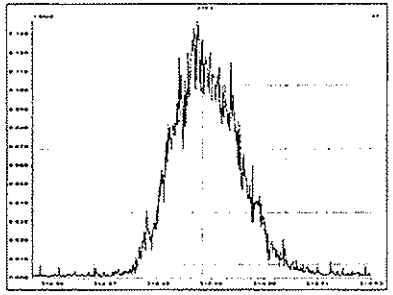
M 292.9824 R 12445



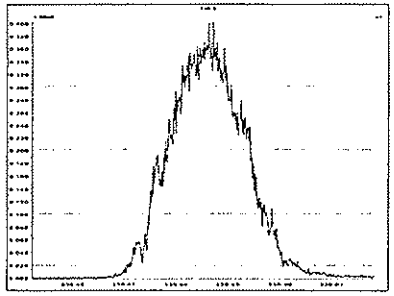
M 304.9824 R 12019



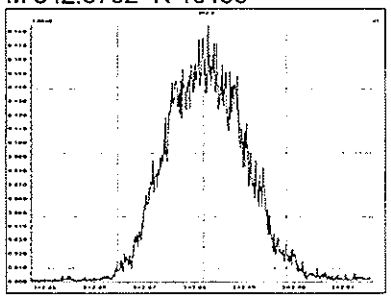
M 318.9792 R 11540



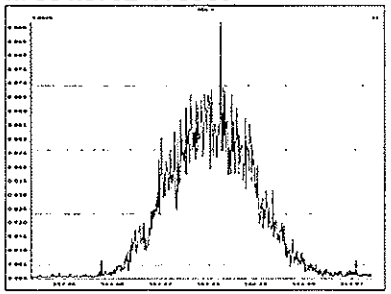
M 330.9792 R 10495



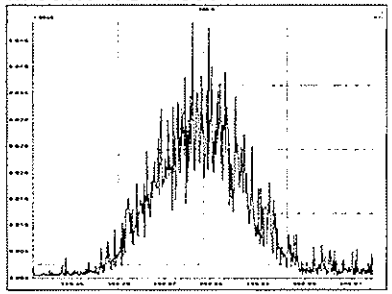
M 342.9792 R 10153



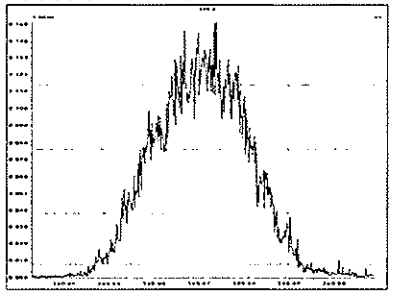
M 354.9792 R 9909

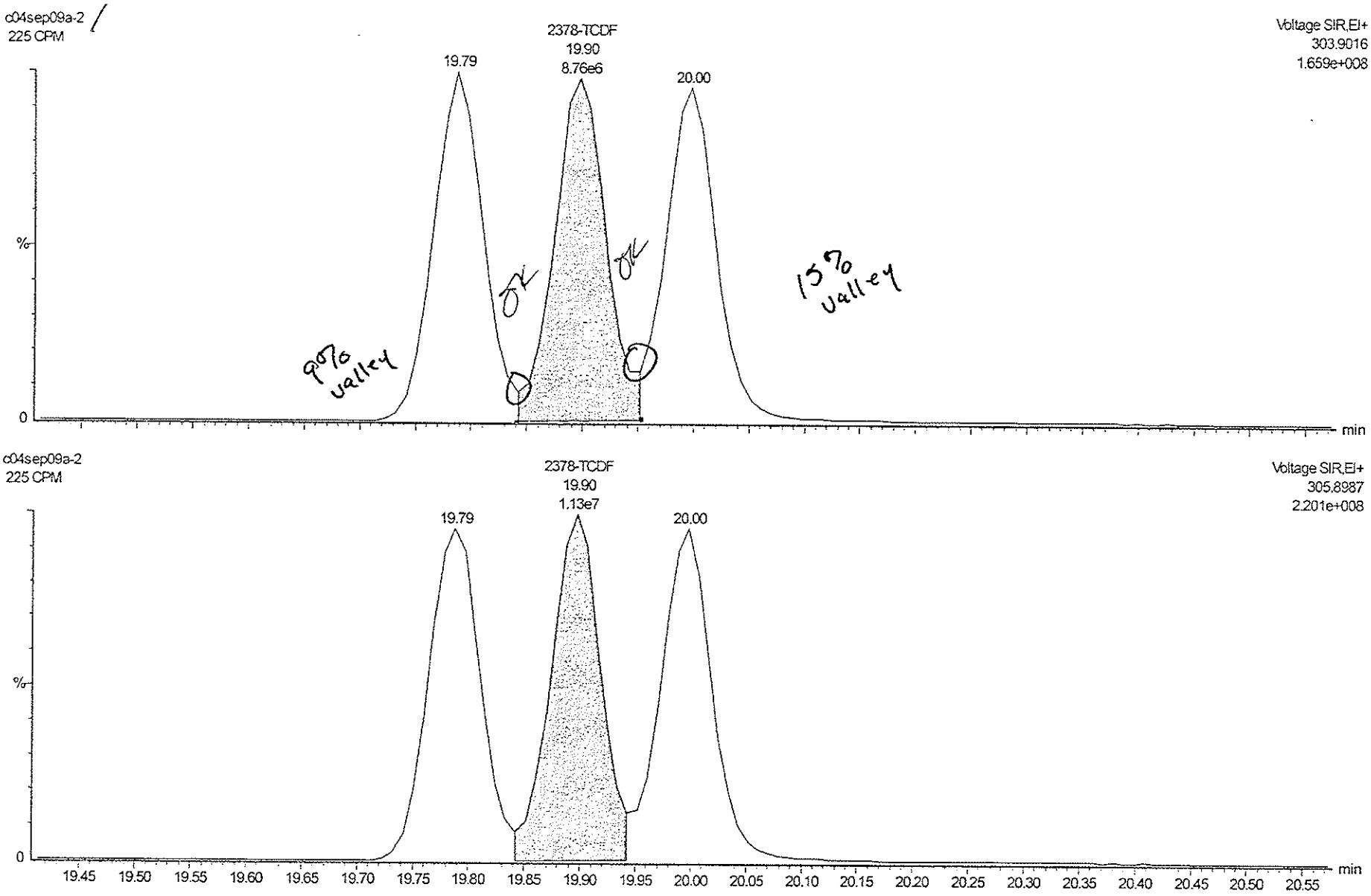


M 366.9792 R 9034



M 380.9760 R 8474




c04sep09a-2
225 CPM
2378-TCDF
19.90
8.76e6
Voltage SIR,EI+
303.9016
1.659e+008
19.79
20.00
%
0
min
90% valley
65%
65%
15% valley
c04sep09a-2
225 CPM
2378-TCDF
19.90
1.13e7
Voltage SIR,EI+
305.8987
2.201e+008
19.79
20.00
%
0
min
19.45 19.50 19.55 19.60 19.65 19.70 19.75 19.80 19.85 19.90 19.95 20.00 20.05 20.10 20.15 20.20 20.25 20.30 20.35 20.40 20.45 20.50 20.55

Quantify Sample Summary Report **MassLynx 4.1**
CF CCAL Summary

Dataset: Untitled

Last Altered: Friday, September 04, 2009 13:29:29 Eastern Standard Time
Printed: Friday, September 04, 2009 13:30:11 Eastern Standard Time

Method: C:\MassLynx\DEFAULT.PRO\MethDB\confirms.mdb 06 Jul 2009 08:50:26
Calibration: C:\MassLynx\DEFAULT.PRO\CurveDB\mcf-c042709a.cdb 27 Apr 2009 13:01:32

Name: c04sep09a-1
Date: 04-Sep-2009
Time: 06:25:20
ID: 225 CS3
Instrument:
User: JWP

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/µL	%Dev	RRF	Ical RRF	EDL	SN1	Height1	Noise1	SN2	Height2	Noise2	M
1	2378-TCDF	7.010e5	3.028e5	3.982e5	0.76	NO	19.90	9.1879	-8.1	1.129	1.229	0.031	823.2	5.583e6	6782	943.8	7.310e6	7745	bb
2	ES:13C-2378-TCDF	6.207e6	2.608e6	3.598e6	0.72	NO	19.88	100.6843	0.7	1.488	1.478	0.065	4281.1	4.801e7	11214	5092.2	6.661e7	13081	bb
3	JS:13C-1234-TCDD	4.172e6	1.840e6	2.332e6	0.79	NO	18.99	274.7791	174.8	4171...	15182....	0.201	3508.7	3.373e7	9612	4761.1	4.320e7	9073	ds
4	Hexa Ether	4.043e2	4.043e2	-	-	-	16.71			404.2...			0.0	7.741e3	0	-	-	-	bb
5	F1 Lock Mass	3.181e5	3.181e5	-	-	-	15.53			3180...			0.0	3.940e5	0	-	-	-	bb

Quantify Sample Summary Report **MassLynx 4.1**
CF CCAL Summary

Dataset: C:\MassLynx\Default.pro\Concals\c04sep09a-12.qld

Last Altered: Friday, September 04, 2009 13:31:46 Eastern Standard Time
Printed: Friday, September 04, 2009 13:32:33 Eastern Standard Time

Method: C:\MassLynx\DEFAULT.PRO\MethDB\confirms.mdb 06 Jul 2009 08:50:26
Calibration: C:\MassLynx\DEFAULT.PRO\CurveDB\mcf-c042709a.cdb 27 Apr 2009 13:01:32

Name: c04sep09a-12
Date: 04-Sep-2009
Time: 11:07:43
ID: 225 CS3
Instrument:
User: JWP

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/µL	%Dev	RRF	Ical RRF	EDL	SN1	Height1	Noise1	SN2	Height2	Noise2	M
1	2378-TCDF	5.546e5	2.397e5	3.149e5	0.76	NO	19.91	10.1775	1.8	1.251	1.229	0.063	438.8	4.538e6	10340	547.5	5.873e6	10727	bb
2	ES:13C-2378-TCDF	4.434e6	1.927e6	2.506e6	0.77	NO	19.90	101.2534	1.3	1.496	1.478	0.085	2930.1	3.564e7	12164	3842.4	4.582e7	11923	bs
3	JS:13C-1234-TCDD	2.963e6	1.350e6	1.613e6	0.84	NO	19.00	195.1689	95.2	2963...	15182....	0.167	2805.3	2.619e7	9335	4382.7	3.075e7	7015	ds
4	Hexa Ether	1.374e3	1.374e3	-	-	-	15.86			1373....			0.0	1.410e4	0	-	-	-	bb
5	F1 Lock Mass	3.965e6	3.965e6	-	-	-	15.39			3965...			0.0	1.734e6	0	-	-	-	bd

SGS North America, Inc.

Instrument: HRMS3

Data File	Sample ID	Analyst	Acquisition Date/Time	Inj.Vol
c11sep09b-1	TCDF CS3 p955	JWP	2009-09-11 10:19:43	1 uL
c11sep09b-2	225 CPM p	JWP	2009-09-11 10:45:57	1 uL
c11sep09b-3	SB	JWP	2009-09-11 11:12:08	1 uL
c11sep09b-4	G383-759-1E	JWP	2009-09-11 11:38:17	1 uL
c11sep09b-5	G383-759-2E	JWP	2009-09-11 12:04:24	1 uL
c11sep09b-6	G383-759-3E	JWP	2009-09-11 12:30:32	1 uL
c11sep09b-7	G383-759-4D	JWP	2009-09-11 12:56:39	1 uL
c11sep09b-8	G296-641-2E	JWP	2009-09-11 13:22:47	1 uL
c11sep09b-9	225 CS3 p955	JWP	2009-09-11 13:48:55	1 uL

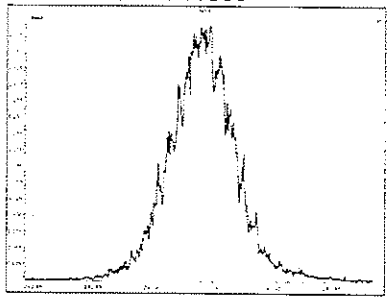
DS 9-11-09

9-11-09

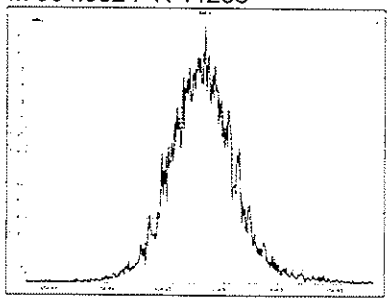
File: Experiment: tcdf_confirms2.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, September 11, 2009 10:19:05 Eastern Standard Time

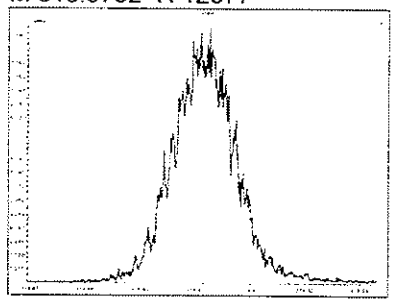
M 292.9824 R 11309



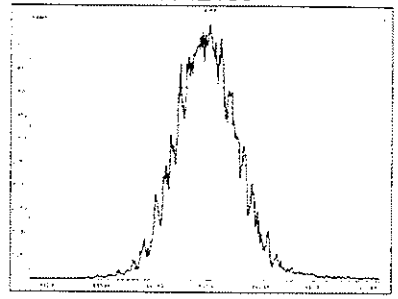
M 304.9824 R 11256



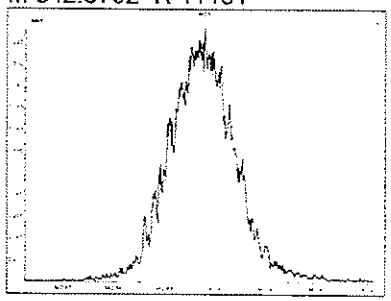
M 318.9792 R 12077



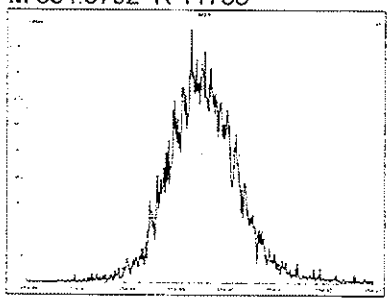
M 330.9792 R 12133



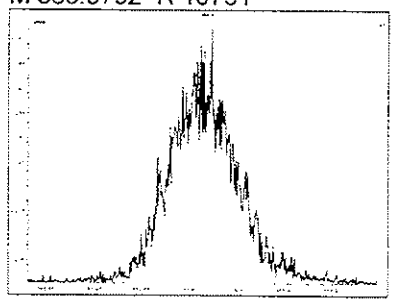
M 342.9792 R 11161



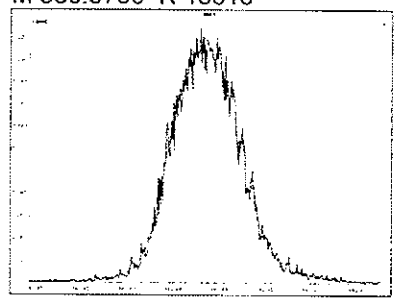
M 354.9792 R 11736



M 366.9792 R 10731



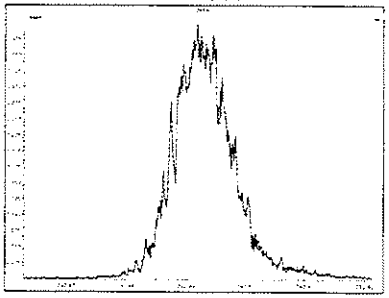
M 380.9760 R 10818



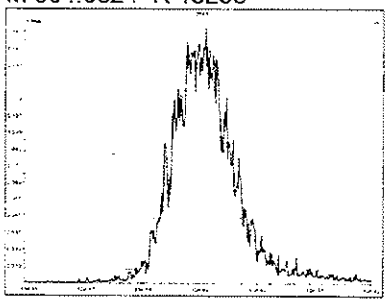
File: Experiment: tcdf_confirms2.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, September 11, 2009 15:50:44 Eastern Standard Time

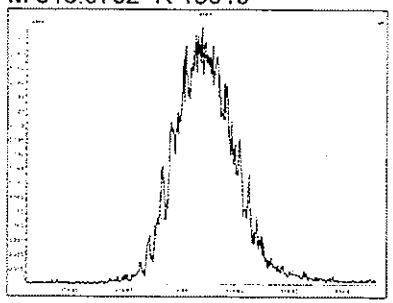
M 292.9824 R 12956



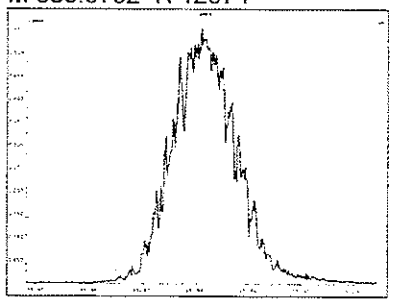
M 304.9824 R 13298



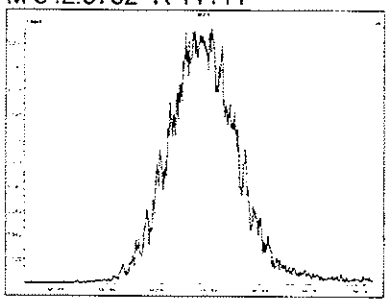
M 318.9792 R 13019



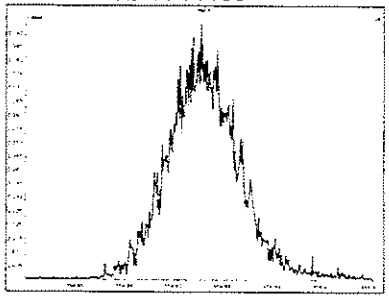
M 330.9792 R 12074



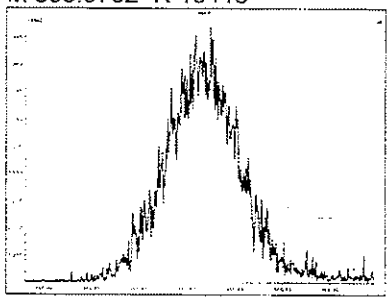
M 342.9792 R 11111



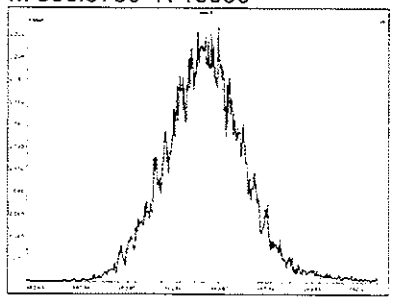
M 354.9792 R 11159

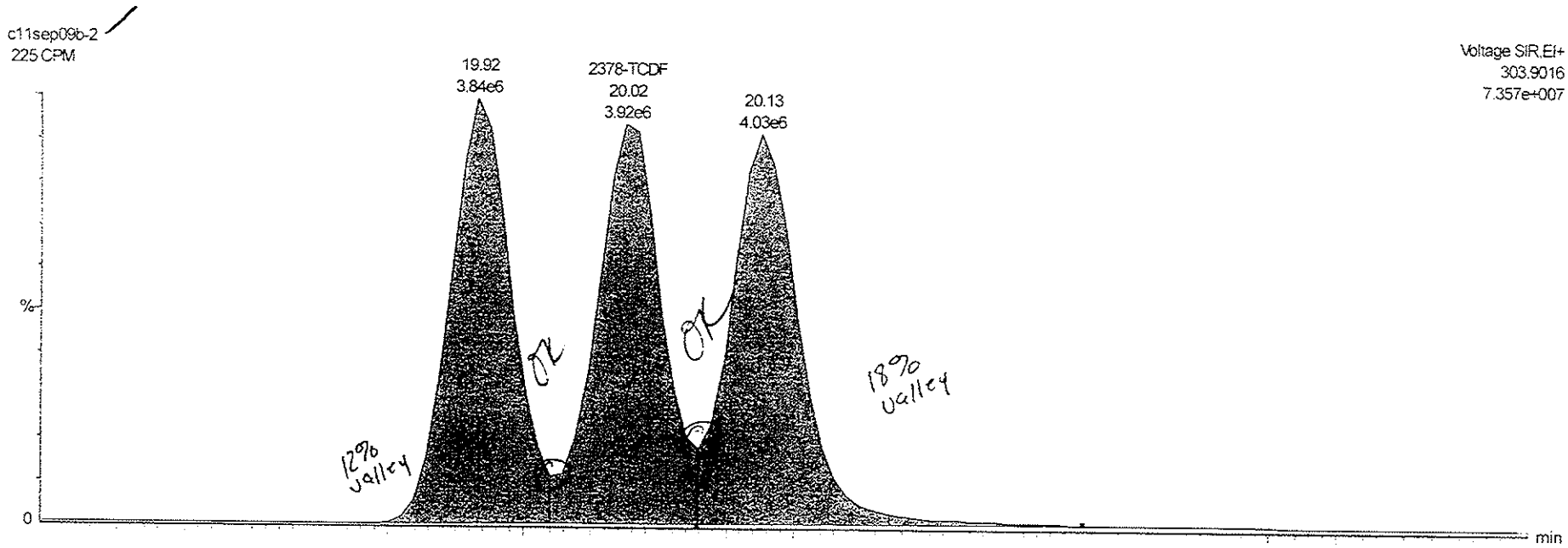


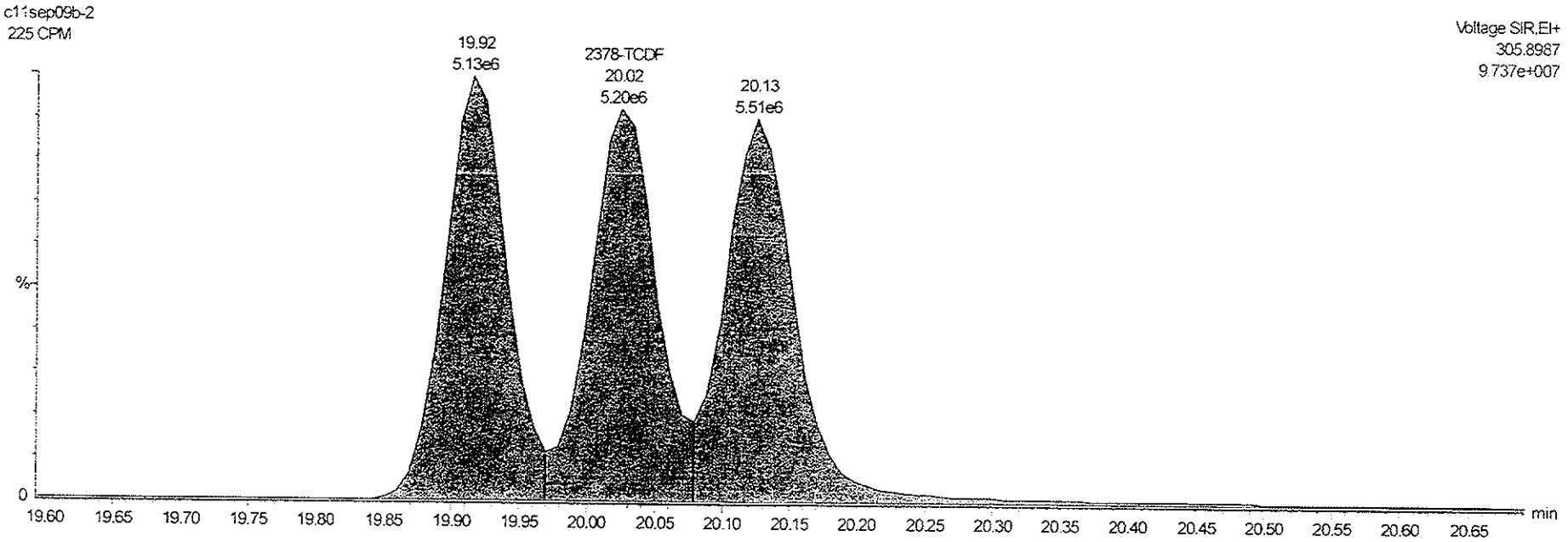
M 366.9792 R 10418



M 380.9760 R 10000




c11sep09b-2
225 CPM
19.92
3.84e6
2378-TCDF
20.02
3.92e6
20.13
4.03e6
Voltage SIR.EI+
303.9016
7.357e+007
%
0
min
12% valley
18% valley


c11sep09b-2
225 CPM
19.92
5.13e6
2378-TCDF
20.02
5.20e6
20.13
5.51e6
Voltage SIR.EI+
305.8987
9.737e+007
%
0
min
19.60
19.65
19.70
19.75
19.80
19.85
19.90
19.95
20.00
20.05
20.10
20.15
20.20
20.25
20.30
20.35
20.40
20.45
20.50
20.55
20.60
20.65

Quantify Sample Summary Report **MassLynx 4.1**
CF CCAL Summary

Dataset: C:\MassLynx\Default.pro\Concals\c11sep09b-1.qld

Last Altered: Friday, September 11, 2009 11:18:53 Eastern Standard Time
Printed: Friday, September 11, 2009 11:19:47 Eastern Standard Time

Method: C:\MassLynx\DEFAULT.PRO\MethDB\confirms.mdb 06 Jul 2009 08:50:26
Calibration: C:\MassLynx\DEFAULT.PRO\CurveDB\mcf-c042709a.cdb 27 Apr 2009 13:01:32

Name: c11sep09b-1
Date: 11-Sep-2009
Time: 10:19:43
ID: TCDF CS3
Instrument:
User: JWP

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/µL	%Dev	RRF	Ical RRF	EDL	SN1	Height1	Noise1	SN2	Height2	Noise2	M
1	2378-TCDF	9.033e5	3.879e5	5.154e5	0.75	NO	20.03	9.3844	-6.2	1.153	1.229	0.023	994.5	6.440e6	6475	1358.5	8.713e6	6414	bd
2	ES:13C-2378-TCDF	7.831e6	3.330e6	4.501e6	0.74	NO	20.02	90.5445	-9.5	1.338	1.478	0.064	3920.7	5.715e7	14577	4077.2	7.509e7	18418	bb
3	JS:13C-1234-TCDD	5.853e6	2.663e6	3.190e6	0.83	NO	19.12	385.5063	285.5	5853...	15182....	0.271	3633.1	4.749e7	13072	5034.8	5.710e7	11342	ds
4	Hexa Ether	3.587e1	3.587e1	-	-	-	15.84			35.869			0.0	1.915e3	0	-	-	-	bb
5	F1 Lock Mass	1.426e5	1.426e5	-	-	-	15.19			1426...			0.0	9.185e5	0	-	-	-	bb

Quantify Sample Summary Report **MassLynx 4.1**
CF CCAL Summary

Dataset: C:\MassLynx\Default.pro\Concals\c11sep09b-9.qld

Last Altered: Friday, September 11, 2009 14:11:37 Eastern Standard Time
Printed: Friday, September 11, 2009 14:12:53 Eastern Standard Time

Method: C:\MassLynx\DEFAULT.PRO\MethDB\confirms.mdb 06 Jul 2009 08:50:26
Calibration: C:\MassLynx\DEFAULT.PRO\CurveDB\mcf-c042709a.cdb 27 Apr 2009 13:01:32

Name: c11sep09b-9
Date: 11-Sep-2009
Time: 13:48:55
ID: 225 CS3
Instrument:
User: JWP

	Name	Response	Ion1Area	Ion2Area	RA	RAFail?	RT	pg/µL	%Dev	RRF	Ical RRF	EDL	SN1	Height1	Noise1	SN2	Height2	Noise2	M
1	2378-TCDF	9.350e5	4.021e5	5.329e5	0.75	NO	20.02	9.6819	-3.2	1.190	1.229	0.023	1121.5	7.314e6	6522	1527.9	9.812e6	6422	bs
2	ES:13C-2378-TCDF	7.857e6	3.336e6	4.521e6	0.74	NO	20.02	112.1707	12.2	1.658	1.478	0.066	4537.3	5.901e7	13004	5324.3	7.975e7	14978	bs
3	JS:13C-1234-TCDD	4.740e6	2.147e6	2.593e6	0.83	NO	19.12	312.2006	212.2	4740...	15182....	0.235	3802.3	3.927e7	10329	4046.6	4.607e7	11385	db
4	Hexa Ether	9.618e1	9.618e1	-	-	-	15.71			96.182			0.0	5.777e3	0	-	-	-	bb
5	F1 Lock Mass	1.537e5	1.537e5	-	-	-	15.35			1537...			0.0	4.532e5	0	-	-	-	bb

SGS

Laboratory Results

Ms. Tina Devine
URS
5540 Elm St
Suite 201
Richmond VA 23230

Phone: 804-965-9000
Fax:

Dear Ms. Devine:

Enclosed is a full data package containing the final results for samples received by SGS Environmental Services, Inc. on August 12, 2009 under your project name "RFAAP SSP 6 Sites". The samples were analyzed by Method 8290 following SGS's Standard Operating Procedures and are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards.

Number of Samples Received:	5
Your Project Reference:	RFAAP SSP 6 Sites
PAL Project Number:	G296-641

We appreciate your business and look forward to working with you again. Please contact me at 910-350-1903 if you have questions or need additional technical support.

Sincerely,

Lori Lockamy
Project Manager

9/11/09
Date

DC138.033007.7

SGS

Case Narrative
SGS Project: **G296-641**
Project Name: **RFAAP SSP 6Sites**

For Method: 8290

- The submitted samples were accepted into the lab on August 12th, 2009 and extracted on August 30th and September 9th, 2009 by method 3540C. The sample extracts and associated QC extracts were then processed through clean-up as prescribed in the SGS standard operating procedures and analyzed by HRGC/HRMS for method 8290.

- Sample **DUP-2** was re-extracted at a lesser volume of 5.00g due to matrix interferences.

9-11-09

Tamara Morgan Date
Data Validation

SGS

List of Qualifiers: Dioxin's

B Analyte was detected in the Lab Method Blank at a level above the Reporting Limit.

EDL "Estimated Detection Limit"

EMPC "Estimated Maximum Possible Concentration"

RL Report Limit

CL Control Limit

U Undetected

ppt Parts-per-trillion (pg/g; ng/L)

V Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit.

Outside quality control limits

* Indicates that the ion-ratio fails high or low; analyte reported as an EMPC

An average uncertainty of 30% can be routinely achieved as concluded from the evaluation of HRGC-HRMS standard operating procedures. The following flags warn the data user of situations where the uncertainty may be greater than stated.

A Amount detected is less than the Lower Method Calibration Limit.

J Amount detected is between the Method Detection Limit and the Lower Calibration Limit.

O The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high.

E Amount detected is greater than the Upper Calibration Limit.

S The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s).

Q Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s).

I Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s).

DPE Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s).

SGS

Toxic Equivalency Factors

Analyte	WHO* 1998	WHO* 2005	International-89	MADEP[+]
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	1	1	0.5	0.5
1,2,3,4,7,8-HxCDD	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDD	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.01	0.1
OCDD	0.0001	0.0003	0.001	0.001
2,3,7,8-TCDF	0.1	0.1	0.1	0.1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.5
2,3,4,7,8-PeCDF	0.5	0.3	0.5	0.5
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.01	0.1
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.1
OCDF	0.0001	0.0003	0.001	0.001

* World Health Organization
[+] Massachusetts Department of Environmental Protection

CHAIN OF CUSTODY RECORD
SGS North America Inc.

Locations Nationwide
- Alaska
- Maryland
- New Jersey
- New York
- North Carolina
- Ohio

www.us.sgs.com

098901

(1)
CLIENT: URS Corporation
CONTACT: Tina Devine PHONE NO:(804) 965-9000
PROJECT: RFA# SSP 6 Sites SITE/PWSID#:
REPORTS TO: Tina Devine FAX NO.:(804) 965-9764
INVOICE TO: QUOTE #:
P.O. NUMBER: 11657490

SGS Reference: G296-641

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No CONTAINERS	SAMPLE TYPE (G= COMP, G= GRAB)	Preservatives Used	Analysis Required (3) Dioxins 8290 Furans	REMARKS
	775B3A	8/11/09	1340	S	1	G		1	
	DUP-2	8/11/09	—	S	1	G		1	
	775B2A MS/MSD	8/11/09	1415	S	1	G		1	

(5)

Collected/Relinquished By:(1)	Date	Time	Received By:
Mark Fisher	8/11/09	1700	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:
	8/12/09	9:45	

(4)

Shipping Carrier:
Shipping Ticket No:
Samples Received Cold? (Circle) YES NO
Temperature°C: 5.8
Special Deliverable Requirements:
Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT
Special Instructions:
Requested Turnaround Time:
☐ RUSH _____ Date Needed ☒ STD

Page 6

❑ 200 W. Potter Drive **Anchorage, AK 99518** Tel: (907) 562-2343 Fax: (907) 561-6301
❑ 5500 Business Drive **Wilmington, NC 28405** Tel: (910) 350-1903 Fax: (910) 350-1557

White - Retained by Lab
Pink - Retained by Client

SGS Environmental Services Inc.

Sample Receipt Checklist (SRC)

Client: URS Lab Proj. ID: 6296-641

Client Proj. ID: _____

1. ✓ Shipped
   ___ Hand Delivered
   Notes: _____

2. ✓ COC Present on Receipt
   ___ No COC
   ___ Additional Transmittal Forms
   Notes: _____

3. ✓ Custody Tape on Container
   ___ No Custody Tape
   Notes: _____

4. ✓ Samples Intact
   ___ Samples Broken / Leaking
   ___ VOA Vials Checked for Air Bubbles
   Notes: _____

5. ✓ Chilled on Receipt Actual Temp.(s) in °C: 5.8
   ___ Ambient on Receipt
   ___ Walk-in on Ice; Coming down to temp.
   Notes: _____

6. ✓ Sufficient Sample Submitted
   ___ Insufficient Sample Submitted
   Notes: _____

7. ✓ Samples Preserved Correctly
   ___ Improper Preservative(s)
   ___ None recommended (N/A)
   (see preservative checklist where applicable)
   Notes: _____

8. ✓ Received Within Holding Time
   ___ Not Received Within Holding Time
   ___ N/A
   Notes: _____

9. ✓ No Discrepancies Noted
   ___ Discrepancies Noted
   ___ No COC Received
   Notes: _____

10. ___ No Headspace present in VOC vials
    ___ Headspace present in VOC vials >6mm
    ✓ N/A
    Notes: _____

Comments: _____

Inspected and Logged in by: _____
Date / Time: _____

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Region III Modifications to the National Functional Guidelines for Data Review (September 1994).

Data Validation Flags

Flag	Interpretation
R	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
U	Not detected. The associated number indicates the approximate sample concentration is necessary to be detected.
B	Not detected substantially above the level reported in laboratory or field blanks.
N	Tentative Identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.
J	Analyte present. Reported value may not be accurate or precise.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	Not detected, quantitation limit may be inaccurate or imprecise.
UL	Not detected, quantitation limit is probably higher.
NT	Not tested, no analytical result provided.

The other type of code used by URS is a "Reason Code". The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	j	Vial Headspace
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits
l	LCS recovery failure	l	LCS recovery failure	l	LCS recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	m	MS/MSD recovery failure
p	Poor chromatography	p	Poor chromatography	n	ICS failure
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	o	Calibration blank contamination
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	p	Preparation blank contamination
s	Surrogate failure	s	Surrogate failure	q	Concentration exceeded the linear range
t	TIC	u	No confirmation column	r	Linearity failure in calibration or MSA
w	Identification criteria failure	w	Retention time failure	s	Serial dilution failure
x	Field blank contamination	x	Field blank contamination	u	BOD minimum depletion did not exceed 2mg/L
y	Trip blank contamination	z	Method blank contamination	v	Post-digestion spike failure
z	Method blank contamination			w	CRDL Standard Failure
				x	Field blank contamination

EMSL Analytical, Inc.
107 Haddon Ave., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: westmont@emsl.com

Attn: **Lisa Harvey**
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court
Grand Rapids, MI 49512

Fax: (616) 940-4470 Phone: (616) 975-4500
Project: **RFAAP SSP 6 SITES**

Customer ID: TRIM50
Customer PO: LMH0908257S
Received: 08/18/09 10:30 AM
EMSL Order: 040920779

EMSL Proj:
Analysis Date: 8/28/2009

PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
30SS1 *040920779-0001*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SB1B *040920779-0002*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
DUP-4 *040920779-0003*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SS2 *040920779-0004*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SS3 *040920779-0005*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
30SB2B *040920779-0006*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SS1 *040920779-0007*		Brown Fibrous Homogeneous	5.00% Cellulose	95.00% Non-fibrous (other)	**None Detected**
30SB3B *040920779-0008*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
DUP-5 *040920779-0009*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Delores Beard (12)

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

EMSL Analytical, Inc.
107 Haddon Ave., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4571 Email: westmont@emsl.com

Attn: **Lisa Harvey**
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court
Grand Rapids, MI 49512

Fax: (616) 940-4470 Phone: (616) 975-4500
Project: **RFAAP SSP 6 SITES**

Customer ID: TRIM50
Customer PO: LMH0908257S
Received: 08/18/09 10:30 AM
EMSL Order: 040920779

EMSL Proj:
Analysis Date: 8/28/2009

PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
79SS2 *040920779-0010*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SS3 *040920779-0011*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SB2B *040920779-0012*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Delores Beard (12)

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

THIS IS THE LAST PAGE OF THE REPORT.

TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 128111S

For Lab Use Only

Cart

VOA Rack/Tray

Receipt Log No.

Project Chemist: Lisa Harvey

Work Order No.

Client Name: TriMatrix Laboratory

Address: 5560 Corporate Exchange Court SE, Grand Rapids, Michigan 49512

Phone: 616-975-4544

Fax: 616-942-7463

Project Name: RFAAP SSP 6 Sites

Client Project No. / P.O. No.: LMH0908257

Invoice To: (●) Client ( ) Other (comments)

Contact/Report To: Lisa Harvey

Analyses Requested

Preservative: A NONE pH~7; B HNO_3 pH<2; C H_2SO_4 pH<2; D 1+1 HCl pH<2; E NaOH pH>12; F ZnAc/NaOH pH>; G MeOH; H Other (note below)

Schedule	Matrix Code	Laboratory Sample Number		Sample ID	Cooler ID	Sample Date	Sample Time	Comp / Grab	Matrix	A asbestos (soil) CARB 435	20 Number of Containers Submitted	Total	Sample Comment
			1	30SS1		8/13/09	8:25		SOIL	1		1	
			2	30SB1B		8/13/09	8:40		SOIL	1		1	
			3	Dup-4		8/13/09	- - -		SOIL	1		1	
			4	30SS2		8/13/09	9:00		SOIL	1		1	
			5	30SS3		8/13/09	9:30		SOIL	1		1	run matrix QC
			6	30SB2B		8/13/09	9:35		SOIL	1		1	
			7	79SS1		8/13/09	10:15		SOIL	1		1	
			8	30SB3B		8/13/09	10:25		SOIL	1		1	
			9	Dup-5		8/13/09	- - -		SOIL	1		1	
			10	79SS2		8/13/09	10:55		SOIL	1		1	

SAMPLES ACCEPTED FOR ANALYSIS BY EMSI ANALYTICAL, INC.

Sampled By (print)

Sampler's Signature

Company

How Shipped?

Tracking No.

Comments: DOD requirements. Standard turn. Please run matrix QC as applicable per the method on the noted sample. Hard copy report to Lisa Harvey. Email results to harveylm@trimatrixlabs.com. See PC for additional information

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
						Lisa Harvey	8/17/09	16[illegible]
1. Received By	**Date**	**Time**	**2. Received By**	**Date**	**Time**	**3. Received For Lab By**	**Date**	**Time**
						[illegible]		

TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 128112S

For Lab Use Only

Cart

VOA Rack/Tray

Receipt Log No.

Project Chemist: Lisa Harvey

Work Order No.

Client Name: TriMatrix Laboratory

Address: 5560 Corporate Exchange Court SE, Grand Rapids, Michigan 49512

Phone: 616-975-4544

Fax: 616-942-7463

Project Name: RFAAP SSP 6 Sites

Client Project No. / P.O. No.: LMH0908257

Invoice To: (●) Client ( ) Other (comments)

Contact/Report To: Lisa Harvey

Analyses Requested

Schedule	Matrix Code	Laboratory Sample Number		Sample ID	Cooler ID	Sample Date	Sample Time	Comp / Grab	Matrix	asbestos (soil) CARB 435 (A)	asbestos (wtr) 100.2 (Low) (A)	Total	Sample Comment
				Container Type (corresponds to Container Packing List)						20	16		
				Number of Containers Submitted									
			1	79SS3		8/13/09	11:10		SOIL	1		1	
			2	79SB2B		8/13/09	11:25		SOIL	1		1	
			3	51MW2		8/13/09	14:50		WTR		1	1	
			4	C-1		8/13/09	15:35		WTR		3	3	run matrix QC
			5	16-4		8/13/09	16:20		WTR		1	1	
			6	51MW1		8/13/09	17:00		WTR		1	1	
			7	Dup		8/13/09	- - -		WTR		1	1	
			8	EQBK		8/13/09	17:15		WTR		1	1	
			9										
			10										

⇦ PRESERVATIVE
A NONE pH~7
B HNO_3 pH<2
C H_2SO_3 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>
G MeOH
H Other (note below

Sampled By (print)

Sampler's Signature

Company

How Shipped?

Tracking No.

Comments: DOD requirements. Standard turn. Please run matrix QC as applicable per the method on the noted sample. Hard copy report to Lisa Harvey. Email results to harveylm@trimatrixlabs.com. See PO for additional information

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
						LA Harvey	8/17/09	16:00
1. Received By	**Date**	**Time**	**2. Received By**	**Date**	**Time**	**3. Received For Lab By**	**Date**	**Time**

Client Requested Matrix QC

SAMPLE ACCEPTED FOR ANALYSIS BY RSL ANALYTICAL INC

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APPENDIX G.2.2

SITE SCREENING PROCESS SAMPLING
NOVEMBER 2009

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DATA VALIDATION REPORT - Level III Review

SDG No.:	**SSP1109**	**Fraction:**	**VOC, SVOC, Pesticides, PCB, Explosives, TAL Inorganics, & TOC**
Laboratory:	**TriMatrix**	**Project:**	**Radford SSP**
Reviewer:	**Andrea Sansom**	**Date:**	**December 28, 2009**

This report presents the findings of a review of the referenced data. The report consists of this summary, copies of data reports with data qualifying flags applied (as required), the completed data validation checklist, supporting documentation, and an explanation of the data qualifying flags employed. The review performed is based on the USEPA Region III Modifications to the National Functional Guidelines for Organic and Inorganic Data Review as pertains to the specifics of the analytical methods employed and provisions of the approved project-specific QAPP.

Major Anomalies: The volatile organic compound (VOC) laboratory control spikes displayed the following anomalies:

Batch	Analyte	Laboratory Control Spike (%)	Control Limits (%)
0914281-BS1	Methylene chloride	**145**	55-140
	1,1,2-Trichloro-1,2,2-trifluoroethane	**72**	80-120
0914281-BS2	Methylene chloride	**166**	55-140

The associated field sample results were non-detect for 1,1,2-trichloro-1,2,2-trifluoroethane and were flagged R,l. The associated field sample results were non-detect for methylene chloride while the laboratory control spikes displayed a positive bias; therefore, no further data qualifying action was taken. The semi-volatile organic compound (SVOC) matrix spike pair performed on field sample 79SS4 displayed the following anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits	Relative Percent Difference (%)	Control Limit
Caprolactam	**58**	62	62-112	6	30
3,3'-Dichlorobenzidine	**5**	**5**	10-130	8	
3-Nitroaniline	**12**	**18**	25-110	**36**	
4-Chloroaniline	**2**	**2**	10-95	19	
4-Methylphenol	**108**	101	40-105	7	
4-Nitroaniline	**28**	35	35-115	22	

The associated parent sample results were non-detect. The parent sample results for 3,3'-dichlorobenzidine and 4-chloroaniline were flagged R,m. The parent sample results for caprolactam, 3-nitroaniline, and 4-nitroaniline were flagged UL,m.

Minor Anomalies: For the VOC analyses, blanks displayed the following positive detections:

Type	Identification	Analyte	Result	Units
Batch Blank	0914281-BLK1	Methylene Chloride	4.2	µg/kg
	0914281-BLK2	Acetone	5.0	

The associated field sample results were non-detect, thus, no data qualifying action was required. The second source verification for initial calibration 9K25008 displayed a percent recovery greater than the upper control limit of 120% for methylene chloride at 133%. Since the associated field sample results were non-detect, no data qualifying action was taken. The continuing calibration analyzed on 11/23/09 at 0740 displayed percent differences greater than the control limit of 20%:

Analyte	%D	Bias
Bromochloromethane	21.1	+
Dichlorodifluoromethane	27.0	-
Methylene chloride	44.8	+
1,1,2-Trichloro-1,2,2-trifluoroethane	27.8	-

Since the associated field sample results were non-detect for bromochloromethane and methylene chloride while the continuing calibration displayed a positive bias, no data qualifying action was taken. The associated field sample results were non-detect for dichlorodifluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane and were flagged UJ,c, unless previously flagged for a laboratory control spike anomaly. The matrix spike pair performed on field sample 79SS4 displayed the following anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits (%)	Relative Percent Difference	Control Limit (%)
1,1,2-Trichloro-1,2,2-trifluoroethane	82	**73**	80-120	10	30
Carbon disulfide	120	72	45-160	**50**	
Methyl acetate	120	87	70-130	**32**	

The associated parent sample results were non-detect. The associated field sample results were previously qualified for a similar laboratory control spike anomaly and no further data qualifying action was taken.

For the SVOC analyses, the field duplicate pair performed on 79SS5 displayed the following precision greater than the control limit of 60% when both field sample results were positive or else a difference greater than twice the reporting limit:

Analyte	RL	Sample Conc		Duplicate Conc		%RPD	Delta	2xRL
Acenaphthene	21	60		1.7	J	189.0%	**58.3**	42
Anthracene	21	62		22	U	**95.2%**	40	42
Benzo(a)anthracene	21	230		17	J	172.5%	**213**	42
Benzo(a)pyrene	21	110		20	J	138.5%	**90**	42
Benzo(b)fluoranthene	21	190		21	J	160.2%	**169**	42
Benzo(k)fluoranthene	21	110		16	J	149.2%	**94**	42
Chrysene	21	170		20	J	157.9%	**150**	42
Fluoranthene	21	440		34		**171.3%**	406	42
Phenanthrene	21	550		26		**181.9%**	524	42
Pyrene	21	460		34		**172.5%**	426	42

Positive field duplicate results were flagged J,f.

For the pesticide analyses, the continuing calibrations displayed the following percent differences greater than the control limit of 15%:

Date	Time	Column	Analyte	Percent Difference	Bias
12/02/09	0012	1	delta-BHC	15.5	-
			4,4'-DDD	19.4	
			4,4'-DDE	18.7	
			Methoxychlor	18.9	
		2	alpha-Chlordane	17.4	
			beta-BHC	16.0	
			delta-BHC	19.7	
			Dieldrin	16.7	
			Endosulfan I	17.2	
			Endosulfan II	15.8	
			Endosulfan sulfate	16.2	
			Endrin	15.4	
			Endrin aldehyde	15.8	
			Endrin ketone	16.7	
			gamma-Chlordane	16.7	
			Heptachlor	15.6	
			Heptachlor epoxide	16.4	
			Methoxychlor	16.2	
	0321	1	4,4'-DDT	20.0	
			alpha-Chlordane	15.5	
			Dieldrin	16.7	
			Endosulfan I	15.4	
			Endosulfan II	15.5	
			Endosulfan sulfate	17.5	
			Endrin	16.1	
			Endrin aldehyde	19.8	
			Endrin ketone	16.0	
			gamma-Chlordane	15.6	
			Methoxychlor	20.1	
		2	Endosulfan sulfate	15.4	
			Endrin ketone	16.3	
12/04/09	1647	1	Toxaphene	36.7	+
		2		41.7	
12/05/09	0020	1	4,4'-DDT	19.5	
		2	4,4'-DDD	16.6	-
			Endosulfan II	18.5	
			Endrin ketone	15.6	
			Methoxychlor	19.9	
	0057	1	Toxaphene	24.6	+
		2		31.3	

Field sample results were non-detect when both columns displayed a positive bias, thus, no data qualifying action was taken. When both analytical columns displayed a negative bias, the associated field sample results were non-detect and were flagged UJ,c. No data qualifying action was required for non-detect results reported from the passing column when the second analytical column displayed an anomaly of either bias. The matrix spike pair conducted on field sample 79SS4 displayed the following anomalies:

Analyte	Matrix Spike (%)		Matrix Spike Duplicate (%)		Control Limits (%)	Relative Percent Difference	Control Limit (%)
	Column 1	Column 2	Column 1	Column 2		Column 2	
4,4'-DDT	127	121	**150**	97	45-140	21	30
Endrin aldehyde	77	87	92	62	35-145	**32**	
Methoxychlor	122	**167**	118	112	55-145	**39**	

The associated parent sample results were non-detect and no data qualifying action was taken. Field sample 72SB3B displayed a relative percent difference greater than the control limit of 40% between the dual column concentrations for 4,4'-DDE at 58.8%. This result was flagged J,g.

For the PCB analyses, the continuing calibrations displayed the following percent differences greater than the control limit of 15%:

Date	Time	Column	Analyte	Percent Difference	Bias
11/24/09	0253	1	PCB-1254	16.1	-
12/07/09	2044		PCB-1260	16.6	+
	2156			16.9	

Positive associated field sample results were flagged J,c when one of the analytical columns displayed a negative bias. No data qualifying action was required for non-detect results reported from the passing column when the second analytical column displayed an anomaly of either bias.

For the explosives analyses, the following continuing calibrations displayed percent differences greater than the control limit (i.e., 15%):

Date	Time	Analyte	%D	Bias
11/24/09	1913	Tetryl	19.9	-
	2038		20.9	

Since the associated field sample results were non-detect while the continuing calibrations displayed a negative bias, the associated field sample results were flagged UJ,c. The matrix spike performed on field sample 79SS4 displayed percent recoveries greater than the upper control limits for 2-nitrotoluene at 133% and 3-nitrotoluene at 125%. Since the associated parent sample results were non-detect, no data qualifying action was taken. Field sample 79SS5 displayed a relative percent difference greater than the control limit of 40% between the dual column concentrations for nitrobenzene at 55.9%. This result was flagged J,g on both analytical column results reported.

For the inorganic analyses, the method blanks displayed the following detections:

Date	Time	Identification	Analyte	Result	Units
11/20/09	1429	9K20033-CCB3	Aluminum	0.023	mg/L
	1616	9K20033-CCB5		0.029	
	1628	9K20033-CCB6		0.021	
11/23/09	1359	9K23049-CCB2	Sodium	-0.055	mg/L
	1402	0913883-BLK2	Iron	0.55	mg/kg

Date	Time	Identification	Analyte	Result	Units
11/23/09	1439	9K23049-CCB3	Sodium	-0.069	mg/L
	1514	9K23049-CCB4		-0.058	
	1552	9K23075-CCB2	Arsenic	-0.00010	
	1725	9K23075-CCB4		-0.000066	

The associated field sample results for aluminum, arsenic, and iron were positive and greater than five times the absolute value of the reported blank concentrations, thus, no data qualifying action was required. The associated field sample results were positive and less then five times the absolute value of negative blank detections for sodium; these results were flagged L,o. The matrix spike pair performed on field sample 79SS4 displayed the following anomalies:

Analyte	Matrix Spike (%)	Matrix Spike Duplicate (%)	Control Limits
Arsenic	**74**	**78**	80-120
Copper	**79**	86	
Barium	**166**	99	
Selenium	**73**	**75**	
Silver	**32**	92	
Vanadium	**69**	**78**	

The associated field sample results were positive for barium and these results were flagged K,m. Postive associated field sample results for arsenic, copper, selenium, silver, and vanadium were flagged L,m while non-detects were flagged UL,m. The interference check sample IFA2 analyzed on 11/20/09 at 1256 displayed detections greater than half of the reporting limit for the unspiked elements cadmium and calcium. The associated field sample concentrations did not approximate the levels of the interfering elements (chromium or manganese) present in this standard, thus, no data qualifying action was taken.

Correctable Anomalies: None.

Comments: The samples are dried prior to metals digestion; the results are not adjusted for percent solids. In addition, the preparation volumes do not adjust the MDL/MRL until a greater than 6% difference in the default amount and actual amount is observed. Field sample 72SB3B was analyzed at dilution of 2 for PCB-1254 due to the abundance of this target compound present. Field sample 79SS4 was analyzed at various dilutions for aluminum, iron, and manganese due to the abundance of these target elements present. Field samples 79SS4, 72SB2B, and 72SB3B were analyzed at dilution of two for vanadium due to the abundance of this target element present. The reporting limits for these constituents were elevated appropriately. No anomalies were encountered if a given fraction was not mentioned. Except for data flagged "R", data are usable as qualified for their intended purpose based on the data reviewed.

Signed: Andrea Sansom

Andrea Sansom

Radford SSP
SSP1109

Field Sample Identification	Laboratory Sample Identification	Date Sampled	VOC	SVOC	Pesticides	PCB	Explosives, NG, PETN	TAL Inorganics
79SS4	0911250-01	11/11/2009	X	X	X	X	X	X
79SB3B	0911250-02	11/11/2009	X	X	X	X	X	X
79SS5	0911250-03	11/11/2009	X	X	X	X	X	X
DUP	0911250-04	11/11/2009	X	X	X	X	X	X
79SB1B	0911250-05	11/11/2009	X	X	X	X	X	X
72SB2B	0911250-06	11/11/2009	X	X	X	X	X	X
72SB3B	0911250-07	11/11/2009	X	X	X	X	X	X

Radford SSP
Duplicate Statistics

Client Sample ID:			**79SS5**		**DUP**					
Lab Sample ID:			**0911250-03**		**0911250-04**					
Date Sampled:			**11/11/09**		**11/11/09**					
	Units	**RL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
Organics										
Acetone	ug/kg	27	16	J	17	J	6.1%	**1**	54	Pass
1,1'-Biphenyl	ug/kg	210	7.1	J	220	U	187.5%	**212.9**	420	Pass
2-Methylnaphthalene	ug/kg	210	20	J	220	U	166.7%	**200**	420	Pass
Acenaphthene	ug/kg	21	60		1.7	J	189.0%	**58.3**	42	**Fail**
Anthracene	ug/kg	21	62		22	U	**95.2%**	40	42	**Fail**
Benzo(a)anthracene	ug/kg	21	230		17	J	172.5%	**213**	42	**Fail**
Benzo(a)pyrene	ug/kg	21	110		20	J	138.5%	**90**	42	**Fail**
Benzo(b)fluoranthene	ug/kg	21	190		21	J	160.2%	**169**	42	**Fail**
Benzo(g,h,i)perylene	ug/kg	83	65	J	15	J	125.0%	**50**	166	Pass
Benzo(k)fluoranthene	ug/kg	21	110		16	J	149.2%	**94**	42	**Fail**
Bis(2-ethylhexyl) Phthalate	ug/kg	210	41	J	49	J	17.8%	**8**	420	Pass
Butyl Benzyl Phthalate	ug/kg	210	8.8	J	220	U	184.6%	**211.2**	420	Pass
Chrysene	ug/kg	21	170		20	J	157.9%	**150**	42	**Fail**
Dibenz(a,h)anthracene	ug/kg	83	42	J	86	U	68.8%	**44**	166	Pass
Dibenzofuran	ug/kg	210	43	J	220	U	134.6%	**177**	420	Pass
Fluoranthene	ug/kg	21	440		34		**171.3%**	406	42	**Fail**
Fluorene	ug/kg	41	73		42	U	**53.9%**	31	82	Pass
Indeno(1,2,3-cd)pyrene	ug/kg	83	96		14	J	149.1%	**82**	166	Pass
Naphthalene	ug/kg	21	27		22	U	**20.4%**	5	42	Pass
Phenanthrene	ug/kg	21	550		26		**181.9%**	524	42	**Fail**
Pyrene	ug/kg	21	460		34		**172.5%**	426	42	**Fail**
Dieldrin	mg/kg	0.021	0.00075	J	0.022	U	186.8%	**0.02125**	0.042	Pass
Dieldrin [2C]	mg/kg	0.021	0.00067	J	0.022	U	188.2%	**0.02133**	0.042	Pass
PCB-1254	ug/kg	41	31	J	26	J	17.5%	**5**	82	Pass
PCB-1254 [2C]	ug/kg	41	26	J	24	J	8.0%	**2**	82	Pass
Nitrobenzene	mg/kg	2.5	0.053	J	0.093	J	54.8%	**0.04**	5	Pass
Nitrobenzene [2C]	mg/kg	2.5	0.094	J	0.088	J	6.6%	**0.006**	5	Pass

Control limit [sample]>RL use 60%; [sample]<RL use Δ<2*RL

Radford SSP
Duplicate Statistics

Client Sample ID:			**79SS5**		**DUP**					
Lab Sample ID:			**0911250-03**		**0911250-04**					
Date Sampled:			**11/11/09**		**11/11/09**					
	Units	**RL**	**Sample Conc**		**Duplicate Conc**		**%RPD**	**Delta**	**2xRL**	**Pass/ Fail**
TAL Inorganics										
Aluminum	mg/kg	10	13000		14000		**7.4%**	1000	20	Pass
Antimony	mg/kg	0.19	0.25	D	0.27	D	**7.7%**	0.02	0.38	Pass
Arsenic	mg/kg	0.1	2.9		2.9		**0.0%**	0	0.2	Pass
Barium	mg/kg	1	100		95		**5.1%**	5	2	Pass
Beryllium	mg/kg	1	0.94	J	0.79	J	17.3%	**0.15**	2	Pass
Cadmium	mg/kg	2	1.1	J	1.1	J	0.0%	**0**	4	Pass
Calcium	mg/kg	50	2800		3300		**16.4%**	500	100	Pass
Chromium	mg/kg	5	20		20		**0.0%**	0	10	Pass
Cobalt	mg/kg	2	7.1		6.4		**10.4%**	0.7	4	Pass
Copper	mg/kg	0.2	14		13		**7.4%**	1	0.4	Pass
Cyanide, Total	mg/kg	0.37	0.089	J	0.38	U	124.1%	**0.291**	0.74	Pass
Iron	mg/kg	10	22000	B	21000	B	**4.7%**	1000	20	Pass
Lead	mg/kg	0.2	43		43		**0.0%**	0	0.4	Pass
Magnesium	mg/kg	50	2800		3000		**6.9%**	200	100	Pass
Manganese	mg/kg	1	530		450		**16.3%**	80	2	Pass
Mercury	mg/kg	0.05	0.042	J	0.039	J	7.4%	**0.003**	0.1	Pass
Nickel	mg/kg	0.1	10		10		**0.0%**	0	0.2	Pass
Potassium	mg/kg	50	1300		1200		**8.0%**	100	100	Pass
Selenium	mg/kg	0.2	0.25		0.22		**12.8%**	0.03	0.4	Pass
Silver	mg/kg	0.1	0.063	J	0.06	J	4.9%	**0.003**	0.2	Pass
Sodium	mg/kg	100	27	J	24	J	11.8%	**3**	200	Pass
Thallium	mg/kg	0.1	0.23		0.22		**4.4%**	0.01	0.2	Pass
Vanadium	mg/kg	0.1	31		33		**6.3%**	2	0.2	Pass
Zinc	mg/kg	5	120		100		**18.2%**	20	10	Pass
Percent Solids	%	0.1	81		78		**3.8%**	3	0.2	Pass

Control limit [sample]>RL use 35%; [sample]<RL use Δ<2*RL

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79554 SS

AB 12/17/09

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: 25001A.D

Sampled: 11/11/09 11:20 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 12:04

Solids: 78.26 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	26	26	4.0	U
71-43-2	Benzene	1	6.4	6.4	0.27	U
74-97-5	Bromochloromethane	1	26	26	0.56	U
75-27-4	Bromodichloromethane	1	6.4	6.4	1.1	U
75-25-2	Bromoform	1	6.4	6.4	0.59	U
74-83-9	Bromomethane	1	6.4	6.4	1.2	U
75-15-0	Carbon Disulfide	1	6.4	6.4	0.43	U
56-23-5	Carbon Tetrachloride	1	6.4	6.4	0.86	U
108-90-7	Chlorobenzene	1	6.4	6.4	1.0	U
75-00-3	Chloroethane	1	26	26	1.0	U
67-66-3	Chloroform	1	6.4	6.4	0.29	U
74-87-3	Chloromethane	1	6.4	6.4	0.53	U
110-82-7	Cyclohexane	1	13	13	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.6	U
124-48-1	Dibromochloromethane	1	6.4	6.4	0.60	U
106-93-4	1,2-Dibromoethane	1	6.4	6.4	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.4	6.4	0.33	U
541-73-1	1,3-Dichlorobenzene	1	6.4	6.4	0.49	U
106-46-7	1,4-Dichlorobenzene	1	6.4	6.4	0.60	U
75-71-8	Dichlorodifluoromethane	1	6.4	6.4	0.45	U UJc
75-34-3	1,1-Dichloroethane	1	6.4	6.4	0.40	U
107-06-2	1,2-Dichloroethane	1	6.4	6.4	0.46	U
75-35-4	1,1-Dichloroethene	1	6.4	6.4	0.91	U
156-59-2	cis-1,2-Dichloroethene	1	6.4	6.4	0.36	U
156-60-5	trans-1,2-Dichloroethene	1	6.4	6.4	1.0	U
78-87-5	1,2-Dichloropropane	1	6.4	6.4	0.47	U
10061-01-5	cis-1,3-Dichloropropene	1	6.4	6.4	0.54	U
10061-02-6	trans-1,3-Dichloropropene	1	6.4	6.4	0.39	U
100-41-4	Ethylbenzene	1	6.4	6.4	0.20	U
591-78-6	2-Hexanone	1	13	13	1.3	U
98-82-8	Isopropylbenzene	1	6.4	6.4	0.25	U
79-20-9	Methyl Acetate	1	26	26	3.1	U
1634-04-4	Methyl tert-Butyl Ether	1	6.4	6.4	0.62	U
108-87-2	Methylcyclohexane	1	13	13	1.1	U
75-09-2	Methylene Chloride	1	26	26	1.6	U
78-93-3	2-Butanone (MEK)	1	26	26	2.9	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.23	U
100-42-5	Styrene	1	6.4	6.4	0.99	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.4	6.4	1.0	U
127-18-4	Tetrachloroethene	1	6.4	6.4	0.95	U
108-88-3	Toluene	1	6.4	6.4	0.77	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79554

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: 25001A.D

Sampled: 11/11/09 11:20 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 12:04

Solids: 78.26 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.8 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	26	26	0.50	U
120-82-1	1,2,4-Trichlorobenzene	1	6.4	6.4	0.91	U
71-55-6	1,1,1-Trichloroethane	1	6.4	6.4	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.4	6.4	1.2	U
79-01-6	Trichloroethene	1	6.4	6.4	0.55	U
75-69-4	Trichlorofluoromethane	1	6.4	6.4	0.40	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.4	6.4	0.67	U R1
75-01-4	Vinyl Chloride	1	6.4	6.4	0.33	U
1330-20-7	Xylene (Total)	1	6.4	6.4	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	46.2	116	78 - 121	
1,2-Dichloroethane-d4	40.0	46.4	116	66 - 124	
Toluene-d8	40.0	42.5	106	85 - 115	
4-Bromofluorobenzene	40.0	39.4	98	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	309481	7.3	422132	7.36	
Chlorobenzene-d5	141176	17.36	158503	17.41	
1,4-Dichlorobenzene-d4	146064	22.42	180989	22.44	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-02 File ID: 25002A.D

Sampled: 11/11/09 11:45 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 12:37

Solids: 68.74 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.8 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	13	38	6.0	J
71-43-2	Benzene	1	9.6	9.6	0.40	U
74-97-5	Bromochloromethane	1	38	38	0.85	U
75-27-4	Bromodichloromethane	1	9.6	9.6	1.7	U
75-25-2	Bromoform	1	9.6	9.6	0.88	U
74-83-9	Bromomethane	1	9.6	9.6	1.8	U
75-15-0	Carbon Disulfide	1	9.6	9.6	0.65	U
56-23-5	Carbon Tetrachloride	1	9.6	9.6	1.3	U
108-90-7	Chlorobenzene	1	9.6	9.6	1.5	U
75-00-3	Chloroethane	1	38	38	1.5	U
67-66-3	Chloroform	1	9.6	9.6	0.44	U
74-87-3	Chloromethane	1	9.6	9.6	0.80	U
110-82-7	Cyclohexane	1	19	19	1.6	U
96-12-8	1,2-Dibromo-3-chloropropane	1	19	19	3.9	U
124-48-1	Dibromochloromethane	1	9.6	9.6	0.89	U
106-93-4	1,2-Dibromoethane	1	9.6	9.6	1.6	U
95-50-1	1,2-Dichlorobenzene	1	9.6	9.6	0.50	U
541-73-1	1,3-Dichlorobenzene	1	9.6	9.6	0.74	U
106-46-7	1,4-Dichlorobenzene	1	9.6	9.6	0.90	U
75-71-8	Dichlorodifluoromethane	1	9.6	9.6	0.67	U UJc
75-34-3	1,1-Dichloroethane	1	9.6	9.6	0.60	U
107-06-2	1,2-Dichloroethane	1	9.6	9.6	0.69	U
75-35-4	1,1-Dichloroethene	1	9.6	9.6	1.4	U
156-59-2	cis-1,2-Dichloroethene	1	9.6	9.6	0.54	U
156-60-5	trans-1,2-Dichloroethene	1	9.6	9.6	1.6	U
78-87-5	1,2-Dichloropropane	1	9.6	9.6	0.71	U
10061-01-5	cis-1,3-Dichloropropene	1	9.6	9.6	0.81	U
10061-02-6	trans-1,3-Dichloropropene	1	9.6	9.6	0.58	U
100-41-4	Ethylbenzene	1	9.6	9.6	0.29	U
591-78-6	2-Hexanone	1	19	19	2.0	U
98-82-8	Isopropylbenzene	1	9.6	9.6	0.37	U
79-20-9	Methyl Acetate	1	38	38	4.6	U
1634-04-4	Methyl tert-Butyl Ether	1	9.6	9.6	0.93	U
108-87-2	Methylcyclohexane	1	19	19	1.7	U
75-09-2	Methylene Chloride	1	38	38	2.4	U
78-93-3	2-Butanone (MEK)	1	38	38	4.4	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	19	19	0.34	U
100-42-5	Styrene	1	9.6	9.6	1.5	U
79-34-5	1,1,2,2-Tetrachloroethane	1	9.6	9.6	1.5	U
127-18-4	Tetrachloroethene	1	9.6	9.6	1.4	U
108-88-3	Toluene	1	9.6	9.6	1.1	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-02 File ID: 25002A.D

Sampled: 11/11/09 11:45 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 12:37

Solids: 68.74 Preparation: 5035 Soil Purge & Trap - Initial/Final: 3.8 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	38	38	0.75	U
120-82-1	1,2,4-Trichlorobenzene	1	9.6	9.6	1.4	U
71-55-6	1,1,1-Trichloroethane	1	9.6	9.6	1.6	U
79-00-5	1,1,2-Trichloroethane	1	9.6	9.6	1.8	U
79-01-6	Trichloroethene	1	9.6	9.6	0.83	U
75-69-4	Trichlorofluoromethane	1	9.6	9.6	0.60	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	9.6	9.6	1.0	U R,1
75-01-4	Vinyl Chloride	1	9.6	9.6	0.49	U
1330-20-7	Xylene (Total)	1	9.6	9.6	2.0	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	43.7	109	78 - 121	
1,2-Dichloroethane-d4	40.0	44.8	112	66 - 124	
Toluene-d8	40.0	41.7	104	85 - 115	
4-Bromofluorobenzene	40.0	38.1	95	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	301210	7.31	422132	7.36	
Chlorobenzene-d5	136292	17.37	158503	17.41	
1,4-Dichlorobenzene-d4	143182	22.41	180989	22.44	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03 File ID: 25003A.D

Sampled: 11/11/09 12:00 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 13:10

Solids: 81.00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	16	27	4.2	J
71-43-2	Benzene	1	6.7	6.7	0.28	U
74-97-5	Bromochloromethane	1	27	27	0.59	U
75-27-4	Bromodichloromethane	1	6.7	6.7	1.2	U
75-25-2	Bromoform	1	6.7	6.7	0.62	U
74-83-9	Bromomethane	1	6.7	6.7	1.3	U
75-15-0	Carbon Disulfide	1	6.7	6.7	0.45	U
56-23-5	Carbon Tetrachloride	1	6.7	6.7	0.91	U
108-90-7	Chlorobenzene	1	6.7	6.7	1.1	U
75-00-3	Chloroethane	1	27	27	1.1	U
67-66-3	Chloroform	1	6.7	6.7	0.31	U
74-87-3	Chloromethane	1	6.7	6.7	0.56	U
110-82-7	Cyclohexane	1	13	13	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.8	U
124-48-1	Dibromochloromethane	1	6.7	6.7	0.63	U
106-93-4	1,2-Dibromoethane	1	6.7	6.7	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.7	6.7	0.35	U
541-73-1	1,3-Dichlorobenzene	1	6.7	6.7	0.52	U
106-46-7	1,4-Dichlorobenzene	1	6.7	6.7	0.63	U
75-71-8	Dichlorodifluoromethane	1	6.7	6.7	0.47	U VJC
75-34-3	1,1-Dichloroethane	1	6.7	6.7	0.42	U
107-06-2	1,2-Dichloroethane	1	6.7	6.7	0.49	U
75-35-4	1,1-Dichloroethene	1	6.7	6.7	0.95	U
156-59-2	cis-1,2-Dichloroethene	1	6.7	6.7	0.38	U
156-60-5	trans-1,2-Dichloroethene	1	6.7	6.7	1.1	U
78-87-5	1,2-Dichloropropane	1	6.7	6.7	0.50	U
10061-01-5	cis-1,3-Dichloropropene	1	6.7	6.7	0.56	U
10061-02-6	trans-1,3-Dichloropropene	1	6.7	6.7	0.41	U
100-41-4	Ethylbenzene	1	6.7	6.7	0.21	U
591-78-6	2-Hexanone	1	13	13	1.4	U
98-82-8	Isopropylbenzene	1	6.7	6.7	0.26	U
79-20-9	Methyl Acetate	1	27	27	3.2	U
1634-04-4	Methyl tert-Butyl Ether	1	6.7	6.7	0.65	U
108-87-2	Methylcyclohexane	1	13	13	1.2	U
75-09-2	Methylene Chloride	1	27	27	1.7	U
78-93-3	2-Butanone (MEK)	1	27	27	3.1	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.24	U
100-42-5	Styrene	1	6.7	6.7	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.7	6.7	1.1	U
127-18-4	Tetrachloroethene	1	6.7	6.7	1.0	U
108-88-3	Toluene	1	6.7	6.7	0.81	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03 File ID: 25003A.D

Sampled: 11/11/09 12:00 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 13:10

Solids: 81.00 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.6 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	27	27	0.52	U
120-82-1	1,2,4-Trichlorobenzene	1	6.7	6.7	0.95	U
71-55-6	1,1,1-Trichloroethane	1	6.7	6.7	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.7	6.7	1.2	U
79-01-6	Trichloroethene	1	6.7	6.7	0.58	U
75-69-4	Trichlorofluoromethane	1	6.7	6.7	0.42	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.7	6.7	0.70	U R1
75-01-4	Vinyl Chloride	1	6.7	6.7	0.34	U
1330-20-7	Xylene (Total)	1	6.7	6.7	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	46.7	117	78 - 121	
1,2-Dichloroethane-d4	40.0	46.2	116	66 - 124	
Toluene-d8	40.0	43.3	108	85 - 115	
4-Bromofluorobenzene	40.0	38.9	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	296628	7.32	422132	7.36	
Chlorobenzene-d5	133998	17.37	158503	17.41	
1,4-Dichlorobenzene-d4	134960	22.42	180989	22.44	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-04 File ID: 25004A.D

Sampled: 11/11/09 00:00 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 13:43

Solids: 78.32 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	17	28	4.4	J
71-43-2	Benzene	1	7.1	7.1	0.30	U
74-97-5	Bromochloromethane	1	28	28	0.63	U
75-27-4	Bromodichloromethane	1	7.1	7.1	1.2	U
75-25-2	Bromoform	1	7.1	7.1	0.66	U
74-83-9	Bromomethane	1	7.1	7.1	1.4	U
75-15-0	Carbon Disulfide	1	7.1	7.1	0.48	U
56-23-5	Carbon Tetrachloride	1	7.1	7.1	0.96	U
108-90-7	Chlorobenzene	1	7.1	7.1	1.1	U
75-00-3	Chloroethane	1	28	28	1.1	U
67-66-3	Chloroform	1	7.1	7.1	0.32	U
74-87-3	Chloromethane	1	7.1	7.1	0.59	U
110-82-7	Cyclohexane	1	14	14	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.9	U
124-48-1	Dibromochloromethane	1	7.1	7.1	0.66	U
106-93-4	1,2-Dibromoethane	1	7.1	7.1	1.2	U
95-50-1	1,2-Dichlorobenzene	1	7.1	7.1	0.37	U
541-73-1	1,3-Dichlorobenzene	1	7.1	7.1	0.54	U
106-46-7	1,4-Dichlorobenzene	1	7.1	7.1	0.67	U
75-71-8	Dichlorodifluoromethane	1	7.1	7.1	0.50	U VJ
75-34-3	1,1-Dichloroethane	1	7.1	7.1	0.44	U
107-06-2	1,2-Dichloroethane	1	7.1	7.1	0.51	U
75-35-4	1,1-Dichloroethene	1	7.1	7.1	1.0	U
156-59-2	cis-1,2-Dichloroethene	1	7.1	7.1	0.40	U
156-60-5	trans-1,2-Dichloroethene	1	7.1	7.1	1.2	U
78-87-5	1,2-Dichloropropane	1	7.1	7.1	0.52	U
10061-01-5	cis-1,3-Dichloropropene	1	7.1	7.1	0.60	U
10061-02-6	trans-1,3-Dichloropropene	1	7.1	7.1	0.43	U
100-41-4	Ethylbenzene	1	7.1	7.1	0.22	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	7.1	7.1	0.28	U
79-20-9	Methyl Acetate	1	28	28	3.4	U
1634-04-4	Methyl tert-Butyl Ether	1	7.1	7.1	0.69	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	28	28	1.8	U
78-93-3	2-Butanone (MEK)	1	28	28	3.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	7.1	7.1	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.1	7.1	1.1	U
127-18-4	Tetrachloroethene	1	7.1	7.1	1.1	U
108-88-3	Toluene	1	7.1	7.1	0.85	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

DUP

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-04 File ID: 25004A.D

Sampled: 11/11/09 00:00 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 13:43

Solids: 78.32 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.5 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	28	28	0.55	U
120-82-1	1,2,4-Trichlorobenzene	1	7.1	7.1	1.0	U
71-55-6	1,1,1-Trichloroethane	1	7.1	7.1	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.1	7.1	1.3	U
79-01-6	Trichloroethene	1	7.1	7.1	0.62	U
75-69-4	Trichlorofluoromethane	1	7.1	7.1	0.44	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.1	7.1	0.74	U R,I
75-01-4	Vinyl Chloride	1	7.1	7.1	0.36	U
1330-20-7	Xylene (Total)	1	7.1	7.1	1.5	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	46.0	115	78 - 121	
1,2-Dichloroethane-d4	40.0	44.5	111	66 - 124	
Toluene-d8	40.0	41.9	105	85 - 115	
4-Bromofluorobenzene	40.0	37.2	93	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	234315	7.32	422132	7.36	
Chlorobenzene-d5	100739	17.37	158503	17.41	
1,4-Dichlorobenzene-d4	94964	22.42	180989	22.44	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-05 File ID: 25005A.D

Sampled: 11/11/09 13:30 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 14:16

Solids: 81.26 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.4 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	28	28	4.4	U
71-43-2	Benzene	1	7.0	7.0	0.29	U
74-97-5	Bromochloromethane	1	28	28	0.62	U
75-27-4	Bromodichloromethane	1	7.0	7.0	1.2	U
75-25-2	Bromoform	1	7.0	7.0	0.65	U
74-83-9	Bromomethane	1	7.0	7.0	1.3	U
75-15-0	Carbon Disulfide	1	7.0	7.0	0.47	U
56-23-5	Carbon Tetrachloride	1	7.0	7.0	0.94	U
108-90-7	Chlorobenzene	1	7.0	7.0	1.1	U
75-00-3	Chloroethane	1	28	28	1.1	U
67-66-3	Chloroform	1	7.0	7.0	0.32	U
74-87-3	Chloromethane	1	7.0	7.0	0.58	U
110-82-7	Cyclohexane	1	14	14	1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	1	14	14	2.9	U
124-48-1	Dibromochloromethane	1	7.0	7.0	0.65	U
106-93-4	1,2-Dibromoethane	1	7.0	7.0	1.2	U
95-50-1	1,2-Dichlorobenzene	1	7.0	7.0	0.36	U
541-73-1	1,3-Dichlorobenzene	1	7.0	7.0	0.54	U
106-46-7	1,4-Dichlorobenzene	1	7.0	7.0	0.66	U
75-71-8	Dichlorodifluoromethane	1	7.0	7.0	0.49	U UJ,c
75-34-3	1,1-Dichloroethane	1	7.0	7.0	0.44	U
107-06-2	1,2-Dichloroethane	1	7.0	7.0	0.51	U
75-35-4	1,1-Dichloroethene	1	7.0	7.0	0.99	U
156-59-2	cis-1,2-Dichloroethene	1	7.0	7.0	0.40	U
156-60-5	trans-1,2-Dichloroethene	1	7.0	7.0	1.1	U
78-87-5	1,2-Dichloropropane	1	7.0	7.0	0.52	U
10061-01-5	cis-1,3-Dichloropropene	1	7.0	7.0	0.59	U
10061-02-6	trans-1,3-Dichloropropene	1	7.0	7.0	0.42	U
100-41-4	Ethylbenzene	1	7.0	7.0	0.21	U
591-78-6	2-Hexanone	1	14	14	1.5	U
98-82-8	Isopropylbenzene	1	7.0	7.0	0.27	U
79-20-9	Methyl Acetate	1	28	28	3.4	U
1634-04-4	Methyl tert-Butyl Ether	1	7.0	7.0	0.68	U
108-87-2	Methylcyclohexane	1	14	14	1.2	U
75-09-2	Methylene Chloride	1	28	28	1.7	U
78-93-3	2-Butanone (MEK)	1	28	28	3.2	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	14	14	0.25	U
100-42-5	Styrene	1	7.0	7.0	1.1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	7.0	7.0	1.1	U
127-18-4	Tetrachloroethene	1	7.0	7.0	1.0	U
108-88-3	Toluene	1	7.0	7.0	0.84	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

79SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-05 File ID: 25005A.D

Sampled: 11/11/09 13:30 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 14:16

Solids: 81.26 Preparation: 5035 Soil Purge & Trap - Initial/Final: 4.4 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	28	28	0.55	U
120-82-1	1,2,4-Trichlorobenzene	1	7.0	7.0	0.99	U
71-55-6	1,1,1-Trichloroethane	1	7.0	7.0	1.2	U
79-00-5	1,1,2-Trichloroethane	1	7.0	7.0	1.3	U
79-01-6	Trichloroethene	1	7.0	7.0	0.61	U
75-69-4	Trichlorofluoromethane	1	7.0	7.0	0.44	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	7.0	7.0	0.73	U R1
75-01-4	Vinyl Chloride	1	7.0	7.0	0.36	U
1330-20-7	Xylene (Total)	1	7.0	7.0	1.4	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	44.0	110	78 - 121	
1,2-Dichloroethane-d4	40.0	44.3	111	66 - 124	
Toluene-d8	40.0	43.2	108	85 - 115	
4-Bromofluorobenzene	40.0	38.8	97	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	274278	7.32	422132	7.36	
Chlorobenzene-d5	124316	17.37	158503	17.41	
1,4-Dichlorobenzene-d4	128907	22.42	180989	22.44	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

72SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-06 File ID: 25006A.D

Sampled: 11/11/09 14:40 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 14:49

Solids: 78.45 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	8.5	25	4.0	J
71-43-2	Benzene	1	6.4	6.4	0.27	U
74-97-5	Bromochloromethane	1	25	25	0.56	U
75-27-4	Bromodichloromethane	1	6.4	6.4	1.1	U
75-25-2	Bromoform	1	6.4	6.4	0.59	U
74-83-9	Bromomethane	1	6.4	6.4	1.2	U
75-15-0	Carbon Disulfide	1	6.4	6.4	0.43	U
56-23-5	Carbon Tetrachloride	1	6.4	6.4	0.86	U
108-90-7	Chlorobenzene	1	6.4	6.4	1.0	U
75-00-3	Chloroethane	1	25	25	1.0	U
67-66-3	Chloroform	1	6.4	6.4	0.29	U
74-87-3	Chloromethane	1	6.4	6.4	0.53	U
110-82-7	Cyclohexane	1	13	13	1.1	U
96-12-8	1,2-Dibromo-3-chloropropane	1	13	13	2.6	U
124-48-1	Dibromochloromethane	1	6.4	6.4	0.59	U
106-93-4	1,2-Dibromoethane	1	6.4	6.4	1.1	U
95-50-1	1,2-Dichlorobenzene	1	6.4	6.4	0.33	U
541-73-1	1,3-Dichlorobenzene	1	6.4	6.4	0.49	U
106-46-7	1,4-Dichlorobenzene	1	6.4	6.4	0.60	U
75-71-8	Dichlorodifluoromethane	1	6.4	6.4	0.45	U UJc
75-34-3	1,1-Dichloroethane	1	6.4	6.4	0.40	U
107-06-2	1,2-Dichloroethane	1	6.4	6.4	0.46	U
75-35-4	1,1-Dichloroethene	1	6.4	6.4	0.90	U
156-59-2	cis-1,2-Dichloroethene	1	6.4	6.4	0.36	U
156-60-5	trans-1,2-Dichloroethene	1	6.4	6.4	1.0	U
78-87-5	1,2-Dichloropropane	1	6.4	6.4	0.47	U
10061-01-5	cis-1,3-Dichloropropene	1	6.4	6.4	0.54	U
10061-02-6	trans-1,3-Dichloropropene	1	6.4	6.4	0.38	U
100-41-4	Ethylbenzene	1	6.4	6.4	0.20	U
591-78-6	2-Hexanone	1	13	13	1.3	U
98-82-8	Isopropylbenzene	1	6.4	6.4	0.25	U
79-20-9	Methyl Acetate	1	25	25	3.1	U
1634-04-4	Methyl tert-Butyl Ether	1	6.4	6.4	0.62	U
108-87-2	Methylcyclohexane	1	13	13	1.1	U
75-09-2	Methylene Chloride	1	25	25	1.6	U
78-93-3	2-Butanone (MEK)	1	25	25	2.9	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	13	13	0.23	U
100-42-5	Styrene	1	6.4	6.4	0.99	U
79-34-5	1,1,2,2-Tetrachloroethane	1	6.4	6.4	1.0	U
127-18-4	Tetrachloroethene	1	6.4	6.4	0.95	U
108-88-3	Toluene	1	6.4	6.4	0.76	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

72SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-06 File ID: 25006A.D

Sampled: 11/11/09 14:40 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 14:49

Solids: 78.45 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.1 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	25	25	0.50	U
120-82-1	1,2,4-Trichlorobenzene	1	6.4	6.4	0.91	U
71-55-6	1,1,1-Trichloroethane	1	6.4	6.4	1.1	U
79-00-5	1,1,2-Trichloroethane	1	6.4	6.4	1.2	U
79-01-6	Trichloroethene	1	6.4	6.4	0.55	U
75-69-4	Trichlorofluoromethane	1	6.4	6.4	0.40	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	6.4	6.4	0.67	U R,I
75-01-4	Vinyl Chloride	1	6.4	6.4	0.33	U
1330-20-7	Xylene (Total)	1	6.4	6.4	1.3	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	46.2	115	78 - 121	
1,2-Dichloroethane-d4	40.0	42.8	107	66 - 124	
Toluene-d8	40.0	43.7	109	85 - 115	
4-Bromofluorobenzene	40.0	40.2	101	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	302039	7.32	422132	7.36	
Chlorobenzene-d5	134885	17.37	158503	17.41	
1,4-Dichlorobenzene-d4	139890	22.42	180989	22.44	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07 File ID: 25007A.D

Sampled: 11/11/09 15:00 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 15:22

Solids: 84.57 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.5 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
67-64-1	Acetone	1	21	21	3.4	U
71-43-2	Benzene	1	5.4	5.4	0.22	U
74-97-5	Bromochloromethane	1	21	21	0.48	U
75-27-4	Bromodichloromethane	1	5.4	5.4	0.94	U
75-25-2	Bromoform	1	5.4	5.4	0.50	U
74-83-9	Bromomethane	1	5.4	5.4	1.0	U
75-15-0	Carbon Disulfide	1	5.4	5.4	0.36	U
56-23-5	Carbon Tetrachloride	1	5.4	5.4	0.73	U
108-90-7	Chlorobenzene	1	5.4	5.4	0.85	U
75-00-3	Chloroethane	1	21	21	0.85	U
67-66-3	Chloroform	1	5.4	5.4	0.25	U
74-87-3	Chloromethane	1	5.4	5.4	0.45	U
110-82-7	Cyclohexane	1	11	11	0.89	U
96-12-8	1,2-Dibromo-3-chloropropane	1	11	11	2.2	U
124-48-1	Dibromochloromethane	1	5.4	5.4	0.50	U
106-93-4	1,2-Dibromoethane	1	5.4	5.4	0.89	U
95-50-1	1,2-Dichlorobenzene	1	5.4	5.4	0.28	U
541-73-1	1,3-Dichlorobenzene	1	5.4	5.4	0.41	U
106-46-7	1,4-Dichlorobenzene	1	5.4	5.4	0.51	U
75-71-8	Dichlorodifluoromethane	1	5.4	5.4	0.38	U UJc
75-34-3	1,1-Dichloroethane	1	5.4	5.4	0.34	U
107-06-2	1,2-Dichloroethane	1	5.4	5.4	0.39	U
75-35-4	1,1-Dichloroethene	1	5.4	5.4	0.76	U
156-59-2	cis-1,2-Dichloroethene	1	5.4	5.4	0.31	U
156-60-5	trans-1,2-Dichloroethene	1	5.4	5.4	0.87	U
78-87-5	1,2-Dichloropropane	1	5.4	5.4	0.40	U
10061-01-5	cis-1,3-Dichloropropene	1	5.4	5.4	0.45	U
10061-02-6	trans-1,3-Dichloropropene	1	5.4	5.4	0.32	U
100-41-4	Ethylbenzene	1	5.4	5.4	0.16	U
591-78-6	2-Hexanone	1	11	11	1.1	U
98-82-8	Isopropylbenzene	1	5.4	5.4	0.21	U
79-20-9	Methyl Acetate	1	21	21	2.6	U
1634-04-4	Methyl tert-Butyl Ether	1	5.4	5.4	0.52	U
108-87-2	Methylcyclohexane	1	11	11	0.94	U
75-09-2	Methylene Chloride	1	21	21	1.3	U
78-93-3	2-Butanone (MEK)	1	21	21	2.5	U
108-10-1	4-Methyl-2-pentanone (MIBK)	1	11	11	0.19	U
100-42-5	Styrene	1	5.4	5.4	0.84	U
79-34-5	1,1,2,2-Tetrachloroethane	1	5.4	5.4	0.84	U
127-18-4	Tetrachloroethene	1	5.4	5.4	0.80	U
108-88-3	Toluene	1	5.4	5.4	0.64	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8260B

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07 File ID: 25007A.D

Sampled: 11/11/09 15:00 Prepared: 11/23/09 07:00 Analyzed: 11/23/09 15:22

Solids: 84.57 Preparation: 5035 Soil Purge & Trap - Initial/Final: 5.5 g / 5 mL

QC Batch: 0914281 Sequence: 9K25010 Calibration: 9K25001 Instrument: 139

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
87-61-6	1,2,3-Trichlorobenzene	1	21	21	0.42	U
120-82-1	1,2,4-Trichlorobenzene	1	5.4	5.4	0.76	U
71-55-6	1,1,1-Trichloroethane	1	5.4	5.4	0.90	U
79-00-5	1,1,2-Trichloroethane	1	5.4	5.4	0.98	U
79-01-6	Trichloroethene	1	5.4	5.4	0.47	U
75-69-4	Trichlorofluoromethane	1	5.4	5.4	0.34	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	5.4	5.4	0.56	U R,1
75-01-4	Vinyl Chloride	1	5.4	5.4	0.28	U
1330-20-7	Xylene (Total)	1	5.4	5.4	1.1	U

System Monitoring Compound	ADDED (ug/L)	CONC (ug/L)	% REC.	QC Limits	Q
Dibromofluoromethane	40.0	44.7	112	78 - 121	
1,2-Dichloroethane-d4	40.0	44.3	111	66 - 124	
Toluene-d8	40.0	43.1	108	85 - 115	
4-Bromofluorobenzene	40.0	38.3	96	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	267369	7.33	422132	7.36	
Chlorobenzene-d5	119832	17.36	158503	17.41	
1,4-Dichlorobenzene-d4	120592	22.42	180989	22.44	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79554 SS
tb, 12/21/09

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: 0911250-01r.D

Sampled: 11/11/09 11:20 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 14:57

Solids: 78.26 Preparation: 3550B Sonication Extract Initial/Final: 30.1 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	22	22	1.0	U
208-96-8	Acenaphthylene	1	22	22	2.1	U
98-86-2	Acetophenone	1	220	220	4.7	U
120-12-7	Anthracene	1	22	22	3.3	U
1912-24-9	Atrazine	1	220	220	5.7	U
100-52-7	Benzaldehyde	1	220	220	7.9	U
56-55-3	Benzo(a)anthracene	1	8.9	22	1.4	J
50-32-8	Benzo(a)pyrene	1	7.2	22	1.8	J
205-99-2	Benzo(b)fluoranthene	1	8.5	22	3.7	J
207-08-9	Benzo(k)fluoranthene	1	3.8	22	1.6	J
191-24-2	Benzo(g,h,i)perylene	1	2.5	86	1.2	J
92-52-4	1,1'-Biphenyl	1	220	220	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	1.9	U
85-68-7	Butyl Benzyl Phthalate	1	220	220	6.3	U
105-60-2	Caprolactam	1	420	420	16	U UL,m
86-74-8	Carbazole	1	420	420	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.2	U
106-47-8	4-Chloroaniline	1	220	220	9.0	U R,m
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.4	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.5	U
91-58-7	2-Chloronaphthalene	1	220	220	2.8	U
95-57-8	2-Chlorophenol	1	220	220	4.8	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.3	U
218-01-9	Chrysene	1	8.5	22	4.4	J
53-70-3	Dibenz(a,h)anthracene	1	86	86	9.8	U
132-64-9	Dibenzofuran	1	220	220	11	U
84-74-2	Di-n-butyl Phthalate	1	82	220	32	J
91-94-1	3,3'-Dichlorobenzidine	1	310	310	36	U R,m
120-83-2	2,4-Dichlorophenol	1	220	220	4.3	U
84-66-2	Diethyl Phthalate	1	220	220	4.4	U
105-67-9	2,4-Dimethylphenol	1	220	220	1.9	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	26	U
51-28-5	2,4-Dinitrophenol	1	420	420	130	U
121-14-2	2,4-Dinitrotoluene	1	220	220	24	U
606-20-2	2,6-Dinitrotoluene	1	220	220	2.9	U
117-84-0	Di-n-octyl Phthalate	1	220	220	6.8	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	8.5	220	5.9	J
206-44-0	Fluoranthene	1	14	22	0.97	J
86-73-7	Fluorene	1	42	42	8.8	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79554 SS

12/21/09

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: 0911250-01r.D

Sampled: 11/11/09 11:20 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 14:57

Solids: 78.26 Preparation: 3550B Sonication Extract Initial/Final: 30.1 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.5	U
87-68-3	Hexachlorobutadiene	1	220	220	4.4	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.6	U
67-72-1	Hexachloroethane	1	220	220	3.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	86	86	4.7	U
78-59-1	Isophorone	1	220	220	7.9	U
91-57-6	2-Methylnaphthalene	1	220	220	0.58	U
95-48-7	2-Methylphenol	1	220	220	6.1	U
106-44-5	4-Methylphenol	1	220	220	5.7	U
91-20-3	Naphthalene	1	22	22	2.7	U
88-74-4	2-Nitroaniline	1	220	220	9.1	U
99-09-2	3-Nitroaniline	1	220	220	9.0	U ULM
100-01-6	4-Nitroaniline	1	220	220	2.0	U ULM
98-95-3	Nitrobenzene	1	220	220	6.6	U
100-02-7	4-Nitrophenol	1	860	860	170	U
88-75-5	2-Nitrophenol	1	220	220	8.4	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.2	U
87-86-5	Pentachlorophenol	1	420	420	56	U
85-01-8	Phenanthrene	1	10	22	1.3	J
108-95-2	Phenol	1	220	220	57	U
129-00-0	Pyrene	1	16	22	1.5	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.7	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.6	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	849	619	73	35 - 105	
Phenol-d6	853	648	76	40 - 100	
Nitrobenzene-d5	422	287	68	35 - 100	
2-Fluorobiphenyl	429	290	68	45 - 105	
2,4,6-Tribromophenol	849	529	62	35 - 125	
o-Terphenyl	424	295	69	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	41026	5.11	48041	5.172	
Naphthalene-d8	139385	6.59	161155	6.665	
Acenaphthene-d10	81015	8.595	90855	8.664	
Phenanthrene-d10	106240	10.251	124015	10.319	
Chrysene-d12	68336	13.188	94951	13.257	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-02 File ID: 0911250-02.D

Sampled: 11/11/09 11:45 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 12:16

Solids: 68.74 Preparation: 3550B Sonication Extract Initial/Final: 29.6 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	25	25	1.1	U
208-96-8	Acenaphthylene	1	25	25	2.4	U
98-86-2	Acetophenone	1	250	250	5.4	U
120-12-7	Anthracene	1	25	25	3.7	U
1912-24-9	Atrazine	1	250	250	6.5	U
100-52-7	Benzaldehyde	1	250	250	9.0	U
56-55-3	Benzo(a)anthracene	1	2.5	25	1.6	J
50-32-8	Benzo(a)pyrene	1	25	25	2.0	U
205-99-2	Benzo(b)fluoranthene	1	25	25	4.2	U
207-08-9	Benzo(k)fluoranthene	1	25	25	1.9	U
191-24-2	Benzo(g,h,i)perylene	1	97	97	1.4	U
92-52-4	1,1'-Biphenyl	1	250	250	1.2	U
101-55-3	4-Bromophenyl Phenyl Ether	1	250	250	2.2	U
85-68-7	Butyl Benzyl Phthalate	1	250	250	7.1	U
105-60-2	Caprolactam	1	480	480	18	U
86-74-8	Carbazole	1	480	480	120	U
59-50-7	4-Chloro-3-methylphenol	1	250	250	4.8	U
106-47-8	4-Chloroaniline	1	250	250	10	U
111-91-1	Bis(2-chloroethoxy)methane	1	250	250	1.8	U
111-44-4	Bis(2-chloroethyl) Ether	1	250	250	2.7	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	250	250	9.7	U
91-58-7	2-Chloronaphthalene	1	250	250	3.2	U
95-57-8	2-Chlorophenol	1	250	250	5.5	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	250	250	4.9	U
218-01-9	Chrysene	1	25	25	5.1	U
53-70-3	Dibenz(a,h)anthracene	1	97	97	11	U
132-64-9	Dibenzofuran	1	250	250	13	U
84-74-2	Di-n-butyl Phthalate	1	250	250	36	U
91-94-1	3,3'-Dichlorobenzidine	1	350	350	40	U
120-83-2	2,4-Dichlorophenol	1	250	250	4.9	U
84-66-2	Diethyl Phthalate	1	250	250	5.0	U
105-67-9	2,4-Dimethylphenol	1	250	250	2.2	U
131-11-3	Dimethyl Phthalate	1	250	250	1.3	U
534-52-1	4,6-Dinitro-2-methylphenol	1	250	250	30	U
51-28-5	2,4-Dinitrophenol	1	480	480	150	U
121-14-2	2,4-Dinitrotoluene	1	250	250	27	U
606-20-2	2,6-Dinitrotoluene	1	250	250	3.3	U
117-84-0	Di-n-octyl Phthalate	1	250	250	7.7	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	43	250	6.8	J
206-44-0	Fluoranthene	1	1.5	25	1.1	J
86-73-7	Fluorene	1	48	48	10	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-02 File ID: 0911250-02.D

Sampled: 11/11/09 11:45 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 12:16

Solids: 68.74 Preparation: 3550B Sonication Extract Initial/Final: 29.6 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	250	250	6.2	U
87-68-3	Hexachlorobutadiene	1	250	250	5.0	U
77-47-4	Hexachlorocyclopentadiene	1	250	250	2.9	U
67-72-1	Hexachloroethane	1	250	250	3.6	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	97	97	5.3	U
78-59-1	Isophorone	1	250	250	9.0	U
91-57-6	2-Methylnaphthalene	1	250	250	0.66	U
95-48-7	2-Methylphenol	1	250	250	6.9	U
106-44-5	4-Methylphenol	1	250	250	6.4	U
91-20-3	Naphthalene	1	25	25	3.0	U
88-74-4	2-Nitroaniline	1	250	250	10	U
99-09-2	3-Nitroaniline	1	250	250	10	U
100-01-6	4-Nitroaniline	1	250	250	2.3	U
98-95-3	Nitrobenzene	1	250	250	7.5	U
100-02-7	4-Nitrophenol	1	970	970	190	U
88-75-5	2-Nitrophenol	1	250	250	9.6	U
86-30-6	N-Nitroso-diphenylamine	1	250	250	14	U
621-64-7	N-Nitroso-di-n-propylamine	1	250	250	8.2	U
87-86-5	Pentachlorophenol	1	480	480	64	U
85-01-8	Phenanthrene	1	2.0	25	1.5	J
108-95-2	Phenol	1	250	250	65	U
129-00-0	Pyrene	1	25	25	1.7	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	250	250	3.0	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	250	250	14	U
88-06-2	2,4,6-Trichlorophenol	1	250	250	3.0	U
95-95-4	2,4,5-Trichlorophenol	1	250	250	3.6	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	983	761	77	35 - 105	
Phenol-d6	988	792	80	40 - 100	
Nitrobenzene-d5	489	376	77	35 - 100	
2-Fluorobiphenyl	496	391	79	45 - 105	
2,4,6-Tribromophenol	983	639	65	35 - 125	
o-Terphenyl	491	351	72	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	37949	5.104	48041	5.172	
Naphthalene-d8	121258	6.591	161155	6.665	
Acenaphthene-d10	68854	8.59	90855	8.664	
Phenanthrene-d10	103531	10.245	124015	10.319	
Chrysene-d12	82038	13.183	94951	13.257	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03 File ID: 0911250-03.D

Sampled: 11/11/09 12:00 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 12:43

Solids: 81.00 Preparation: 3550B Sonication Extract Initial/Final: 29.6 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	60	21	0.96	J,f
208-96-8	Acenaphthylene	1	21	21	2.1	U
98-86-2	Acetophenone	1	210	210	4.6	U
120-12-7	Anthracene	1	62	21	3.1	J,f
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U
56-55-3	Benzo(a)anthracene	1	230	21	1.4	J,f
50-32-8	Benzo(a)pyrene	1	110	21	1.7	J,f
205-99-2	Benzo(b)fluoranthene	1	190	21	3.6	J,f
207-08-9	Benzo(k)fluoranthene	1	110	21	1.6	J,f
191-24-2	Benzo(g,h,i)perylene	1	65	83	1.2	J
92-52-4	1,1'-Biphenyl	1	7.1	210	1.0	J
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	8.8	210	6.0	J
105-60-2	Caprolactam	1	410	410	16	U
86-74-8	Carbazole	1	410	410	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.1	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	170	21	4.3	J,f
53-70-3	Dibenz(a,h)anthracene	1	42	83	9.5	J
132-64-9	Dibenzofuran	1	43	210	11	J
84-74-2	Di-n-butyl Phthalate	1	210	210	31	U
91-94-1	3,3'-Dichlorobenzidine	1	300	300	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.2	U
84-66-2	Diethyl Phthalate	1	210	210	4.3	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	410	410	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.6	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	41	210	5.7	J
206-44-0	Fluoranthene	1	440	21	0.94	J,f
86-73-7	Fluorene	1	73	41	8.5	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03 File ID: 0911250-03.D

Sampled: 11/11/09 12:00 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 12:43

Solids: 81.00 Preparation: 3550B Sonication Extract Initial/Final: 29.6 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.3	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	96	83	4.5	
78-59-1	Isophorone	1	210	210	7.7	U
91-57-6	2-Methylnaphthalene	1	20	210	0.56	J
95-48-7	2-Methylphenol	1	210	210	5.9	U
106-44-5	4-Methylphenol	1	210	210	5.5	U
91-20-3	Naphthalene	1	27	21	2.6	
88-74-4	2-Nitroaniline	1	210	210	8.8	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.4	U
100-02-7	4-Nitrophenol	1	830	830	160	U
88-75-5	2-Nitrophenol	1	210	210	8.2	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	410	410	54	U
85-01-8	Phenanthrene	1	550	21	1.3	JF
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	460	21	1.5	JF
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	12	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	834	690	83	35 - 105	
Phenol-d6	838	715	85	40 - 100	
Nitrobenzene-d5	415	328	79	35 - 100	
2-Fluorobiphenyl	421	319	76	45 - 105	
2,4,6-Tribromophenol	834	611	73	35 - 125	
o-Terphenyl	417	287	69	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	36428	5.104	48041	5.172	
Naphthalene-d8	124381	6.59	161155	6.665	
Acenaphthene-d10	70339	8.59	90855	8.664	
Phenanthrene-d10	97246	10.245	124015	10.319	
Chrysene-d12	54251	13.183	94951	13.257	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-04 File ID: 0911250-04.D

Sampled: 11/11/09 00:00 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 13:10

Solids: 78.32 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	1.7	22	1.0	J JF
208-96-8	Acenaphthylene	1	22	22	2.1	U
98-86-2	Acetophenone	1	220	220	4.7	U
120-12-7	Anthracene	1	22	22	3.3	U
1912-24-9	Atrazine	1	220	220	5.7	U
100-52-7	Benzaldehyde	1	220	220	7.9	U
56-55-3	Benzo(a)anthracene	1	17	22	1.4	J JF
50-32-8	Benzo(a)pyrene	1	20	22	1.8	J JF
205-99-2	Benzo(b)fluoranthene	1	21	22	3.7	J JF
207-08-9	Benzo(k)fluoranthene	1	16	22	1.6	J JF
191-24-2	Benzo(g,h,i)perylene	1	15	86	1.2	J
92-52-4	1,1'-Biphenyl	1	220	220	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	1.9	U
85-68-7	Butyl Benzyl Phthalate	1	220	220	6.3	U
105-60-2	Caprolactam	1	420	420	16	U
86-74-8	Carbazole	1	420	420	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.2	U
106-47-8	4-Chloroaniline	1	220	220	9.0	U
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.4	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.5	U
91-58-7	2-Chloronaphthalene	1	220	220	2.8	U
95-57-8	2-Chlorophenol	1	220	220	4.8	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.3	U
218-01-9	Chrysene	1	20	22	4.4	J JF
53-70-3	Dibenz(a,h)anthracene	1	86	86	9.8	U
132-64-9	Dibenzofuran	1	220	220	11	U
84-74-2	Di-n-butyl Phthalate	1	220	220	32	U
91-94-1	3,3´-Dichlorobenzidine	1	310	310	35	U
120-83-2	2,4-Dichlorophenol	1	220	220	4.3	U
84-66-2	Diethyl Phthalate	1	220	220	4.4	U
105-67-9	2,4-Dimethylphenol	1	220	220	1.9	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	26	U
51-28-5	2,4-Dinitrophenol	1	420	420	130	U
121-14-2	2,4-Dinitrotoluene	1	220	220	24	U
606-20-2	2,6-Dinitrotoluene	1	220	220	2.9	U
117-84-0	Di-n-octyl Phthalate	1	220	220	6.8	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	49	220	5.9	J
206-44-0	Fluoranthene	1	34	22	0.97	JF
86-73-7	Fluorene	1	42	42	8.8	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

DUP

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-04 File ID: 0911250-04.D

Sampled: 11/11/09 00:00 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 13:10

Solids: 78.32 Preparation: 3550B Sonication Extract Initial/Final: 30 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.5	U
87-68-3	Hexachlorobutadiene	1	220	220	4.4	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.6	U
67-72-1	Hexachloroethane	1	220	220	3.2	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	14	86	4.7	J
78-59-1	Isophorone	1	220	220	7.9	U
91-57-6	2-Methylnaphthalene	1	220	220	0.58	U
95-48-7	2-Methylphenol	1	220	220	6.1	U
106-44-5	4-Methylphenol	1	220	220	5.7	U
91-20-3	Naphthalene	1	22	22	2.7	U
88-74-4	2-Nitroaniline	1	220	220	9.1	U
99-09-2	3-Nitroaniline	1	220	220	9.0	U
100-01-6	4-Nitroaniline	1	220	220	2.0	U
98-95-3	Nitrobenzene	1	220	220	6.6	U
100-02-7	4-Nitrophenol	1	860	860	170	U
88-75-5	2-Nitrophenol	1	220	220	8.4	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.2	U
87-86-5	Pentachlorophenol	1	420	420	56	U
85-01-8	Phenanthrene	1	26	22	1.3	J,f
108-95-2	Phenol	1	220	220	57	U
129-00-0	Pyrene	1	34	22	1.5	J,f
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.7	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.6	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	851	679	80	35 - 105	
Phenol-d6	855	701	82	40 - 100	
Nitrobenzene-d5	423	345	82	35 - 100	
2-Fluorobiphenyl	430	305	71	45 - 105	
2,4,6-Tribromophenol	851	646	76	35 - 125	
o-Terphenyl	426	309	72	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	39030	5.104	48041	5.172	
Naphthalene-d8	124716	6.591	161155	6.665	
Acenaphthene-d10	74920	8.59	90855	8.664	
Phenanthrene-d10	94975	10.251	124015	10.319	
Chrysene-d12	55860	13.183	94951	13.257	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-05 File ID: 0911250-05.D

Sampled: 11/11/09 13:30 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 13:37

Solids: 81.26 Preparation: 3550B Sonication Extract Initial/Final: 29.5 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	21	21	0.96	U
208-96-8	Acenaphthylene	1	21	21	2.1	U
98-86-2	Acetophenone	1	210	210	4.5	U
120-12-7	Anthracene	1	21	21	3.1	U
1912-24-9	Atrazine	1	210	210	5.5	U
100-52-7	Benzaldehyde	1	210	210	7.6	U
56-55-3	Benzo(a)anthracene	1	2.1	21	1.4	J
50-32-8	Benzo(a)pyrene	1	21	21	1.7	U
205-99-2	Benzo(b)fluoranthene	1	21	21	3.6	U
207-08-9	Benzo(k)fluoranthene	1	21	21	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	82	82	1.2	U
92-52-4	1,1'-Biphenyl	1	210	210	1.0	U
101-55-3	4-Bromophenyl Phenyl Ether	1	210	210	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	210	210	6.0	U
105-60-2	Caprolactam	1	410	410	16	U
86-74-8	Carbazole	1	410	410	100	U
59-50-7	4-Chloro-3-methylphenol	1	210	210	4.1	U
106-47-8	4-Chloroaniline	1	210	210	8.7	U
111-91-1	Bis(2-chloroethoxy)methane	1	210	210	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	210	210	2.3	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	210	210	8.2	U
91-58-7	2-Chloronaphthalene	1	210	210	2.7	U
95-57-8	2-Chlorophenol	1	210	210	4.6	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	210	210	4.1	U
218-01-9	Chrysene	1	21	21	4.3	U
53-70-3	Dibenz(a,h)anthracene	1	82	82	9.5	U
132-64-9	Dibenzofuran	1	210	210	11	U
84-74-2	Di-n-butyl Phthalate	1	210	210	31	U
91-94-1	3,3'-Dichlorobenzidine	1	300	300	34	U
120-83-2	2,4-Dichlorophenol	1	210	210	4.2	U
84-66-2	Diethyl Phthalate	1	210	210	4.3	U
105-67-9	2,4-Dimethylphenol	1	210	210	1.8	U
131-11-3	Dimethyl Phthalate	1	210	210	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	210	210	25	U
51-28-5	2,4-Dinitrophenol	1	410	410	130	U
121-14-2	2,4-Dinitrotoluene	1	210	210	23	U
606-20-2	2,6-Dinitrotoluene	1	210	210	2.8	U
117-84-0	Di-n-octyl Phthalate	1	210	210	6.5	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	32	210	5.7	J
206-44-0	Fluoranthene	1	3.3	21	0.94	J
86-73-7	Fluorene	1	41	41	8.5	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

79SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-05 File ID: 0911250-05.D

Sampled: 11/11/09 13:30 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 13:37

Solids: 81.26 Preparation: 3550B Sonication Extract Initial/Final: 29.5 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	210	210	5.3	U
87-68-3	Hexachlorobutadiene	1	210	210	4.2	U
77-47-4	Hexachlorocyclopentadiene	1	210	210	2.5	U
67-72-1	Hexachloroethane	1	210	210	3.0	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	82	82	4.5	U
78-59-1	Isophorone	1	210	210	7.6	U
91-57-6	2-Methylnaphthalene	1	210	210	0.56	U
95-48-7	2-Methylphenol	1	210	210	5.9	U
106-44-5	4-Methylphenol	1	210	210	5.5	U
91-20-3	Naphthalene	1	21	21	2.6	U
88-74-4	2-Nitroaniline	1	210	210	8.7	U
99-09-2	3-Nitroaniline	1	210	210	8.7	U
100-01-6	4-Nitroaniline	1	210	210	2.0	U
98-95-3	Nitrobenzene	1	210	210	6.3	U
100-02-7	4-Nitrophenol	1	820	820	160	U
88-75-5	2-Nitrophenol	1	210	210	8.1	U
86-30-6	N-Nitroso-diphenylamine	1	210	210	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	210	210	6.9	U
87-86-5	Pentachlorophenol	1	410	410	54	U
85-01-8	Phenanthrene	1	21	21	1.3	U
108-95-2	Phenol	1	210	210	55	U
129-00-0	Pyrene	1	2.1	21	1.5	J
95-94-3	1,2,4,5-Tetrachlorobenzene	1	210	210	2.6	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	210	210	12	U
88-06-2	2,4,6-Trichlorophenol	1	210	210	2.5	U
95-95-4	2,4,5-Trichlorophenol	1	210	210	3.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	834	600	72	35 - 105	
Phenol-d6	839	633	76	40 - 100	
Nitrobenzene-d5	415	318	77	35 - 100	
2-Fluorobiphenyl	421	315	75	45 - 105	
2,4,6-Tribromophenol	834	557	67	35 - 125	
o-Terphenyl	417	322	77	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	40495	5.11	48041	5.172	
Naphthalene-d8	128179	6.591	161155	6.665	
Acenaphthene-d10	73250	8.59	90855	8.664	
Phenanthrene-d10	104069	10.251	124015	10.319	
Chrysene-d12	85585	13.189	94951	13.257	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

72SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-06 File ID: 0911250-06.D

Sampled: 11/11/09 14:40 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 14:05

Solids: 78.45 Preparation: 3550B Sonication Extract Initial/Final: 29.9 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	22	22	0.99	U
208-96-8	Acenaphthylene	1	22	22	2.1	U
98-86-2	Acetophenone	1	220	220	4.7	U
120-12-7	Anthracene	1	22	22	3.3	U
1912-24-9	Atrazine	1	220	220	5.7	U
100-52-7	Benzaldehyde	1	220	220	7.9	U
56-55-3	Benzo(a)anthracene	1	22	22	1.4	U
50-32-8	Benzo(a)pyrene	1	22	22	1.8	U
205-99-2	Benzo(b)fluoranthene	1	22	22	3.7	U
207-08-9	Benzo(k)fluoranthene	1	22	22	1.6	U
191-24-2	Benzo(g,h,i)perylene	1	85	85	1.2	U
92-52-4	1,1'-Biphenyl	1	220	220	1.1	U
101-55-3	4-Bromophenyl Phenyl Ether	1	220	220	1.9	U
85-68-7	Butyl Benzyl Phthalate	1	220	220	6.2	U
105-60-2	Caprolactam	1	420	420	16	U
86-74-8	Carbazole	1	420	420	110	U
59-50-7	4-Chloro-3-methylphenol	1	220	220	4.2	U
106-47-8	4-Chloroaniline	1	220	220	9.0	U
111-91-1	Bis(2-chloroethoxy)methane	1	220	220	1.6	U
111-44-4	Bis(2-chloroethyl) Ether	1	220	220	2.4	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	220	220	8.5	U
91-58-7	2-Chloronaphthalene	1	220	220	2.8	U
95-57-8	2-Chlorophenol	1	220	220	4.8	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	220	220	4.3	U
218-01-9	Chrysene	1	22	22	4.4	U
53-70-3	Dibenz(a,h)anthracene	1	85	85	9.8	U
132-64-9	Dibenzofuran	1	220	220	11	U
84-74-2	Di-n-butyl Phthalate	1	220	220	32	U
91-94-1	3,3'-Dichlorobenzidine	1	310	310	35	U
120-83-2	2,4-Dichlorophenol	1	220	220	4.3	U
84-66-2	Diethyl Phthalate	1	220	220	4.4	U
105-67-9	2,4-Dimethylphenol	1	220	220	1.9	U
131-11-3	Dimethyl Phthalate	1	220	220	1.1	U
534-52-1	4,6-Dinitro-2-methylphenol	1	220	220	26	U
51-28-5	2,4-Dinitrophenol	1	420	420	130	U
121-14-2	2,4-Dinitrotoluene	1	220	220	24	U
606-20-2	2,6-Dinitrotoluene	1	220	220	2.9	U
117-84-0	Di-n-octyl Phthalate	1	220	220	6.8	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	14	220	5.9	J
206-44-0	Fluoranthene	1	22	22	0.97	U
86-73-7	Fluorene	1	42	42	8.8	U

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

72SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-06 File ID: 0911250-06.D

Sampled: 11/11/09 14:40 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 14:05

Solids: 78.45 Preparation: 3550B Sonication Extract Initial/Final: 29.9 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	220	220	5.4	U
87-68-3	Hexachlorobutadiene	1	220	220	4.4	U
77-47-4	Hexachlorocyclopentadiene	1	220	220	2.6	U
67-72-1	Hexachloroethane	1	220	220	3.1	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	85	85	4.7	U
78-59-1	Isophorone	1	220	220	7.9	U
91-57-6	2-Methylnaphthalene	1	220	220	0.58	U
95-48-7	2-Methylphenol	1	220	220	6.1	U
106-44-5	4-Methylphenol	1	220	220	5.6	U
91-20-3	Naphthalene	1	22	22	2.7	U
88-74-4	2-Nitroaniline	1	220	220	9.0	U
99-09-2	3-Nitroaniline	1	220	220	9.0	U
100-01-6	4-Nitroaniline	1	220	220	2.0	U
98-95-3	Nitrobenzene	1	220	220	6.6	U
100-02-7	4-Nitrophenol	1	850	850	170	U
88-75-5	2-Nitrophenol	1	220	220	8.4	U
86-30-6	N-Nitroso-diphenylamine	1	220	220	12	U
621-64-7	N-Nitroso-di-n-propylamine	1	220	220	7.2	U
87-86-5	Pentachlorophenol	1	420	420	56	U
85-01-8	Phenanthrene	1	22	22	1.3	U
108-95-2	Phenol	1	220	220	57	U
129-00-0	Pyrene	1	22	22	1.5	U
95-94-3	1,2,4,5-Tetrachlorobenzene	1	220	220	2.7	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	220	220	12	U
88-06-2	2,4,6-Trichlorophenol	1	220	220	2.6	U
95-95-4	2,4,5-Trichlorophenol	1	220	220	3.1	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	853	647	76	35 - 105	
Phenol-d6	857	655	76	40 - 100	
Nitrobenzene-d5	424	318	75	35 - 100	
2-Fluorobiphenyl	431	302	70	45 - 105	
2,4,6-Tribromophenol	853	608	71	35 - 125	
o-Terphenyl	426	346	81	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	43560	5.11	48041	5.172	
Naphthalene-d8	135992	6.591	161155	6.665	
Acenaphthene-d10	80858	8.59	90855	8.664	
Phenanthrene-d10	110944	10.251	124015	10.319	
Chrysene-d12	94946	13.189	94951	13.257	

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07 File ID: 0911250-07.D

Sampled: 11/11/09 15:00 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 14:32

Solids: 84.57 Preparation: 3550B Sonication Extract Initial/Final: 29.9 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
83-32-9	Acenaphthene	1	20	20	0.92	U
208-96-8	Acenaphthylene	1	78	20	2.0	
98-86-2	Acetophenone	1	200	200	4.4	U
120-12-7	Anthracene	1	18	20	3.0	J
1912-24-9	Atrazine	1	200	200	5.3	U
100-52-7	Benzaldehyde	1	18	200	7.3	J
56-55-3	Benzo(a)anthracene	1	170	20	1.3	
50-32-8	Benzo(a)pyrene	1	120	20	1.7	
205-99-2	Benzo(b)fluoranthene	1	160	20	3.5	
207-08-9	Benzo(k)fluoranthene	1	50	20	1.5	
191-24-2	Benzo(g,h,i)perylene	1	62	79	1.1	J
92-52-4	1,1'-Biphenyl	1	200	200	0.98	U
101-55-3	4-Bromophenyl Phenyl Ether	1	200	200	1.8	U
85-68-7	Butyl Benzyl Phthalate	1	200	200	5.8	U
105-60-2	Caprolactam	1	390	390	15	U
86-74-8	Carbazole	1	390	390	99	U
59-50-7	4-Chloro-3-methylphenol	1	200	200	3.9	U
106-47-8	4-Chloroaniline	1	200	200	8.4	U
111-91-1	Bis(2-chloroethoxy)methane	1	200	200	1.5	U
111-44-4	Bis(2-chloroethyl) Ether	1	200	200	2.2	U
108-60-1	Bis(2-chloroisopropyl) Ether	1	200	200	7.9	U
91-58-7	2-Chloronaphthalene	1	200	200	2.6	U
95-57-8	2-Chlorophenol	1	200	200	4.4	U
7005-72-3	4-Chlorophenyl Phenyl Ether	1	200	200	4.0	U
218-01-9	Chrysene	1	150	20	4.1	
53-70-3	Dibenz(a,h)anthracene	1	12	79	9.1	J
132-64-9	Dibenzofuran	1	200	200	10	U
84-74-2	Di-n-butyl Phthalate	1	200	200	29	U
91-94-1	3,3´-Dichlorobenzidine	1	280	280	33	U
120-83-2	2,4-Dichlorophenol	1	200	200	4.0	U
84-66-2	Diethyl Phthalate	1	200	200	4.1	U
105-67-9	2,4-Dimethylphenol	1	200	200	1.8	U
131-11-3	Dimethyl Phthalate	1	200	200	1.0	U
534-52-1	4,6-Dinitro-2-methylphenol	1	200	200	24	U
51-28-5	2,4-Dinitrophenol	1	390	390	120	U
121-14-2	2,4-Dinitrotoluene	1	200	200	22	U
606-20-2	2,6-Dinitrotoluene	1	200	200	2.7	U
117-84-0	Di-n-octyl Phthalate	1	200	200	6.3	U
117-81-7	Bis(2-ethylhexyl) Phthalate	1	36	200	5.5	J
206-44-0	Fluoranthene	1	210	20	0.90	
86-73-7	Fluorene	1	8.7	39	8.1	J

ORGANIC ANALYSIS DATA SHEET
USEPA-8270C

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07 File ID: 0911250-07.D

Sampled: 11/11/09 15:00 Prepared: 11/21/09 08:34 Analyzed: 12/01/09 14:32

Solids: 84.57 Preparation: 3550B Sonication Extract Initial/Final: 29.9 g / 1 mL

QC Batch: 0914012 Sequence: 9L01047 Calibration: 9L01011 Instrument: 308

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
118-74-1	Hexachlorobenzene	1	200	200	5.0	U
87-68-3	Hexachlorobutadiene	1	200	200	4.1	U
77-47-4	Hexachlorocyclopentadiene	1	200	200	2.4	U
67-72-1	Hexachloroethane	1	200	200	2.9	U
193-39-5	Indeno(1,2,3-cd)pyrene	1	51	79	4.3	J
78-59-1	Isophorone	1	200	200	7.3	U
91-57-6	2-Methylnaphthalene	1	200	200	0.54	U
95-48-7	2-Methylphenol	1	200	200	5.6	U
106-44-5	4-Methylphenol	1	200	200	5.2	U
91-20-3	Naphthalene	1	20	20	2.5	U
88-74-4	2-Nitroaniline	1	200	200	8.4	U
99-09-2	3-Nitroaniline	1	200	200	8.4	U
100-01-6	4-Nitroaniline	1	200	200	1.9	U
98-95-3	Nitrobenzene	1	200	200	6.1	U
100-02-7	4-Nitrophenol	1	790	790	160	U
88-75-5	2-Nitrophenol	1	200	200	7.8	U
86-30-6	N-Nitroso-diphenylamine	1	200	200	11	U
621-64-7	N-Nitroso-di-n-propylamine	1	200	200	6.6	U
87-86-5	Pentachlorophenol	1	390	390	52	U
85-01-8	Phenanthrene	1	79	20	1.2	
108-95-2	Phenol	1	200	200	53	U
129-00-0	Pyrene	1	330	20	1.4	
95-94-3	1,2,4,5-Tetrachlorobenzene	1	200	200	2.5	U
58-90-2	2,3,4,6-Tetrachlorophenol	1	200	200	11	U
88-06-2	2,4,6-Trichlorophenol	1	200	200	2.4	U
95-95-4	2,4,5-Trichlorophenol	1	200	200	2.9	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% REC.	QC Limits	Q
2-Fluorophenol	791	613	78	35 - 105	
Phenol-d6	795	649	82	40 - 100	
Nitrobenzene-d5	393	301	76	35 - 100	
2-Fluorobiphenyl	399	305	76	45 - 105	
2,4,6-Tribromophenol	791	561	71	35 - 125	
o-Terphenyl	395	327	83	30 - 125	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
1,4-Dichlorobenzene-d4	35974	5.11	48041	5.172	
Naphthalene-d8	119989	6.59	161155	6.665	
Acenaphthene-d10	68859	8.595	90855	8.664	
Phenanthrene-d10	91897	10.251	124015	10.319	
Chrysene-d12	70060	13.188	94951	13.257	

ANALYSIS DATA SHEET

79554 SS

AK, 12/21/09

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: A90_099-0

Sampled: 11/11/09 11:20 Prepared: 11/19/09 08:30 Analyzed: 12/01/09 21:04

Solids: 78.26 Preparation: 3550B Sonication Extrac Initial/Final: 29.9 g / 10 mL

QC Batch: 0913908 Sequence: 9L02023 Calibration: 9L02014 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00028	U
319-85-7	beta-BHC	1	0.022	0.022	0.00037	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00033	U
319-86-8	delta-BHC	1	0.022	0.022	0.00034	U VJ,c
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00051	U
5103-74-2	gamma-Chlordane	1	0.022	0.022	0.00036	U
72-54-8	4,4'-DDD	1	0.022	0.022	0.00038	U
72-55-9	4,4'-DDE	1	0.022	0.022	0.00032	U
50-29-3	4,4'-DDT	1	0.022	0.022	0.00033	U
309-00-2	Aldrin	1	0.022	0.022	0.0016	U
60-57-1	Dieldrin	1	0.022	0.022	0.00032	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00033	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00035	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00042	U
72-20-8	Endrin	1	0.022	0.022	0.00035	U
7421-93-4	Endrin Aldehyde	1	0.022	0.022	0.0012	U
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00046	U
76-44-8	Heptachlor	1	0.022	0.022	0.00055	U
1024-57-3	Heptachlor Epoxide	1	0.022	0.022	0.00027	U
72-43-5	Methoxychlor	1	0.022	0.022	0.00047	U VJ,c
8001-35-2	Toxaphene	1	0.22	0.22	0.0037	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0427	0.0348	81	70 - 125	
Decachlorobiphenyl	0.0427	0.0274	64	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-02 File ID: A90_098-0

Sampled: 11/11/09 11:45 Prepared: 11/19/09 08:30 Analyzed: 12/01/09 20:26

Solids: 68.74 Preparation: 3550B Sonication Extrac Initial/Final: 29.6 g / 10 mL

QC Batch: 0913908 Sequence: 9L02023 Calibration: 9L02014 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.025	0.025	0.00032	U
319-85-7	beta-BHC	1	0.025	0.025	0.00042	U
58-89-9	gamma-BHC (Lindane)	1	0.025	0.025	0.00037	U
319-86-8	delta-BHC	1	0.025	0.025	0.00039	U
5103-71-9	alpha-Chlordane	1	0.025	0.025	0.00058	U
5103-74-2	gamma-Chlordane	1	0.025	0.025	0.00041	U
72-54-8	4,4'-DDD	1	0.025	0.025	0.00043	U
72-55-9	4,4'-DDE	1	0.025	0.025	0.00036	U
50-29-3	4,4'-DDT	1	0.025	0.025	0.00038	U
309-00-2	Aldrin	1	0.025	0.025	0.0018	U
60-57-1	Dieldrin	1	0.025	0.025	0.00037	U
959-98-8	Endosulfan I	1	0.025	0.025	0.00037	U
33213-65-9	Endosulfan II	1	0.025	0.025	0.00040	U
1031-07-8	Endosulfan Sulfate	1	0.025	0.025	0.00048	U
72-20-8	Endrin	1	0.025	0.025	0.00040	U
7421-93-4	Endrin Aldehyde	1	0.025	0.025	0.0013	U
53494-70-5	Endrin Ketone	1	0.025	0.025	0.00053	U
76-44-8	Heptachlor	1	0.025	0.025	0.00063	U
1024-57-3	Heptachlor Epoxide	1	0.025	0.025	0.00031	U
72-43-5	Methoxychlor	1	0.025	0.025	0.00053	U
8001-35-2	Toxaphene	1	0.25	0.25	0.0042	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0491	0.0424	86	70 - 125	
Decachlorobiphenyl	0.0491	0.0397	81	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03 File ID: A90_097-0

Sampled: 11/11/09 12:00 Prepared: 11/19/09 08:30 Analyzed: 12/01/09 19:48

Solids: 81.00 Preparation: 3550B Sonication Extrac Initial/Final: 29.7 g / 10 mL

QC Batch: 0913908 Sequence: 9L02023 Calibration: 9L02014 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00033	U UJ
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.00075	0.021	0.00031	J
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00034	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00045	U
76-44-8	Heptachlor	1	0.021	0.021	0.00054	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U UJC
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0416	0.0394	95	70 - 125	
Decachlorobiphenyl	0.0416	0.0409	98	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-04 File ID: A90_108-0

Sampled: 11/11/09 00:00 Prepared: 11/19/09 08:30 Analyzed: 12/02/09 02:43

Solids: 78.32 Preparation: 3550B Sonication Extrac Initial/Final: 30.2 g / 10 mL

QC Batch: 0913908 Sequence: 9L02023 Calibration: 9L02014 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00028	U
319-85-7	beta-BHC	1	0.022	0.022	0.00037	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00033	U
319-86-8	delta-BHC	1	0.022	0.022	0.00034	U UJ,c
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00051	U
5103-74-2	gamma-Chlordane	1	0.022	0.022	0.00036	U
72-54-8	4,4'-DDD	1	0.022	0.022	0.00038	U
72-55-9	4,4'-DDE	1	0.022	0.022	0.00032	U
50-29-3	4,4'-DDT	1	0.022	0.022	0.00033	U
309-00-2	Aldrin	1	0.022	0.022	0.0016	U
60-57-1	Dieldrin	1	0.022	0.022	0.00032	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00033	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00035	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00042	U UJ,c
72-20-8	Endrin	1	0.022	0.022	0.00035	U
7421-93-4	Endrin Aldehyde	1	0.022	0.022	0.0012	U
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00046	U UJ,c
76-44-8	Heptachlor	1	0.022	0.022	0.00055	U
1024-57-3	Heptachlor Epoxide	1	0.022	0.022	0.00027	U
72-43-5	Methoxychlor	1	0.022	0.022	0.00047	U UJ,c
8001-35-2	Toxaphene	1	0.22	0.22	0.0037	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0423	0.0404	96	70 - 125	
Decachlorobiphenyl	0.0423	0.0399	94	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-05 File ID: A90_107-0

Sampled: 11/11/09 13:30 Prepared: 11/19/09 08:30 Analyzed: 12/02/09 02:05

Solids: 81.26 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0913908 Sequence: 9L02023 Calibration: 9L02014 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.021	0.021	0.00027	U
319-85-7	beta-BHC	1	0.021	0.021	0.00035	U
58-89-9	gamma-BHC (Lindane)	1	0.021	0.021	0.00032	U
319-86-8	delta-BHC	1	0.021	0.021	0.00033	U UJ,c
5103-71-9	alpha-Chlordane	1	0.021	0.021	0.00049	U
5103-74-2	gamma-Chlordane	1	0.021	0.021	0.00035	U
72-54-8	4,4'-DDD	1	0.021	0.021	0.00037	U
72-55-9	4,4'-DDE	1	0.021	0.021	0.00031	U
50-29-3	4,4'-DDT	1	0.021	0.021	0.00032	U
309-00-2	Aldrin	1	0.021	0.021	0.0015	U
60-57-1	Dieldrin	1	0.021	0.021	0.00031	U
959-98-8	Endosulfan I	1	0.021	0.021	0.00031	U
33213-65-9	Endosulfan II	1	0.021	0.021	0.00034	U
1031-07-8	Endosulfan Sulfate	1	0.021	0.021	0.00041	U UJ,c
72-20-8	Endrin	1	0.021	0.021	0.00034	U
7421-93-4	Endrin Aldehyde	1	0.021	0.021	0.0011	U
53494-70-5	Endrin Ketone	1	0.021	0.021	0.00044	U UJ,c
76-44-8	Heptachlor	1	0.021	0.021	0.00053	U
1024-57-3	Heptachlor Epoxide	1	0.021	0.021	0.00026	U
72-43-5	Methoxychlor	1	0.021	0.021	0.00045	U UJ,c
8001-35-2	Toxaphene	1	0.21	0.21	0.0036	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0410	0.0388	94	70 - 125	
Decachlorobiphenyl	0.0410	0.0384	94	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-06 File ID: A90_106-0

Sampled: 11/11/09 14:40 Prepared: 11/19/09 08:30 Analyzed: 12/02/09 01:28

Solids: 78.45 Preparation: 3550B Sonication Extrac Initial/Final: 30.2 g / 10 mL

QC Batch: 0913908 Sequence: 9L02023 Calibration: 9L02014 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.022	0.022	0.00028	U
319-85-7	beta-BHC	1	0.022	0.022	0.00036	U
58-89-9	gamma-BHC (Lindane)	1	0.022	0.022	0.00033	U
319-86-8	delta-BHC	1	0.022	0.022	0.00034	U UJ,c
5103-71-9	alpha-Chlordane	1	0.022	0.022	0.00051	U
5103-74-2	gamma-Chlordane	1	0.022	0.022	0.00036	U
72-54-8	4,4'-DDD	1	0.022	0.022	0.00038	U
72-55-9	4,4'-DDE	1	0.022	0.022	0.00032	U
50-29-3	4,4'-DDT	1	0.022	0.022	0.00033	U
309-00-2	Aldrin	1	0.022	0.022	0.0016	U
60-57-1	Dieldrin	1	0.022	0.022	0.00032	U
959-98-8	Endosulfan I	1	0.022	0.022	0.00033	U
33213-65-9	Endosulfan II	1	0.022	0.022	0.00035	U
1031-07-8	Endosulfan Sulfate	1	0.022	0.022	0.00042	U UJ,c
72-20-8	Endrin	1	0.022	0.022	0.00035	U
7421-93-4	Endrin Aldehyde	1	0.022	0.022	0.0012	U
53494-70-5	Endrin Ketone	1	0.022	0.022	0.00046	U UJ,c
76-44-8	Heptachlor	1	0.022	0.022	0.00055	U
1024-57-3	Heptachlor Epoxide	1	0.022	0.022	0.00027	U
72-43-5	Methoxychlor	1	0.022	0.022	0.00047	U UJ,c
8001-35-2	Toxaphene	1	0.22	0.22	0.0037	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0422	0.0399	94	70 - 125	
Decachlorobiphenyl	0.0422	0.0427	101	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07 File ID: A90_208-0

Sampled: 11/11/09 15:00 Prepared: 11/19/09 08:30 Analyzed: 12/04/09 22:27

Solids: 84.57 Preparation: 3550B Sonication Extrac Initial/Final: 29.7 g / 10 mL

QC Batch: 0913908 Sequence: 9L07040 Calibration: 9L07005 Instrument: 199

CAS No.	Analyte	Dilution	CONC. (mg/kg dry)	MRL	MDL	Q
319-84-6	alpha-BHC	1	0.020	0.020	0.00026	U
319-85-7	beta-BHC	1	0.020	0.020	0.00034	U
58-89-9	gamma-BHC (Lindane)	1	0.020	0.020	0.00030	U
319-86-8	delta-BHC	1	0.020	0.020	0.00031	U
5103-71-9	alpha-Chlordane	1	0.020	0.020	0.00047	U
5103-74-2	gamma-Chlordane	1	0.020	0.020	0.00034	U
72-54-8	4,4'-DDD	1	0.020	0.020	0.00035	U
72-55-9	4,4'-DDE	1	0.026	0.020	0.00030	
50-29-3	4,4'-DDT	1	0.020	0.020	0.00031	U
309-00-2	Aldrin	1	0.020	0.020	0.0015	U
60-57-1	Dieldrin	1	0.020	0.020	0.00030	U
959-98-8	Endosulfan I	1	0.020	0.020	0.00030	U
33213-65-9	Endosulfan II	1	0.020	0.020	0.00032	U
1031-07-8	Endosulfan Sulfate	1	0.020	0.020	0.00039	U
72-20-8	Endrin	1	0.020	0.020	0.00033	U
7421-93-4	Endrin Aldehyde	1	0.020	0.020	0.0011	U
53494-70-5	Endrin Ketone	1	0.020	0.020	0.00043	U
76-44-8	Heptachlor	1	0.020	0.020	0.00051	U
1024-57-3	Heptachlor Epoxide	1	0.020	0.020	0.00025	U
72-43-5	Methoxychlor	1	0.020	0.020	0.00043	U
8001-35-2	Toxaphene	1	0.20	0.20	0.0034	U

System Monitoring Compound	ADDED (mg/kg dry)	CONC (mg/kg dry)	% Rec.	QC Limits	Q
Tetrachloro-m-xylene	0.0398	0.0350	88	70 - 125	
Decachlorobiphenyl	0.0398	0.0402	101	55 - 130	

* Values outside of QC limits

ANALYSIS DATA SHEET

79554

12/21/09

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: A50_028-0

Sampled: 11/11/09 11:20 Prepared: 11/19/09 08:29 Analyzed: 12/07/09 19:55

Solids: 78.26 Preparation: 3550B Sonication Extrac Initial/Final: 29.9 g / 10 mL

QC Batch: 0913907 Sequence: 9L08039 Calibration: 9L08011 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	42	42	5.4	U
11104-28-2	PCB-1221	1	42	42	10	U
11141-16-5	PCB-1232	1	42	42	5.7	U
53469-21-9	PCB-1242	1	86	86	5.9	U
12672-29-6	PCB-1248	1	42	42	8.3	U
11096-82-5	PCB-1260	1	86	86	6.4	U
37324-23-5	PCB-1262	1	42	42	6.6	U
11100-14-4	PCB-1268	1	42	42	8.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	42.7	38.5	90	60 - 125	
Tetrachloro-m-xylene	42.7	39.5	93	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79554 49

AA 12/21/09

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01RE1 File ID: A49_193-0

Sampled: 11/11/09 11:20 Prepared: 11/19/09 08:29 Analyzed: 11/24/09 02:28

Solids: 78.26 Preparation: 3550B Sonication Extrac Initial/Final: 29.9 g / 10 mL

QC Batch: 0913907 Sequence: 9K24059 Calibration: 9K24012 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
11097-69-1	PCB-1254	1	42	42	7.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	42.7	40.6	95	60 - 125	
Tetrachloro-m-xylene	42.7	42.0	98	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-02
File ID: A49_160-0
Sampled: 11/11/09 11:45
Prepared: 11/19/09 08:29
Analyzed: 11/23/09 13:08
Solids: 68.74
Preparation: 3550B Sonication Extrac
Initial/Final: 29.6 g / 10 mL
QC Batch: 0913907
Sequence: 9K24063
Calibration: 9K24014
Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	48	48	6.1	U
11104-28-2	PCB-1221	1	48	48	11	U
11141-16-5	PCB-1232	1	48	48	6.5	U
53469-21-9	PCB-1242	1	97	97	6.7	U
12672-29-6	PCB-1248	1	48	48	9.5	U
11097-69-1	PCB-1254	1	48	48	8.6	U
11096-82-5	PCB-1260	1	97	97	7.3	U
37324-23-5	PCB-1262	1	48	48	7.6	U
11100-14-4	PCB-1268	1	48	48	9.5	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	49.1	40.9	83	60 - 125	
Tetrachloro-m-xylene	49.1	44.2	90	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03 File ID: A50_031-0

Sampled: 11/11/09 12:00 Prepared: 11/19/09 08:29 Analyzed: 12/07/09 21:08

Solids: 81.00 Preparation: 3550B Sonication Extrac Initial/Final: 29.7 g / 10 mL

QC Batch: 0913907 Sequence: 9L08039 Calibration: 9L08011 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	41	41	5.2	U
11104-28-2	PCB-1221	1	41	41	9.6	U
11141-16-5	PCB-1232	1	41	41	5.6	U
53469-21-9	PCB-1242	1	83	83	5.7	U
12672-29-6	PCB-1248	1	41	41	8.0	U
11096-82-5	PCB-1260	1	83	83	6.2	U
37324-23-5	PCB-1262	1	41	41	6.4	U
11100-14-4	PCB-1268	1	41	41	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	41.6	29.4	71	60 - 125	
Tetrachloro-m-xylene	41.6	31.1	75	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03RE1 File ID: A49_191-0

Sampled: 11/11/09 12:00 Prepared: 11/19/09 08:29 Analyzed: 11/24/09 01:40

Solids: 81.00 Preparation: 3550B Sonication Extrac Initial/Final: 29.7 g / 10 mL

QC Batch: 0913907 Sequence: 9K24059 Calibration: 9K24012 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
11097-69-1	PCB-1254	1	31	41	7.3	J Jc

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	41.6	29.4	71	60 - 125	
Tetrachloro-m-xylene	41.6	31.1	75	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-04 File ID: A50_32-0

Sampled: 11/11/09 00:00 Prepared: 11/19/09 08:29 Analyzed: 12/07/09 21:32

Solids: 78.32 Preparation: 3550B Sonication Extrac Initial/Final: 30.2 g / 10 mL

QC Batch: 0913907 Sequence: 9L08039 Calibration: 9L08011 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	42	42	5.4	U
11104-28-2	PCB-1221	1	42	42	10	U
11141-16-5	PCB-1232	1	42	42	5.7	U
53469-21-9	PCB-1242	1	86	86	5.9	U
12672-29-6	PCB-1248	1	42	42	8.3	U
11096-82-5	PCB-1260	1	86	86	6.4	U
37324-23-5	PCB-1262	1	42	42	6.6	U
11100-14-4	PCB-1268	1	42	42	8.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	42.3	40.2	95	60 - 125	
Tetrachloro-m-xylene	42.3	40.0	95	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

DUP

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-04RE1
File ID: A49_192-0
Sampled: 11/11/09 00:00
Prepared: 11/19/09 08:29
Analyzed: 11/24/09 02:04
Solids: 78.32
Preparation: 3550B Sonication Extrac
Initial/Final: 30.2 g / 10 mL
QC Batch: 0913907
Sequence: 9K24059
Calibration: 9K24012
Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
11097-69-1	PCB-1254	1	26	42	7.5	J

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	42.3	40.2	95	60 - 125	
Tetrachloro-m-xylene	42.3	40.0	95	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

79SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-05 File ID: A49_161-0

Sampled: 11/11/09 13:30 Prepared: 11/19/09 08:29 Analyzed: 11/23/09 13:33

Solids: 81.26 Preparation: 3550B Sonication Extrac Initial/Final: 30 g / 10 mL

QC Batch: 0913907 Sequence: 9K24063 Calibration: 9K24014 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	41	41	5.2	U
11104-28-2	PCB-1221	1	41	41	9.6	U
11141-16-5	PCB-1232	1	41	41	5.5	U
53469-21-9	PCB-1242	1	82	82	5.7	U
12672-29-6	PCB-1248	1	41	41	8.0	U
11097-69-1	PCB-1254	1	41	41	7.3	U
11096-82-5	PCB-1260	1	82	82	6.2	U
37324-23-5	PCB-1262	1	41	41	6.4	U
11100-14-4	PCB-1268	1	41	41	8.0	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	41.0	36.0	88	60 - 125	
Tetrachloro-m-xylene	41.0	37.2	91	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-06 File ID: A49_162-0

Sampled: 11/11/09 14:40 Prepared: 11/19/09 08:29 Analyzed: 11/23/09 13:57

Solids: 78.45 Preparation: 3550B Sonication Extrac Initial/Final: 30.2 g / 10 mL

QC Batch: 0913907 Sequence: 9K24063 Calibration: 9K24014 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	42	42	5.4	U
11104-28-2	PCB-1221	1	42	42	9.9	U
11141-16-5	PCB-1232	1	42	42	5.7	U
53469-21-9	PCB-1242	1	85	85	5.9	U
12672-29-6	PCB-1248	1	42	42	8.3	U
11097-69-1	PCB-1254	1	42	42	7.5	U
11096-82-5	PCB-1260	1	85	85	6.4	U
37324-23-5	PCB-1262	1	42	42	6.6	U
11100-14-4	PCB-1268	1	42	42	8.3	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	42.2	35.7	85	60 - 125	
Tetrachloro-m-xylene	42.2	38.0	90	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07 File ID: A49_414-0

Sampled: 11/11/09 15:00 Prepared: 11/19/09 08:29 Analyzed: 12/02/09 00:16

Solids: 84.57 Preparation: 3550B Sonication Extrac Initial/Final: 29.7 g / 10 mL

QC Batch: 0913907 Sequence: 9L04040 Calibration: 9L04017 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
12674-11-2	PCB-1016	1	39	39	5.0	U
11104-28-2	PCB-1221	1	39	39	9.2	U
11141-16-5	PCB-1232	1	39	39	5.3	U
53469-21-9	PCB-1242	1	79	79	5.4	U
12672-29-6	PCB-1248	1	39	39	7.7	U
11096-82-5	PCB-1260	1	79	79	5.9	U
37324-23-5	PCB-1262	1	39	39	6.1	U
11100-14-4	PCB-1268	1	39	39	7.7	U

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	39.8	37.4	94	60 - 125	
Tetrachloro-m-xylene	39.8	35.4	89	32 - 129	

* Values outside of QC limits

ANALYSIS DATA SHEET

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07RE1 File ID: A49_190-0

Sampled: 11/11/09 15:00 Prepared: 11/19/09 08:29 Analyzed: 11/24/09 01:16

Solids: 84.57 Preparation: 3550B Sonication Extrac Initial/Final: 29.7 g / 10 mL

QC Batch: 0913907 Sequence: 9K24059 Calibration: 9K24012 Instrument: 144

CAS No.	Analyte	Dilution	CONC. (ug/kg dry)	MRL	MDL	Q
11097-69-1	PCB-1254	2	550	78	14	J,P

System Monitoring Compound	ADDED (ug/kg dry)	CONC (ug/kg dry)	% Rec.	QC Limits	Q
Decachlorobiphenyl	39.8	35.6	89	60 - 125	
Tetrachloro-m-xylene	39.8	40.5	102	32 - 129	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79554

12/22/09

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: data014-0

Sampled: 11/11/09 11:20 Prepared: 11/20/09 08:23 Analyzed: 11/24/09 13:33

Solids: 78.26 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25021 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U IS,C
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.40	96	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-02 File ID: data015-0

Sampled: 11/11/09 11:45 Prepared: 11/20/09 08:23 Analyzed: 11/24/09 14:15

Solids: 68.74 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25021 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U VJ,c
98-95-3	Nitrobenzene	1	2.5	2.5	0.045	U
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.00	80	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03 File ID: data016-0

Sampled: 11/11/09 12:00 Prepared: 11/20/09 08:23 Analyzed: 11/24/09 14:57

Solids: 81.00 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25021 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U
98-95-3	Nitrobenzene	1	0.053	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.39	95	57 - 139	

* Values outside of QC limits

Use 2nd column results. AS 12/21/09

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SS5

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-03RE1 File ID: data007-0

Sampled: 11/11/09 12:00 Prepared: 11/20/09 08:23 Analyzed: 11/25/09 12:28

Solids: 81.00 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25079 Calibration: 9F26006 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U
98-95-3	Nitrobenzene	1	0.094	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.41	97	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

DUP

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-04
File ID: data017-0
Sampled: 11/11/09 00:00
Prepared: 11/20/09 08:23
Analyzed: 11/24/09 15:39
Solids: 78.32
Preparation: 8330 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914009
Sequence: 9K25021
Calibration: 9F23012
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJc
98-95-3	Nitrobenzene	1	0.093	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.43	97	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

DUP

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-04RE1 File ID: data008-0

Sampled: 11/11/09 00:00 Prepared: 11/20/09 08:23 Analyzed: 11/25/09 13:00

Solids: 78.32 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25079 Calibration: 9F26006 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U
98-95-3	Nitrobenzene	1	0.088	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.34	93	57 - 139	

* Values outside of QC limits

See primary column results AS 12/21/09

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SB1B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-05 File ID: data018-0

Sampled: 11/11/09 13:30 Prepared: 11/20/09 08:23 Analyzed: 11/24/09 16:23

Solids: 81.26 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25021 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	0.11	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.12	85	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-05RE1
File ID: data009-0
Sampled: 11/11/09 13:30
Prepared: 11/20/09 08:23
Analyzed: 11/25/09 13:33
Solids: 81.26
Preparation: 8330 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914009
Sequence: 9K25079
Calibration: 9F26006
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U
98-95-3	Nitrobenzene	1	0.082	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.07	83	57 - 139	

* Values outside of QC limits

Use primary column
ds 12/2/09

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

72SB2B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-06 File ID: data019-0

Sampled: 11/11/09 14:40 Prepared: 11/20/09 08:23 Analyzed: 11/24/09 17:07

Solids: 78.45 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25021 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U 0.5,c
98-95-3	Nitrobenzene	1	0.079	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.33	93	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-06RE1
File ID: data010-0
Sampled: 11/11/09 14:40
Prepared: 11/20/09 08:23
Analyzed: 11/25/09 14:05
Solids: 78.45
Preparation: 8330 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914009
Sequence: 9K25079
Calibration: 9F26006
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U
98-95-3	Nitrobenzene	1	0.10	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.46	98	57 - 139	

* Values outside of QC limits

Use primary column
dh 12/21/09

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07 File ID: data020-0

Sampled: 11/11/09 15:00 Prepared: 11/20/09 08:23 Analyzed: 11/24/09 17:49

Solids: 84.57 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25021 Calibration: 9F23012 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U UJ,c
98-95-3	Nitrobenzene	1	0.10	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.54	102	57 - 139	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8330

72SB3B

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-07RE1 File ID: data011-0

Sampled: 11/11/09 15:00 Prepared: 11/20/09 08:23 Analyzed: 11/25/09 14:37

Solids: 84.57 Preparation: 8330 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914009 Sequence: 9K25079 Calibration: 9F26006 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
99-35-4	1,3,5-Trinitrobenzene	1	2.5	2.5	0.12	U
99-65-0	1,3-Dinitrobenzene	1	2.5	2.5	0.11	U
118-96-7	2,4,6-Trinitrotoluene	1	2.5	2.5	0.16	U
121-14-2	2,4-Dinitrotoluene	1	2.5	2.5	0.23	U
606-20-2	2,6-Dinitrotoluene	1	2.5	2.5	0.23	U
35572-78-2	2-Amino-4,6-dinitrotoluene	1	2.5	2.5	0.21	U
88-72-2	2-Nitrotoluene	1	2.5	2.5	0.14	U
99-08-1	3-Nitrotoluene	1	2.5	2.5	0.25	U
1946-51-0	4-Amino-2,6-dinitrotoluene	1	2.5	2.5	0.16	U
99-99-0	4-Nitrotoluene	1	2.5	2.5	0.27	U
121-82-4	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	1	2.5	2.5	0.039	U
479-45-8	Methyl-2,4,6-trinitrophenylnitramine (Tetryl)	1	2.5	2.5	0.046	U
98-95-3	Nitrobenzene	1	0.076	2.5	0.045	J
2691-41-0	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1	2.5	2.5	0.12	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
4-Nitroaniline	2.50	2.36	94	57 - 139	

* Values outside of QC limits

Use primary column
12/24/09

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79554

Laboratory: TriMatrix Laboratories, Inc. SDG: SSP1109

Client: URS Corporation Project: RFAAP SSP at Six Sites

Matrix: Soil Laboratory ID: 0911250-01 File ID: data005-0

Sampled: 11/11/09 11:20 Prepared: 11/21/09 08:24 Analyzed: 11/26/09 11:49

Solids: 78.26 Preparation: 8332 Extraction Initial/Final: 2 g / 20 mL

QC Batch: 0914010 Sequence: 9K27006 Calibration: 9H26020 Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.37	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-02
File ID: data006-0
Sampled: 11/11/09 11:45
Prepared: 11/21/09 08:24
Analyzed: 11/26/09 12:03
Solids: 68.74
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914010
Sequence: 9K27006
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.31	92	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79SS5

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-03
File ID: data007-0
Sampled: 11/11/09 12:00
Prepared: 11/21/09 08:24
Analyzed: 11/26/09 12:18
Solids: 81.00
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914010
Sequence: 9K27006
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.34	93	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

DUP

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-04
File ID: data008-0
Sampled: 11/11/09 00:00
Prepared: 11/21/09 08:24
Analyzed: 11/26/09 12:32
Solids: 78.32
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914010
Sequence: 9K27006
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.33	93	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-05
File ID: data009-0
Sampled: 11/11/09 13:30
Prepared: 11/21/09 08:24
Analyzed: 11/26/09 12:46
Solids: 81.26
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914010
Sequence: 9K27006
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.38	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-06
File ID: data010-0
Sampled: 11/11/09 14:40
Prepared: 11/21/09 08:24
Analyzed: 11/26/09 13:00
Solids: 78.45
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914010
Sequence: 9K27006
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.37	95	50 - 150	

* Values outside of QC limits

ORGANIC ANALYSIS DATA SHEET
USEPA-8332

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0911250-07
File ID: data011-0
Sampled: 11/11/09 15:00
Prepared: 11/21/09 08:24
Analyzed: 11/26/09 13:15
Solids: 84.57
Preparation: 8332 Extraction
Initial/Final: 2 g / 20 mL
QC Batch: 0914010
Sequence: 9K27006
Calibration: 9H26020
Instrument: 221

CAS No.	Analyte	Dilution	CONC. (mg/kg dry	MRL	MDL	Q
55-63-0	Nitroglycerin	1	5.0	5.0	0.29	U
78-11-5	Pentaerythritol Tetranitrate	1	5.0	5.0	0.25	U

System Monitoring Compound	ADDED (mg/kg dry	CONC (mg/kg dry	% REC.	QC Limits	Q
1-Nitronaphthalene	2.50	2.38	95	50 - 150	

* Values outside of QC limits

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79554 SS
Ag 12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:20
Solids: 78.26
Laboratory ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5429 g / 250 mL
QC Batch: 0913884

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.9	mg/kg dry wt.	1	0.092	0.028		11/23/09 16:04
7440-50-8	Copper, Total L,M	13	mg/kg dry wt.	1	0.18	0.040		11/23/09 16:04
7439-92-1	Lead, Total	16	mg/kg dry wt.	1	0.18	0.045		11/23/09 16:04
7440-02-0	Nickel, Total	12	mg/kg dry wt.	1	0.092	0.023		11/23/09 16:04
7782-49-2	Selenium, Total L,M	0.19	mg/kg dry wt.	1	0.18	0.045		11/23/09 16:04
7440-22-4	Silver, Total L,M	0.062	mg/kg dry wt.	1	0.092	0.0099	J	11/23/09 16:04
7440-28-0	Thallium, Total	0.20	mg/kg dry wt.	1	0.092	0.0056		11/23/09 16:04
7440-62-2	Vanadium, Total L,M	43	mg/kg dry wt.	2	0.18	0.060		11/23/09 16:54

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79554 SS

AB 12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:20
Solids: 78.26
Laboratory ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/20/09 16:45
Initial/Final: 0.5 g / 250 mL
QC Batch: 0914070

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.18	mg/kg dry wt.	1	0.20	0.037	J	11/21/09 11:59

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:45
Solids: 68.74
Laboratory ID: 0911250-02

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5036 g / 250 mL
QC Batch: 0913884

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	3.4	mg/kg dry wt.	1	0.10	0.030		11/23/09 16:27
7440-50-8	Copper, Total L,M	37	mg/kg dry wt.	1	0.20	0.043		11/23/09 16:27
7439-92-1	Lead, Total	6.7	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:27
7440-02-0	Nickel, Total	16	mg/kg dry wt.	1	0.10	0.025		11/23/09 16:27
7782-49-2	Selenium, Total L,M	0.34	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:27
7440-22-4	Silver, Total L,M	0.057	mg/kg dry wt.	1	0.10	0.011	J	11/23/09 16:27
7440-28-0	Thallium, Total	0.076	mg/kg dry wt.	1	0.10	0.0061	J	11/23/09 16:27
7440-62-2	Vanadium, Total L,M	31	mg/kg dry wt.	1	0.10	0.032		11/23/09 16:27

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:45
Solids: 68.74
Laboratory ID: 0911250-02

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/20/09 16:45
Initial/Final: 0.5105 g / 250 mL
QC Batch: 0914070

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.10	mg/kg dry wt.	1	0.20	0.037	J	11/21/09 12:11

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 12:00
Solids: 81.00
Laboratory ID: 0911250-03

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5008 g / 250 mL
QC Batch: 0913884

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.9	mg/kg dry wt.	1	0.10	0.030		11/23/09 16:30
7440-50-8	Copper, Total L,M	14	mg/kg dry wt.	1	0.20	0.043		11/23/09 16:30
7439-92-1	Lead, Total	43	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:30
7440-02-0	Nickel, Total	10	mg/kg dry wt.	1	0.10	0.025		11/23/09 16:30
7782-49-2	Selenium, Total L,M	0.25	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:30
7440-22-4	Silver, Total L,M	0.063	mg/kg dry wt.	1	0.10	0.011	J	11/23/09 16:30
7440-28-0	Thallium, Total	0.23	mg/kg dry wt.	1	0.10	0.0061		11/23/09 16:30
7440-62-2	Vanadium, Total L,M	31	mg/kg dry wt.	1	0.10	0.032		11/23/09 16:30

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 12:00
Solids: 81.00
Laboratory ID: 0911250-03

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/20/09 16:45
Initial/Final: 0.5368 g / 250 mL
QC Batch: 0914070

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.25	mg/kg dry wt.	1	0.19	0.034		11/21/09 12:13

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 00:00
Solids: 78.32
Laboratory ID: 0911250-04

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5199 g / 250 mL
QC Batch: 0913884

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.9	mg/kg dry wt.	1	0.10	0.030		11/23/09 16:33
7440-50-8	Copper, Total L,M	13	mg/kg dry wt.	1	0.20	0.043		11/23/09 16:33
7439-92-1	Lead, Total	43	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:33
7440-02-0	Nickel, Total	10	mg/kg dry wt.	1	0.10	0.025		11/23/09 16:33
7782-49-2	Selenium, Total L,M	0.22	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:33
7440-22-4	Silver, Total L,M	0.060	mg/kg dry wt.	1	0.10	0.011	J	11/23/09 16:33
7440-28-0	Thallium, Total	0.22	mg/kg dry wt.	1	0.10	0.0061		11/23/09 16:33
7440-62-2	Vanadium, Total L,M	33	mg/kg dry wt.	1	0.10	0.032		11/23/09 16:33

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

DUP

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 00:00
Solids: 78.32
Laboratory ID: 0911250-04

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/20/09 16:45
Initial/Final: 0.5316 g / 250 mL
QC Batch: 0914070

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.27	mg/kg dry wt.	1	0.19	0.035		11/21/09 12:20

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 13:30
Solids: 81.26
Laboratory ID: 0911250-05

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5026 g / 250 mL
QC Batch: 0913884

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total Lim	1.2	mg/kg dry wt.	1	0.10	0.030		11/23/09 16:45
7440-50-8	Copper, Total Lim	13	mg/kg dry wt.	1	0.20	0.043		11/23/09 16:45
7439-92-1	Lead, Total	4.2	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:45
7440-02-0	Nickel, Total	10	mg/kg dry wt.	1	0.10	0.025		11/23/09 16:45
7782-49-2	Selenium, Total Lim	0.13	mg/kg dry wt.	1	0.20	0.049	J	11/23/09 16:45
7440-22-4	Silver, Total Lim	0.049	mg/kg dry wt.	1	0.10	0.011	J	11/23/09 16:45
7440-28-0	Thallium, Total	0.075	mg/kg dry wt.	1	0.10	0.0061	J	11/23/09 16:45
7440-62-2	Vanadium, Total Lim	41	mg/kg dry wt.	1	0.10	0.032		11/23/09 16:45

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 13:30
Solids: 81.26
Laboratory ID: 0911250-05

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/20/09 16:45
Initial/Final: 0.505 g / 250 mL
QC Batch: 0914070

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.11	mg/kg dry wt.	1	0.20	0.037	J	11/21/09 12:22

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 14:40
Solids: 78.45
Laboratory ID: 0911250-06

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5482 g / 250 mL
QC Batch: 0913884

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,M	2.2	mg/kg dry wt.	1	0.091	0.027		11/23/09 16:48
7440-50-8	Copper, Total L,M	14	mg/kg dry wt.	1	0.18	0.039		11/23/09 16:48
7439-92-1	Lead, Total	12	mg/kg dry wt.	1	0.18	0.045		11/23/09 16:48
7440-02-0	Nickel, Total	15	mg/kg dry wt.	1	0.091	0.023		11/23/09 16:48
7782-49-2	Selenium, Total UL,M	0.18	mg/kg dry wt.	1	0.18	0.045	U	11/23/09 16:48
7440-22-4	Silver, Total L,M	0.044	mg/kg dry wt.	1	0.091	0.0099	J	11/23/09 16:48
7440-28-0	Thallium, Total	0.23	mg/kg dry wt.	1	0.091	0.0056		11/23/09 16:48
7440-62-2	Vanadium, Total L,M	63	mg/kg dry wt.	2	0.18	0.059		11/23/09 17:13

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 14:40
Solids: 78.45
Laboratory ID: 0911250-06

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/20/09 16:45
Initial/Final: 0.5145 g / 250 mL
QC Batch: 0914070

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.18	mg/kg dry wt.	1	0.20	0.037	J	11/21/09 12:24

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 15:00
Solids: 84.57
Laboratory ID: 0911250-07

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5252 g / 250 mL
QC Batch: 0913884

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-38-2	Arsenic, Total L,m	1.7	mg/kg dry wt.	1	0.10	0.030		11/23/09 16:51
7440-50-8	Copper, Total L,m	13	mg/kg dry wt.	1	0.20	0.043		11/23/09 16:51
7439-92-1	Lead, Total	19	mg/kg dry wt.	1	0.20	0.049		11/23/09 16:51
7440-02-0	Nickel, Total	13	mg/kg dry wt.	1	0.10	0.025		11/23/09 16:51
7782-49-2	Selenium, Total UL,m	0.20	mg/kg dry wt.	1	0.20	0.049	U	11/23/09 16:51
7440-22-4	Silver, Total L,m	0.041	mg/kg dry wt.	1	0.10	0.011	J	11/23/09 16:51
7440-28-0	Thallium, Total	0.21	mg/kg dry wt.	1	0.10	0.0061		11/23/09 16:51
7440-62-2	Vanadium, Total L,m	55	mg/kg dry wt.	2	0.20	0.065		11/23/09 17:16

INORGANIC ANALYSIS DATA SHEET
USEPA-6020A

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 15:00
Solids: 84.57
Laboratory ID: 0911250-07

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/20/09 16:45
Initial/Final: 0.5079 g / 250 mL
QC Batch: 0914070

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7440-36-0	Antimony, Total	0.14	mg/kg dry wt.	1	0.20	0.037	J	11/21/09 12:26

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79554 SS

AK, 12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:20
Solids: 78.26
Laboratory ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5015 g / 50 mL
QC Batch: 0913883

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	17000	mg/kg dry wt.	100	1000	180		11/20/09 15:02
7440-39-3	Barium, Total K, M	87	mg/kg dry wt.	1	1.0	0.28		11/20/09 13:31
7440-41-7	Beryllium, Total	0.72	mg/kg dry wt.	1	1.0	0.035	J	11/20/09 13:31
7440-43-9	Cadmium, Total	1.1	mg/kg dry wt.	1	2.0	0.24	J	11/20/09 13:31
7440-70-2	Calcium, Total	860	mg/kg dry wt.	1	50	8.7		11/20/09 13:31
7440-47-3	Chromium, Total	23	mg/kg dry wt.	1	5.0	0.74		11/20/09 13:31
7440-48-4	Cobalt, Total	8.9	mg/kg dry wt.	1	2.0	0.44		11/20/09 13:31
7439-89-6	Iron, Total	26000	mg/kg dry wt.	500	5000	230		11/23/09 14:09
7439-95-4	Magnesium, Total	1800	mg/kg dry wt.	1	50	4.4		11/20/09 13:31
7439-96-5	Manganese, Total	630	mg/kg dry wt.	10	10	2.1		11/20/09 15:13
7440-09-7	Potassium, Total	1300	mg/kg dry wt.	1	50	6.8		11/20/09 13:31
7440-23-5	Sodium, Total L, O	9.8	mg/kg dry wt.	1	100	5.4	J	11/23/09 14:46
7440-66-6	Zinc, Total	43	mg/kg dry wt.	1	5.0	0.79		11/20/09 13:31

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:45
Solids: 68.74
Laboratory ID: 0911250-02

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5009 g / 50 mL
QC Batch: 0913883

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	16000	mg/kg dry wt.	1	10	1.8		11/20/09 13:59
7440-39-3	Barium, Total K,M	71	mg/kg dry wt.	1	1.0	0.28		11/20/09 13:59
7440-41-7	Beryllium, Total	0.91	mg/kg dry wt.	1	1.0	0.035	J	11/20/09 13:59
7440-43-9	Cadmium, Total	1.8	mg/kg dry wt.	1	2.0	0.24	J	11/20/09 13:59
7440-70-2	Calcium, Total	250	mg/kg dry wt.	1	50	8.7		11/20/09 13:59
7440-47-3	Chromium, Total	34	mg/kg dry wt.	1	5.0	0.74		11/20/09 13:59
7440-48-4	Cobalt, Total	7.1	mg/kg dry wt.	1	2.0	0.44		11/20/09 13:59
7439-89-6	Iron, Total	43000	mg/kg dry wt.	1	10	0.47		11/23/09 14:19
7439-95-4	Magnesium, Total	920	mg/kg dry wt.	1	50	4.4		11/20/09 13:59
7439-96-5	Manganese, Total	710	mg/kg dry wt.	1	1.0	0.21		11/20/09 13:59
7440-09-7	Potassium, Total	1500	mg/kg dry wt.	1	50	6.8		11/20/09 13:59
7440-23-5	Sodium, Total L,O	13	mg/kg dry wt.	1	100	5.4	J	11/23/09 14:19
7440-66-6	Zinc, Total	33	mg/kg dry wt.	1	5.0	0.79		11/20/09 13:59

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 12:00
Solids: 81.00
Laboratory ID: 0911250-03

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5296 g / 50 mL
QC Batch: 0913883

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	13000	mg/kg dry wt.	1	10	1.8		11/20/09 14:05
7440-39-3	Barium, Total K, M	100	mg/kg dry wt.	1	1.0	0.28		11/20/09 14:05
7440-41-7	Beryllium, Total	0.94	mg/kg dry wt.	1	1.0	0.035	J	11/20/09 14:05
7440-43-9	Cadmium, Total	1.1	mg/kg dry wt.	1	2.0	0.24	J	11/20/09 14:05
7440-70-2	Calcium, Total	2800	mg/kg dry wt.	1	50	8.7		11/20/09 14:05
7440-47-3	Chromium, Total	20	mg/kg dry wt.	1	5.0	0.74		11/20/09 14:05
7440-48-4	Cobalt, Total	7.1	mg/kg dry wt.	1	2.0	0.44		11/20/09 14:05
7439-89-6	Iron, Total	22000	mg/kg dry wt.	1	10	0.47		11/23/09 14:22
7439-95-4	Magnesium, Total	2800	mg/kg dry wt.	1	50	4.4		11/20/09 14:05
7439-96-5	Manganese, Total	530	mg/kg dry wt.	1	1.0	0.21		11/20/09 14:05
7440-09-7	Potassium, Total	1300	mg/kg dry wt.	1	50	6.8		11/20/09 14:05
7440-23-5	Sodium, Total L, O	27	mg/kg dry wt.	1	100	5.4	J	11/23/09 14:22
7440-66-6	Zinc, Total	120	mg/kg dry wt.	1	5.0	0.79		11/20/09 14:05

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

DUP

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 00:00
Solids: 78.32
Laboratory ID: 0911250-04

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5036 g / 50 mL
QC Batch: 0913883

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	14000	mg/kg dry wt.	1	10	1.8		11/20/09 14:11
7440-39-3	Barium, Total K,M	95	mg/kg dry wt.	1	1.0	0.28		11/20/09 14:11
7440-41-7	Beryllium, Total	0.79	mg/kg dry wt.	1	1.0	0.035	J	11/20/09 14:11
7440-43-9	Cadmium, Total	1.1	mg/kg dry wt.	1	2.0	0.24	J	11/20/09 14:11
7440-70-2	Calcium, Total	3300	mg/kg dry wt.	1	50	8.7		11/20/09 14:11
7440-47-3	Chromium, Total	20	mg/kg dry wt.	1	5.0	0.74		11/20/09 14:11
7440-48-4	Cobalt, Total	6.4	mg/kg dry wt.	1	2.0	0.44		11/20/09 14:11
7439-89-6	Iron, Total	21000	mg/kg dry wt.	1	10	0.47		11/23/09 14:26
7439-95-4	Magnesium, Total	3000	mg/kg dry wt.	1	50	4.4		11/20/09 14:11
7439-96-5	Manganese, Total	450	mg/kg dry wt.	1	1.0	0.21		11/20/09 14:11
7440-09-7	Potassium, Total	1200	mg/kg dry wt.	1	50	6.8		11/20/09 14:11
7440-23-5	Sodium, Total L,O	24	mg/kg dry wt.	1	100	5.4	J	11/23/09 14:26
7440-66-6	Zinc, Total	100	mg/kg dry wt.	1	5.0	0.79		11/20/09 14:11

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 13:30
Solids: 81.26
Laboratory ID: 0911250-05

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5223 g / 50 mL
QC Batch: 0913883

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	15000	mg/kg dry wt.	1	10	1.8		11/20/09 14:33
7440-39-3	Barium, Total K,M	58	mg/kg dry wt.	1	1.0	0.28		11/20/09 14:33
7440-41-7	Beryllium, Total	1.1	mg/kg dry wt.	1	1.0	0.035		11/20/09 14:33
7440-43-9	Cadmium, Total	0.93	mg/kg dry wt.	1	2.0	0.24	J	11/20/09 14:33
7440-70-2	Calcium, Total	450	mg/kg dry wt.	1	50	8.7		11/20/09 14:33
7440-47-3	Chromium, Total	28	mg/kg dry wt.	1	5.0	0.74		11/20/09 14:33
7440-48-4	Cobalt, Total	3.4	mg/kg dry wt.	1	2.0	0.44		11/20/09 14:33
7439-89-6	Iron, Total	23000	mg/kg dry wt.	1	10	0.47		11/23/09 14:29
7439-95-4	Magnesium, Total	1200	mg/kg dry wt.	1	50	4.4		11/20/09 14:33
7439-96-5	Manganese, Total	54	mg/kg dry wt.	1	1.0	0.21		11/20/09 14:33
7440-09-7	Potassium, Total	830	mg/kg dry wt.	1	50	6.8		11/20/09 14:33
7440-23-5	Sodium, Total L,O	10	mg/kg dry wt.	1	100	5.4	J	11/23/09 14:29
7440-66-6	Zinc, Total	32	mg/kg dry wt.	1	5.0	0.79		11/20/09 14:33

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 14:40
Solids: 78.45
Laboratory ID: 0911250-06

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.5455 g / 50 mL
QC Batch: 0913883

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	25000	mg/kg dry wt.	1	9.2	1.7		11/20/09 14:39
7440-39-3	Barium, Total K, M	91	mg/kg dry wt.	1	0.92	0.26		11/20/09 14:39
7440-41-7	Beryllium, Total	0.44	mg/kg dry wt.	1	0.92	0.032	J	11/20/09 14:39
7440-43-9	Cadmium, Total	1.5	mg/kg dry wt.	1	1.8	0.22	J	11/20/09 14:39
7440-70-2	Calcium, Total	930	mg/kg dry wt.	1	46	8.0		11/20/09 14:39
7440-47-3	Chromium, Total	28	mg/kg dry wt.	1	4.6	0.68		11/20/09 14:39
7440-48-4	Cobalt, Total	13	mg/kg dry wt.	1	1.8	0.41		11/20/09 14:39
7439-89-6	Iron, Total	31000	mg/kg dry wt.	1	9.2	0.43		11/23/09 14:33
7439-95-4	Magnesium, Total	2100	mg/kg dry wt.	1	46	4.1		11/20/09 14:39
7439-96-5	Manganese, Total	510	mg/kg dry wt.	1	0.92	0.20		11/20/09 14:39
7440-09-7	Potassium, Total	1500	mg/kg dry wt.	1	46	6.3		11/20/09 14:39
7440-23-5	Sodium, Total L, O	27	mg/kg dry wt.	1	92	4.9	J	11/23/09 14:33
7440-66-6	Zinc, Total	56	mg/kg dry wt.	1	4.6	0.72		11/20/09 14:39

INORGANIC ANALYSIS DATA SHEET
USEPA-6010B

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 15:00
Solids: 84.57
Laboratory ID: 0911250-07

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3050B Digestion
Prepared: 11/18/09 07:00
Initial/Final: 0.506 g / 50 mL
QC Batch: 0913883

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7429-90-5	Aluminum, Total	19000	mg/kg dry wt.	1	10	1.8		11/20/09 14:44
7440-39-3	Barium, Total K,M	98	mg/kg dry wt.	1	1.0	0.28		11/20/09 14:44
7440-41-7	Beryllium, Total	0.67	mg/kg dry wt.	1	1.0	0.035	J	11/20/09 14:44
7440-43-9	Cadmium, Total	1.4	mg/kg dry wt.	1	2.0	0.24	J	11/20/09 14:44
7440-70-2	Calcium, Total	1100	mg/kg dry wt.	1	50	8.7		11/20/09 14:44
7440-47-3	Chromium, Total	24	mg/kg dry wt.	1	5.0	0.74		11/20/09 14:44
7440-48-4	Cobalt, Total	12	mg/kg dry wt.	1	2.0	0.44		11/20/09 14:44
7439-89-6	Iron, Total	30000	mg/kg dry wt.	1	10	0.47		11/23/09 14:43
7439-95-4	Magnesium, Total	2500	mg/kg dry wt.	1	50	4.4		11/20/09 14:44
7439-96-5	Manganese, Total	500	mg/kg dry wt.	1	1.0	0.21		11/20/09 14:44
7440-09-7	Potassium, Total	1600	mg/kg dry wt.	1	50	6.8		11/20/09 14:44
7440-23-5	Sodium, Total L,C	22	mg/kg dry wt.	1	100	5.4	J	11/23/09 14:43
7440-66-6	Zinc, Total	57	mg/kg dry wt.	1	5.0	0.79		11/20/09 14:44

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79554 SS

AB 12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:20
Solids: 78.26
Laboratory ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 11/17/09 16:00
Initial/Final: 0.3114 g / 50 mL
QC Batch: 0913798

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.044	mg/kg dry wt.	1	0.050	0.0080	J	11/18/09 11:25

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:45
Solids: 68.74
Laboratory ID: 0911250-02

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 11/17/09 16:00
Initial/Final: 0.3014 g / 50 mL
QC Batch: 0913798

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.025	mg/kg dry wt.	1	0.050	0.0080	J	11/18/09 11:50

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 12:00
Solids: 81.00
Laboratory ID: 0911250-03

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 11/17/09 16:00
Initial/Final: 0.3011 g / 50 mL
QC Batch: 0913798

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.042	mg/kg dry wt.	1	0.050	0.0080	J	11/18/09 11:55

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

DUP

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 00:00
Solids: 78.32
Laboratory ID: 0911250-04

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 11/17/09 16:00
Initial/Final: 0.3044 g / 50 mL
QC Batch: 0913798

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.039	mg/kg dry wt.	1	0.050	0.0080	J	11/18/09 12:00

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 13:30
Solids: 81.26
Laboratory ID: 0911250-05

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 11/17/09 16:00
Initial/Final: 0.3085 g / 50 mL
QC Batch: 0913798

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.040	mg/kg dry wt.	1	0.050	0.0080	J	11/18/09 12:05

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 14:40
Solids: 78.45
Laboratory ID: 0911250-06

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 11/17/09 16:00
Initial/Final: 0.3006 g / 50 mL
QC Batch: 0913798

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.066	mg/kg dry wt.	1	0.050	0.0080		11/18/09 12:10

INORGANIC ANALYSIS DATA SHEET
USEPA-7471A

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 15:00
Solids: 84.57
Laboratory ID: 0911250-07

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 7471A Mercury Digestion
Prepared: 11/17/09 16:00
Initial/Final: 0.3032 g / 50 mL
QC Batch: 0913798

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
7439-97-6	Mercury, Total	0.037	mg/kg dry wt.	1	0.050	0.0080	J	11/18/09 12:15

INORGANIC ANALYSIS DATA SHEET
USEPA-9014

79554 SS

12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:20
Solids: 78.26
Laboratory ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 11/18/09 07:00
Initial/Final: 25.93 g / 250 mL
QC Batch: 0913853

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.38	mg/kg dry	1	0.38	0.085	U	11/21/09 12:35

INORGANIC ANALYSIS DATA SHEET
USEPA-9014

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:45
Solids: 68.74
Laboratory ID: 0911250-02

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 11/18/09 07:00
Initial/Final: 24.73 g / 250 mL
QC Batch: 0913853

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.44	mg/kg dry	1	0.44	0.097	U	11/21/09 12:35

INORGANIC ANALYSIS DATA SHEET
USEPA-9014

79SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 12:00
Solids: 81.00
Laboratory ID: 0911250-03

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 11/18/09 07:00
Initial/Final: 24.93 g / 250 mL
QC Batch: 0913853

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.089	mg/kg dry	1	0.37	0.082	J	11/21/09 12:35

INORGANIC ANALYSIS DATA SHEET
USEPA-9014

DUP

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 00:00
Solids: 78.32
Laboratory ID: 0911250-04

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 11/18/09 07:00
Initial/Final: 24.64 g / 250 mL
QC Batch: 0913853

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.38	mg/kg dry	1	0.38	0.085	U	11/21/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-9014

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 13:30
Solids: 81.26
Laboratory ID: 0911250-05

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 11/18/09 07:00
Initial/Final: 24.94 g / 250 mL
QC Batch: 0913853

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.37	mg/kg dry	1	0.37	0.082	U	11/21/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-9014

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 14:40
Solids: 78.45
Laboratory ID: 0911250-06

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 11/18/09 07:00
Initial/Final: 24.71 g / 250 mL
QC Batch: 0913853

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.38	mg/kg dry	1	0.38	0.085	U	11/21/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-9014

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 15:00
Solids: 84.57
Laboratory ID: 0911250-07

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 9010B Cyanide Distillation
Prepared: 11/18/09 07:00
Initial/Final: 25.29 g / 250 mL
QC Batch: 0913853

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
57-12-5	Cyanide, Total	0.088	mg/kg dry	1	0.35	0.079	J	11/21/09 12:43

INORGANIC ANALYSIS DATA SHEET
USEPA-3550B

79554 SS

kg, 12/22/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:20
Solids: 78.26
Laboratory ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: General Inorganic Prep
Prepared: 11/16/09 20:06
Initial/Final: 10 g / 10 mL
QC Batch: 0913731

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
	Percent Solids	78	%	1	0.1	0.1		11/16/09 20:06

INORGANIC ANALYSIS DATA SHEET
USEPA-3550B

79SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 11:45
Solids: 68.74
Laboratory ID: 0911250-02

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: General Inorganic Prep
Prepared: 11/16/09 20:06
Initial/Final: 10 g / 10 mL
QC Batch: 0913731

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
	Percent Solids	69	%	1	0.1	0.1		11/16/09 20:06

INORGANIC ANALYSIS DATA SHEET
USEPA-3550B

79SS5

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 12:00
Solids: 81.00
Laboratory ID: 0911250-03

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: General Inorganic Prep
Prepared: 11/16/09 20:06
Initial/Final: 10 g / 10 mL
QC Batch: 0913731

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
	Percent Solids	81	%	1	0.1	0.1		11/16/09 20:06

INORGANIC ANALYSIS DATA SHEET
USEPA-3550B

DUP

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 00:00
Solids: 78.32
Laboratory ID: 0911250-04

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: General Inorganic Prep
Prepared: 11/16/09 20:06
Initial/Final: 10 g / 10 mL
QC Batch: 0913731

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
	Percent Solids	78	%	1	0.1	0.1		11/16/09 20:06

INORGANIC ANALYSIS DATA SHEET
USEPA-3550B

79SB1B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 13:30
Solids: 81.26
Laboratory ID: 0911250-05

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: General Inorganic Prep
Prepared: 11/16/09 20:06
Initial/Final: 10 g / 10 mL
QC Batch: 0913731

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
	Percent Solids	81	%	1	0.1	0.1		11/16/09 20:06

INORGANIC ANALYSIS DATA SHEET
USEPA-3550B

72SB2B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 14:40
Solids: 78.45
Laboratory ID: 0911250-06

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: General Inorganic Prep
Prepared: 11/16/09 20:06
Initial/Final: 10 g / 10 mL
QC Batch: 0913731

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
	Percent Solids	78	%	1	0.1	0.1		11/16/09 20:06

INORGANIC ANALYSIS DATA SHEET
USEPA-3550B

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 15:00
Solids: 84.57
Laboratory ID: 0911250-07

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: General Inorganic Prep
Prepared: 11/16/09 20:06
Initial/Final: 10 g / 10 mL
QC Batch: 0913731

CAS No.	Analyte	Conc.	Units	Dil. Factor	MRL	MDL	Q	Analyzed
	Percent Solids	85	%	1	0.1	0.1		11/16/09 20:06

DATA VALIDATION WORKSHEET

Volatile Organic Analysis by GC/MS

Reviewer: Andrea Sansom
Date: December 21, 2009
DV Level: II III IV
Review Document:
X NFG - Region III Modifications
X Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP1109
Test Name: 8260B
Method No.: VOC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If the temperature of the cooler was elevated (> 10 ^{O}C) or bubble size in aqueous sample was too big (tiny bubble is OK.), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous unpreserved - 7 days for aromatic compounds All others - 14 days.		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per GCMS, 20 samples, batch, matrix, and level)?	X		
3.2	Do any method blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common volatile lab contaminants - methylene chloride, acetone, and 2-butanone) the amount in the associated blank.	X		
3.3	Do any field equipment blanks/trip blanks have positive results? If Yes, use same rules above.			X
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the DV report.		X	

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 15% and %D < ± 20%		X	
	For initial Calibration: for %RSD > ± 15%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < control limit? Control limits: >0.10 for chloromethane, 1,1-dichloroethane, & bromoform or >0.30 for chlorobenzene & 1,1,2,2-tetrachloroethane. If yes, L(+)/R(-).		X	

Notes:

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for bromofluorobenzene (BFB)?	X		
5.2	Are BFB enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
5.3	Have all samples been analyzed within twelve hours of the BFB tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for BFB been met for each instrument used?	X		
	If the BFB criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery							Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?						X		
6.2	Are surrogate recoveries within acceptance criteria (not to exceed 50-150%) for all samples and method blanks?						X		
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?								X
	If any system monitoring compound(s) in the volatile fraction is out of specification, there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.								
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? DV report should indicate that extraction efficiency/ method accuracy cannot be verified.								X
		1 or more <10%	1 high/low	2 or 3 high/low	2 or 3 all low	2 or 3 all high			
	Positives	L	J	J	L	K			
	Non-detects	R	UJ	UJ	UL	NONE			
	Note: The B qualifier remains over surrogate flagging.								

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 50-150%?	X		
7.4	Are there any RPD outside the QC limits not to exceed 50%?	X		
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 50-150%?	X		
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?			X
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).	X		
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Was a field duplicate prepared and analyzed at the correct frequency (one per 20 samples, matrix, and level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted to reflect all sample dilutions and dry weight factors?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".	X		

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 15			
	Number of target compounds in each analysis: 50			
	Number of results rejected and not reported: 7			
	% Completeness = 99%			

Notes:

SECOND-SOURCE CALIBRATION VERIFICATION

USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Calibration: 9K25001
Laboratory ID: 9K25008-SCV1
Sequence: 9K25008
Standard ID: 9100386

trans-1,3-Dichloropropene	40.0	42.0	105	75-125
Ethylbenzene	40.0	45.4	114	75-125
2-Hexanone	40.0	38.3	96	75-125
Isopropylbenzene	40.0	37.0	93	75-125
Methyl Acetate	40.0	48.1	120	75-125
Methyl tert-Butyl Ether	40.0	38.2	96	75-125
Methylcyclohexane	40.0	42.1	105	75-125
Methylene Chloride	40.0	53.0	133 *	75-125
2-Butanone (MEK)	40.0	38.6	97	75-125
4-Methyl-2-pentanone (MIBK)	40.0	38.8	97	75-125
Styrene	40.0	43.6	109	75-125
1,1,2,2-Tetrachloroethane	40.0	42.8	107	75-125
Tetrachloroethene	40.0	43.4	109	75-125
Toluene	40.0	43.6	109	75-125
1,2,3-Trichlorobenzene	40.0	43.8	110	75-125
1,2,4-Trichlorobenzene	40.0	42.5	106	75-125
1,1,1-Trichloroethane	40.0	46.7	117	75-125
1,1,2-Trichloroethane	40.0	47.9	120	75-125
Trichloroethene	40.0	44.3	111	75-125
Trichlorofluoromethane	40.0	38.1	95	75-125
1,1,2-Trichloro-1,2,2-trifluoroethane	40.0	45.7	114	75-125
Vinyl Chloride	40.0	45.5	114	75-125
Xylene (Total)	120	135	113	75-125
Dibromofluoromethane	40.0	40.1	100	75-125
1,2-Dichloroethane-d4	40.0	40.0	100	75-125
Toluene-d8	40.0	40.5	101	75-125
4-Bromofluorobenzene	40.0	40.3	101	75-125

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K25010

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 139
Calibration: 9K25001

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
MS Tune	9K25010-TUN1	BFB1123.D	11/23/09 07:07
Calibration Check	9K25010-CCV1	CCV1123.D	11/23/09 07:40
LCS	0914281-BS1	BS1123A.D	11/23/09 07:40
LCS	0914281-BS1	CCV1123.D	11/23/09 07:40
Blank	0914281-BLK1	BLK1123.D	11/23/09 08:45
79554	0911250-01	25001A.D	11/23/09 12:04
79SB3B	0911250-02	25002A.D	11/23/09 12:37
79SS5	0911250-03	25003A.D	11/23/09 13:10
DUP	0911250-04	25004A.D	11/23/09 13:43
79SB1B	0911250-05	25005A.D	11/23/09 14:16
72SB2B	0911250-06	25006A.D	11/23/09 14:49
72SB3B	0911250-07	25007A.D	11/23/09 15:22

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 139
Calibration: 9K25001
Lab File ID: CCV1123.D
Calibration Date: 10/07/09 00:00
Sequence: 9K25010
Injection Date: 11/23/09
Lab Sample ID: 9K25010-CCV1
Injection Time: 07:40

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift		
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)	
Acetone	L	40.0	42.4	5.099063E-02	4.878641E-02		5.9	40	
Benzene	A	40.0	45.2	0.8134045	0.9183769		12.9	25	
Bromochloromethane	A	40.0	48.4	0.2306332	0.2793304		21.1	25	+
Bromodichloromethane	A	40.0	46.6	0.2715767	0.3160851		16.4	25	
Bromoform	A	40.0	38.9	0.4672194	0.4543273	0.1	-2.8	25	
Bromomethane	L	40.0	38.3	0.1895496	0.1582645		-4.3	25	
Carbon Disulfide	L	40.0	34.9	0.5547529	0.4477271		-12.6	25	
Carbon Tetrachloride	A	40.0	43.6	0.2887988	0.3145848		8.9	25	
Chlorobenzene	A	40.0	38.3	1.692787	1.619035	0.3	-4.4	25	
Chloroethane	A	40.0	37.1	0.1087093	0.1008039		-7.3	25	
Chloroform	A	40.0	44.9	0.359228	0.4033695		12.3	20	
Chloromethane	A	40.0	32.6	0.2067389	0.1684017	0.1	-18.5	25	
Cyclohexane	A	40.0	37.0	0.4043102	0.3742424		-7.4	25	
1,2-Dibromo-3-chloropropane	A	40.0	38.8	9.995972E-02	9.705658E-02		-2.9	25	
Dibromochloromethane	A	40.0	38.8	0.6667897	0.6474355		-2.9	25	
1,2-Dibromoethane	A	40.0	40.2	0.4974152	0.4997007		0.5	25	
1,2-Dichlorobenzene	A	40.0	39.1	1.117418	1.092117		-2.3	25	
1,3-Dichlorobenzene	A	40.0	38.1	1.179984	1.12286		-4.8	25	
1,4-Dichlorobenzene	A	40.0	36.4	1.199446	1.090215		-9.1	25	
Dichlorodifluoromethane	A	40.0	29.2	0.1962169	0.1432249		-27.0	25	* —
1,1-Dichloroethane	A	40.0	46.5	0.4041378	0.4694372	0.1	16.2	25	
1,2-Dichloroethane	A	40.0	46.8	0.2731975	0.3197849		17.1	25	
1,1-Dichloroethene	A	40.0	36.9	0.1551491	0.1432868		-7.6	20	
cis-1,2-Dichloroethene	A	40.0	43.9	0.2434892	0.2672615		9.8	25	
trans-1,2-Dichloroethene	A	40.0	43.6	0.2452388	0.2673904		9.0	25	
1,2-Dichloropropane	A	40.0	45.6	0.2214707	0.2525045		14.0	20	
cis-1,3-Dichloropropene	A	40.0	45.6	0.308715	0.351776		13.9	25	
trans-1,3-Dichloropropene	A	40.0	44.6	0.2688091	0.2996618		11.5	25	
Ethylbenzene	A	40.0	40.8	2.450524	2.499526		2.0	20	

CONTINUING CALIBRATION CHECK
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 139
Calibration: 9K25001
Lab File ID: CCV1123.D
Calibration Date: 10/07/09 00:00
Sequence: 9K25010
Injection Date: 11/23/09
Lab Sample ID: 9K25010-CCV1
Injection Time: 07:40

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
2-Hexanone	L	40.0	34.8	0.3768556	0.3409276		-13.0	40
Isopropylbenzene	A	40.0	36.5	2.41979	2.206991		-8.8	25
Methyl Acetate	L	40.0	41.1	0.1828338	0.1303426		2.8	25
Methyl tert-Butyl Ether	A	40.0	45.2	0.5643909	0.6384538		13.1	25
Methylcyclohexane	A	40.0	42.1	0.2983809	0.3143617		5.4	25
Methylene Chloride	L	40.0	57.9	0.2188013	0.2657786		44.8	25 *
2-Butanone (MEK)	A	40.0	42.7	0.1224626	0.1306079		6.7	40
4-Methyl-2-pentanone (MIBK)	L	40.0	40.0	0.208439	0.2355059		-0.08	40
Styrene	A	40.0	38.0	1.720565	1.632834		-5.1	25
1,1,2,2-Tetrachloroethane	A	40.0	39.4	0.6190076	0.6091325	0.3	-1.6	25
Tetrachloroethene	A	40.0	37.8	0.6353616	0.6003286		-5.5	25
Toluene	A	40.0	45.2	0.8317767	0.9408309		13.1	20
1,2,3-Trichlorobenzene	A	40.0	39.0	0.8770645	0.8553156		-2.5	25
1,2,4-Trichlorobenzene	A	40.0	38.8	0.9364614	0.9088969		-2.9	25
1,1,1-Trichloroethane	A	40.0	44.6	0.2850667	0.317873		11.5	25
1,1,2-Trichloroethane	A	40.0	44.8	0.1458901	0.1633083		11.9	25
Trichloroethene	A	40.0	44.5	0.239907	0.266763		11.2	25
Trichlorofluoromethane	A	40.0	39.2	0.245031	0.2402571		-1.9	25
1,1,2-Trichloro-1,2,2-trifluoroeth	A	40.0	28.9	0.1662266	0.1199401		-27.8	25 *
Vinyl Chloride	A	40.0	37.2	0.170089	0.1581727		-7.0	20
Xylene (Total)	A	120	122	1.004598	1.025393		2.1	25

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

QC BATCH SUMMARY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
QC Batch: 0914281
QC Batch Matrix: Soil
Preparation: 5035 Soil Purge & Trap - MS

Sample Name	Lab Sample ID	Date Prepared	Observations
79554	0911250-01	11/23/09 07:00	
79SB3B	0911250-02	11/23/09 07:00	
79SS5	0911250-03	11/23/09 07:00	
DUP	0911250-04	11/23/09 07:00	
79SB1B	0911250-05	11/23/09 07:00	
72SB2B	0911250-06	11/23/09 07:00	
72SB3B	0911250-07	11/23/09 07:00	
Blank	0914281-BLK1	11/23/09 07:00	
Blank	0914281-BLK2	11/24/09 07:00	
LCS	0914281-BS1	11/23/09 07:00	
LCS	0914281-BS2	11/24/09 07:00	
79554	0914281-MS1	11/24/09 07:00	
79554	0914281-MSD1	11/24/09 07:00	

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0914281-BLK1
File ID: BLK1123.D
Prepared: 11/23/09 07:00
Preparation: 5035 Soil Purge & Trap -
Initial/Final: 5 g / 5 mL
Analyzed: 11/23/09 08:45
Instrument: 139
QC Batch: 0914281
Sequence: 9K25010
Calibration: 9K25001

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
98-82-8	Isopropylbenzene	0.20	5.0	5.0	ug/kg wet	U
79-20-9	Methyl Acetate	2.4	20	20	ug/kg wet	U
1634-04-4	Methyl tert-Butyl Ether	0.49	5.0	5.0	ug/kg wet	U
108-87-2	Methylcyclohexane	0.88	10	10	ug/kg wet	U
75-09-2	Methylene Chloride	1.2	20	4.2	ug/kg wet	J
78-93-3	2-Butanone (MEK)	2.3	20	20	ug/kg wet	U
108-10-1	4-Methyl-2-pentanone (MIBK)	0.18	10	10	ug/kg wet	U
100-42-5	Styrene	0.78	5.0	5.0	ug/kg wet	U
79-34-5	1,1,2,2-Tetrachloroethane	0.78	5.0	5.0	ug/kg wet	U
127-18-4	Tetrachloroethene	0.75	5.0	5.0	ug/kg wet	U
108-88-3	Toluene	0.60	5.0	5.0	ug/kg wet	U
87-61-6	1,2,3-Trichlorobenzene	0.39	2.0	2.0	ug/kg wet	U
120-82-1	1,2,4-Trichlorobenzene	0.71	5.0	5.0	ug/kg wet	U
71-55-6	1,1,1-Trichloroethane	0.84	5.0	5.0	ug/kg wet	U
79-00-5	1,1,2-Trichloroethane	0.92	5.0	5.0	ug/kg wet	U
79-01-6	Trichloroethene	0.43	5.0	5.0	ug/kg wet	U
75-69-4	Trichlorofluoromethane	0.31	5.0	5.0	ug/kg wet	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.52	5.0	5.0	ug/kg wet	U
75-01-4	Vinyl Chloride	0.26	5.0	5.0	ug/kg wet	U
1330-20-7	Xylene (Total)	1.0	5.0	5.0	ug/kg wet	U

System Monitoring Compound	Added (ug/L)	Conc. (ug/L)	% REC	QC Limits	Q
Dibromofluoromethane	40.0	43.8	109	78 - 121	
1,2-Dichloroethane-d4	40.0	43.8	110	66 - 124	
Toluene-d8	40.0	42.9	107	85 - 115	
4-Bromofluorobenzene	40.0	41.1	103	85 - 120	

Internal Standard	Area	RT	Ref. Area	Ref. RT	Q
Fluorobenzene	362467	7.29	422132	7.36	
Chlorobenzene-d5	163416	17.35	158503	17.41	
1,4-Dichlorobenzene-d4	181964	22.4	180989	22.44	

METHOD BLANK DATA SHEET
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0914281-BLK2
File ID: BLK1124.D
Prepared: 11/24/09 07:00
Preparation: 5035 Soil Purge & Trap -
Initial/Final: 5 g / 5 mL
Analyzed: 11/24/09 08:51
Instrument: 139
QC Batch: 0914281
Sequence: 9K25011
Calibration: 9K25001

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
67-64-1	Acetone	3.1	20	5.0	ug/kg wet	J
71-43-2	Benzene	0.21	5.0	5.0	ug/kg wet	U
74-97-5	Bromochloromethane	0.44	20	20	ug/kg wet	U
75-27-4	Bromodichloromethane	0.87	5.0	5.0	ug/kg wet	U
75-25-2	Bromoform	0.46	5.0	5.0	ug/kg wet	U
74-83-9	Bromomethane	0.96	5.0	5.0	ug/kg wet	U
75-15-0	Carbon Disulfide	0.34	5.0	5.0	ug/kg wet	U
56-23-5	Carbon Tetrachloride	0.68	5.0	5.0	ug/kg wet	U
108-90-7	Chlorobenzene	0.79	5.0	5.0	ug/kg wet	U
75-00-3	Chloroethane	0.79	20	20	ug/kg wet	U
67-66-3	Chloroform	0.23	1.0	1.0	ug/kg wet	U
74-87-3	Chloromethane	0.42	5.0	5.0	ug/kg wet	U
110-82-7	Cyclohexane	0.83	10	10	ug/kg wet	U
96-12-8	1,2-Dibromo-3-chloropropane	2.1	10	10	ug/kg wet	U
124-48-1	Dibromochloromethane	0.47	5.0	5.0	ug/kg wet	U
106-93-4	1,2-Dibromoethane	0.82	5.0	5.0	ug/kg wet	U
95-50-1	1,2-Dichlorobenzene	0.26	5.0	5.0	ug/kg wet	U
541-73-1	1,3-Dichlorobenzene	0.38	5.0	5.0	ug/kg wet	U
106-46-7	1,4-Dichlorobenzene	0.47	5.0	5.0	ug/kg wet	U
75-71-8	Dichlorodifluoromethane	0.35	5.0	5.0	ug/kg wet	U
75-34-3	1,1-Dichloroethane	0.31	5.0	5.0	ug/kg wet	U
107-06-2	1,2-Dichloroethane	0.36	5.0	5.0	ug/kg wet	U
75-35-4	1,1-Dichloroethene	0.71	5.0	5.0	ug/kg wet	U
156-59-2	cis-1,2-Dichloroethene	0.28	5.0	5.0	ug/kg wet	U
156-60-5	trans-1,2-Dichloroethene	0.81	5.0	5.0	ug/kg wet	U
78-87-5	1,2-Dichloropropane	0.37	5.0	5.0	ug/kg wet	U
10061-01-5	cis-1,3-Dichloropropene	0.42	5.0	5.0	ug/kg wet	U
10061-02-6	trans-1,3-Dichloropropene	0.30	5.0	5.0	ug/kg wet	U
100-41-4	Ethylbenzene	0.15	5.0	5.0	ug/kg wet	U
591-78-6	2-Hexanone	1.0	10	10	ug/kg wet	U

LCS / LCS DUPLICATE RECOVERY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0914281-BS1

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 5035 Soil Purge & Trap - MS
Initial/Final: 5 g / 5 mL
QC Batch: 0914281
Sequence: 9K25010

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Isopropylbenzene	40.0	36.5	91	75 - 130	ug/kg wet
Methyl Acetate	40.0	41.1	103	70 - 130	ug/kg wet
Methyl tert-Butyl Ether	40.0	45.2	113	63 - 127	ug/kg wet
Methylcyclohexane	40.0	42.1	105	70 - 130	ug/kg wet
Methylene Chloride	40.0	57.9	145 *	55 - 140	ug/kg wet
2-Butanone (MEK)	40.0	42.7	107	30 - 160	ug/kg wet
4-Methyl-2-pentanone (MIBK)	40.0	40.0	100	45 - 145	ug/kg wet
Styrene	40.0	38.0	95	75 - 125	ug/kg wet
1,1,2,2-Tetrachloroethane	40.0	39.4	98	55 - 130	ug/kg wet
Tetrachloroethene	40.0	37.8	94	65 - 140	ug/kg wet
Toluene	40.0	45.2	113	70 - 125	ug/kg wet
1,2,3-Trichlorobenzene	40.0	39.0	98	60 - 135	ug/kg wet
1,2,4-Trichlorobenzene	40.0	38.8	97	65 - 130	ug/kg wet
1,1,1-Trichloroethane	40.0	44.6	112	70 - 135	ug/kg wet
1,1,2-Trichloroethane	40.0	44.8	112	60 - 125	ug/kg wet
Trichloroethene	40.0	44.5	111	75 - 125	ug/kg wet
Trichlorofluoromethane	40.0	39.2	98	25 - 185	ug/kg wet
1,1,2-Trichloro-1,2,2-trifluoroethane	40.0	28.9	72 *	80 - 120	ug/kg wet
Vinyl Chloride	40.0	37.2	93	60 - 125	ug/kg wet
Xylene (Total)	120	122	102	75 - 125	ug/kg wet

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

LCS / LCS DUPLICATE RECOVERY
USEPA-8260B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

Laboratory ID: 0914281-BS2

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 5035 Soil Purge & Trap - MS
Initial/Final: 5 g / 5 mL
QC Batch: 0914281
Sequence: 9K25011

Analyte	Spike Added	LCS Conc.	LCS % Rec. #	QC Limits Rec.	Units
Isopropylbenzene	40.0	39.9	100	75 - 130	ug/kg wet
Methyl Acetate	40.0	52.2	130	70 - 130	ug/kg wet
Methyl tert-Butyl Ether	40.0	43.3	108	63 - 127	ug/kg wet
Methylcyclohexane	40.0	42.7	107	70 - 130	ug/kg wet
Methylene Chloride	40.0	66.2	166 *	55 - 140	ug/kg wet
2-Butanone (MEK)	40.0	36.8	92	30 - 160	ug/kg wet
4-Methyl-2-pentanone (MIBK)	40.0	36.8	92	45 - 145	ug/kg wet
Styrene	40.0	42.9	107	75 - 125	ug/kg wet
1,1,2,2-Tetrachloroethane	40.0	40.5	101	55 - 130	ug/kg wet
Tetrachloroethene	40.0	39.3	98	65 - 140	ug/kg wet
Toluene	40.0	46.6	116	70 - 125	ug/kg wet
1,2,3-Trichlorobenzene	40.0	41.7	104	60 - 135	ug/kg wet
1,2,4-Trichlorobenzene	40.0	42.7	107	65 - 130	ug/kg wet
1,1,1-Trichloroethane	40.0	45.9	115	70 - 135	ug/kg wet
1,1,2-Trichloroethane	40.0	44.7	112	60 - 125	ug/kg wet
Trichloroethene	40.0	44.2	111	75 - 125	ug/kg wet
Trichlorofluoromethane	40.0	43.9	110	25 - 185	ug/kg wet
1,1,2-Trichloro-1,2,2-trifluoroethane	40.0	42.7	107	80 - 120	ug/kg wet
Vinyl Chloride	40.0	43.5	109	60 - 125	ug/kg wet
Xylene (Total)	120	131	109	75 - 125	ug/kg wet

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

79554

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 5 g / 5 mL

Laboratory ID: 0914281-MS1

QC Batch: 0914281

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acetone	51.1	ND	70.1	137	20 - 160	ug/kg dry
Benzene	51.1	ND	52.7	103	75 - 125	ug/kg dry
Bromochloromethane	51.1	ND	58.2	114	70 - 125	ug/kg dry
Bromodichloromethane	51.1	ND	53.6	105	70 - 130	ug/kg dry
Bromoform	51.1	ND	47.0	92	55 - 135	ug/kg dry
Bromomethane	51.1	ND	54.6	107	30 - 160	ug/kg dry
Carbon Disulfide	51.1	ND	61.5	120	45 - 160	ug/kg dry
Carbon Tetrachloride	51.1	ND	53.3	104	65 - 135	ug/kg dry
Chlorobenzene	51.1	ND	45.4	89	75 - 125	ug/kg dry
Chloroethane	51.1	ND	51.1	100	40 - 155	ug/kg dry
Chloroform	51.1	ND	53.8	105	70 - 125	ug/kg dry
Chloromethane	51.1	ND	46.8	92	50 - 130	ug/kg dry
Cyclohexane	51.1	ND	41.1	80	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	51.1	ND	47.1	92	40 - 135	ug/kg dry
Dibromochloromethane	51.1	ND	46.7	91	65 - 130	ug/kg dry
1,2-Dibromoethane	51.1	ND	49.6	97	70 - 125	ug/kg dry
1,2-Dichlorobenzene	51.1	ND	43.9	86	75 - 120	ug/kg dry
1,3-Dichlorobenzene	51.1	ND	45.2	88	70 - 125	ug/kg dry
1,4-Dichlorobenzene	51.1	ND	45.4	89	70 - 125	ug/kg dry
Dichlorodifluoromethane	51.1	ND	49.7	97	35 - 135	ug/kg dry
1,1-Dichloroethane	51.1	ND	56.0	110	75 - 125	ug/kg dry
1,2-Dichloroethane	51.1	ND	59.3	116	70 - 135	ug/kg dry
1,1-Dichloroethene	51.1	ND	46.9	92	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	51.1	ND	53.4	104	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	51.1	ND	54.4	106	65 - 135	ug/kg dry
1,2-Dichloropropane	51.1	ND	54.9	107	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	51.1	ND	53.6	105	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	51.1	ND	52.3	102	65 - 125	ug/kg dry
Ethylbenzene	51.1	ND	49.9	98	75 - 125	ug/kg dry
2-Hexanone	51.1	ND	39.0	76	45 - 145	ug/kg dry
Isopropylbenzene	51.1	ND	47.4	93	75 - 130	ug/kg dry
Methyl Acetate	51.1	ND	61.4	120	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	51.1	ND	51.8	101	63 - 127	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

79554 49

12/7/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 5 g / 5 mL

Laboratory ID: 0914281-MS1

QC Batch: 0914281

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Methylcyclohexane	51.1	ND	45.8	90	70 - 130	ug/kg dry
Methylene Chloride	51.1	ND	54.0	106	55 - 140	ug/kg dry
2-Butanone (MEK)	51.1	ND	50.2	98	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	51.1	ND	44.3	87	45 - 145	ug/kg dry
Styrene	51.1	ND	45.8	90	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	51.1	ND	49.2	96	55 - 130	ug/kg dry
Tetrachloroethene	51.1	ND	44.4	87	65 - 140	ug/kg dry
Toluene	51.1	ND	53.6	105	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	51.1	ND	36.1	71	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	51.1	ND	37.3	73	65 - 130	ug/kg dry
1,1,1-Trichloroethane	51.1	ND	55.6	109	70 - 135	ug/kg dry
1,1,2-Trichloroethane	51.1	ND	53.8	105	60 - 125	ug/kg dry
Trichloroethene	51.1	ND	50.8	99	75 - 125	ug/kg dry
Trichlorofluoromethane	51.1	ND	52.5	103	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	51.1	ND	41.7	82	80 - 120	ug/kg dry
Vinyl Chloride	51.1	ND	50.9	100	60 - 125	ug/kg dry
Xylene (Total)	153	ND	148	97	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8260B

SS
79354
12/17/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 5035 Soil Purge & Trap - MS
Initial/Final: 5 g / 5 mL

Laboratory ID: 0914281-MSD1
QC Batch: 0914281

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acetone	51.1	67.8	133	3	30	20 - 160	ug/kg dry
Benzene	51.1	52.4	103	0.5	30	75 - 125	ug/kg dry
Bromochloromethane	51.1	49.7	97	16	30	70 - 125	ug/kg dry
Bromodichloromethane	51.1	54.5	107	2	30	70 - 130	ug/kg dry
Bromoform	51.1	49.0	96	4	30	55 - 135	ug/kg dry
Bromomethane	51.1	48.7	95	12	30	30 - 160	ug/kg dry
Carbon Disulfide	51.1	37.0	72	50 *	30	45 - 160	ug/kg dry
Carbon Tetrachloride	51.1	51.9	101	3	30	65 - 135	ug/kg dry
Chlorobenzene	51.1	44.8	88	1	30	75 - 125	ug/kg dry
Chloroethane	51.1	52.2	102	2	30	40 - 155	ug/kg dry
Chloroform	51.1	55.2	108	3	30	70 - 125	ug/kg dry
Chloromethane	51.1	44.3	87	6	30	50 - 130	ug/kg dry
Cyclohexane	51.1	41.3	81	0.6	30	70 - 130	ug/kg dry
1,2-Dibromo-3-chloropropane	51.1	48.1	94	2	30	40 - 135	ug/kg dry
Dibromochloromethane	51.1	46.8	92	0.3	30	65 - 130	ug/kg dry
1,2-Dibromoethane	51.1	51.2	100	3	30	70 - 125	ug/kg dry
1,2-Dichlorobenzene	51.1	45.3	89	3	30	75 - 120	ug/kg dry
1,3-Dichlorobenzene	51.1	44.0	86	3	30	70 - 125	ug/kg dry
1,4-Dichlorobenzene	51.1	45.3	89	0.2	30	70 - 125	ug/kg dry
Dichlorodifluoromethane	51.1	49.4	97	0.7	30	35 - 135	ug/kg dry
1,1-Dichloroethane	51.1	55.0	108	2	30	75 - 125	ug/kg dry
1,2-Dichloroethane	51.1	59.4	116	0.2	30	70 - 135	ug/kg dry
1,1-Dichloroethene	51.1	46.7	91	0.5	30	65 - 135	ug/kg dry
cis-1,2-Dichloroethene	51.1	55.4	108	4	30	65 - 125	ug/kg dry
trans-1,2-Dichloroethene	51.1	52.2	102	4	30	65 - 135	ug/kg dry
1,2-Dichloropropane	51.1	53.0	104	4	30	70 - 120	ug/kg dry
cis-1,3-Dichloropropene	51.1	51.5	101	4	30	70 - 125	ug/kg dry
trans-1,3-Dichloropropene	51.1	52.5	103	0.4	30	65 - 125	ug/kg dry
Ethylbenzene	51.1	48.8	95	2	30	75 - 125	ug/kg dry
2-Hexanone	51.1	37.7	74	3	30	45 - 145	ug/kg dry
Isopropylbenzene	51.1	45.6	89	4	30	75 - 130	ug/kg dry
Methyl Acetate	51.1	44.4	87	32 *	30	70 - 130	ug/kg dry
Methyl tert-Butyl Ether	51.1	55.2	108	6	30	63 - 127	ug/kg dry
Methylcyclohexane	51.1	45.3	89	1	30	70 - 130	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8260B

79554

12/17/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 5035 Soil Purge & Trap - MS

Initial/Final: 5 g / 5 mL

Laboratory ID: 0914281-MSD1

QC Batch: 0914281

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Methylene Chloride	51.1	54.8	107	1	30	55 - 140	ug/kg dry
2-Butanone (MEK)	51.1	57.2	112	13	30	30 - 160	ug/kg dry
4-Methyl-2-pentanone (MIBK)	51.1	45.6	89	3	30	45 - 145	ug/kg dry
Styrene	51.1	46.0	90	0.6	30	75 - 125	ug/kg dry
1,1,2,2-Tetrachloroethane	51.1	51.7	101	5	30	55 - 130	ug/kg dry
Tetrachloroethene	51.1	43.5	85	2	30	65 - 140	ug/kg dry
Toluene	51.1	52.7	103	2	30	70 - 125	ug/kg dry
1,2,3-Trichlorobenzene	51.1	36.6	72	2	30	60 - 135	ug/kg dry
1,2,4-Trichlorobenzene	51.1	38.9	76	4	30	65 - 130	ug/kg dry
1,1,1-Trichloroethane	51.1	54.8	107	1	30	70 - 135	ug/kg dry
1,1,2-Trichloroethane	51.1	54.8	107	2	30	60 - 125	ug/kg dry
Trichloroethene	51.1	50.5	99	0.5	30	75 - 125	ug/kg dry
Trichlorofluoromethane	51.1	52.0	102	0.9	30	25 - 185	ug/kg dry
1,1,2-Trichloro-1,2,2-trifluoroetha	51.1	37.6	73 *	10	30	80 - 120	ug/kg dry
Vinyl Chloride	51.1	49.0	96	4	30	60 - 125	ug/kg dry
Xylene (Total)	153	144	94	3	30	75 - 125	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client: URS **Date Received:** 11-12-09 **Sheet Completed By:** DW

Work Order: 0911250 **Date Form Completed:** 11-12-09 **Sheet Reviewed By:**

Low Level Soils

	Yes	No	N/A
Were Samples Received in 40 mL VOA Vials Containing a Stir Bar and Pre-Preserved with Sodium Bisulfate?	☐	☑	☐
Were Samples Received Non-Preserved in Encore Samplers?	☑	☐	☐
If Received in Encore Samplers, was Sample Received and Preserved Within 48 Hours of Sample Collection?	☑	☐	☐

High Level Soils

Samples Collected in Which of the Following Ways?

	Yes	No	N/A
Tared 40, 60, or 120 mL Containers:			
Were Samples Received Pre-Preserved Within 4 Days After Collection?	☐	☐	☑
En Core Samplers:	☐	☐	☐
Were Samples Received Within 40 Hours After Collection then Preserved Within 48 Hours of Collection?	☑	☐	☐
Were Samples Shaken/Sonicated Within 8 Hours of Solvent Addition?	☑	☐	☐
Was Solvent Removed Within 24 Hours of Shake/Sonication?	☑	☐	☐

Equipment and Reagents

Methanol Lot Number: XJ0113

Sodium Bisulfate Lot Number: NA

Balance Number: 204

NOTE: MeOH or Bisulfate must be added within 48 hours of sample collection.

NOTE: All high level soil samples must be shaken for two minutes. Samples originating in Michigan or Wisconsin must also be sonicated (ASAP next business day when received late Friday or on the weekend).

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS

Chain-of-Custody Number 130169

Date and Time Sample(s) Received: 11-12-09 10:30

Sample(s) from Wisconsin or Michigan? Yes / (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative: Freezing					Extraction Information Circle One or Both: Shaken / Sonicated			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0911250-01 79554 A	Yes / No	4.8		DW	11-12-09	12:40	Yes / No						
B	Yes / No	5.3					Yes / No						
C	Yes / No	5.1					Yes / No						
D	Yes / No	5.0					Yes / No						
E	Yes / No	5.3					Yes / No						
F	Yes / No	5.1					Yes / No						
No sample ~~G~~	Yes / No						Yes / No						
0911250-02 79583B-A	Yes / No	3.8					Yes / No						
| | -B	Yes / No	4.9					Yes / No						
0911250-03 79555-A	Yes / No	4.6					Yes / No						
| | -B	Yes / No	5.2					Yes / No						
0911250-04 DUP-A	Yes / No	4.5					Yes / No						
| | -B	Yes / No	5.3					Yes / No						
0911250-05 79581B-A	Yes / No	4.4					Yes / No						
| | B	Yes / No	5.4					Yes / No						
	Yes / No						Yes / No						DCV 11-12-09

TriMatrix Laboratories, Inc.

EnCore Soil Sample Preservation Logbook

Client Name: URS -cont. **Chain-of-Custody Number** 130169

Date and Time Sample(s) Received: 11-1209 10:30 **Sample(s) from Wisconsin or Michigan?** Yes / (No)

Sample ID	Received Within 40 Hours (Yes/No)	Weight of Sample (g)	Preservative MeOH					Extraction Information Circle One or Both: (Shaken) / (Sonicated)			Reagent Withdrawn		
			mL	By	Date	Time	Within 48 Hours (Yes/No)	By	Date	Time	By	Date	Time
0911250-01 79554 H	Yes / No	5.2	5.2	DLV	11-1209	12:40	Yes / No	DLV	11-1209	12:45			
01 I	Yes / No	5.1	5.1				Yes / No						
02 79583B	Yes / No	5.2	5.2				Yes / No						
03 79555	Yes / No	4.1	4.1				Yes / No						
04 Dup	Yes / No	5.1	5.1				Yes / No						
05 79581B	Yes / No	5.3	5.3				Yes / No						
06 72582B	Yes / No	5.2	5.2				Yes / No						
07 72583B	Yes / No	5.4	5.4				Yes / No						
0911250-06 72582B-A	Yes / No	5.1	Preserved by Freezing				Yes / No						
1 1 -B	Yes / No	4.4					Yes / No						
0911250-07 72583B-A	Yes / No	5.5					Yes / No						
1 1 B	Yes / No	5.6					Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						
	Yes / No						Yes / No						

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Volatile Organic Compounds by EPA Method 8260B

Qualification:	The LCS recovery was outside of the control limit with no allowed marginal exceedences. The result for this analyte in any sample from the associated QC batch is considered qualified.	
Analysis:	USEPA-8260B	
Sample/Analyte:	0911250-01 79554	Methylene Chloride
	0911250-02 79SB3B	Methylene Chloride
	0911250-03 79SS5	Methylene Chloride
	0911250-04 DUP	Methylene Chloride
	0911250-05 79SB1B	Methylene Chloride
	0911250-06 72SB2B	Methylene Chloride
	0911250-07 72SB3B	Methylene Chloride

Qualification:	The MS and/or MSD recovery was outside the control limit. The non-spiked sample result is considered estimated.	
Analysis:	USEPA-8260B	
Sample/Analyte:	0911250-01 79554	1,1,2-Trichloro-1,2,2-trifluoroethane
	0911250-01 79554	Carbon Disulfide

Qualification:	The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample result is considered estimated.	
Analysis:	USEPA-8260B	
Sample/Analyte:	0911250-01 79554	Carbon Disulfide
	0911250-01 79554	Methyl Acetate

5560 Corporate Exchange Court SE • Grand Rapids, MI 49512 • (616) 975-4500 • Fax (616) 942-7465

DATA VALIDATION WORKSHEET

Semivolatile Organic Analysis

Reviewer: Andrea Sansom
Date: December 21, 2009
DV Level: II III IV
Review Document:
_X_ NFG - Region III Modifications
_X_ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP1109
Test Name: SVOC
Method No.: 8270C

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{o}C), then flag all positive results with a "L" and all non-detects "UL".			
1.5	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV			

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Were sample preserved as specified in the method or project QAPP?	X		
2.2	Have any technical holding times, determined from date of sampling to date of analysis, been exceeded? If yes, L(+)/UL(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, L(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to 5 times (or 10 times for the common phthalate contaminants) the amount in the associated blank.		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.			X
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, noted in the Dv report.		X	

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If no, use professional judgement to determine the effect on the data and note in the reviewer narrative.	X		
4.3	Has a continuing calibration standard been analyzed for every 12 hours of sample analysis per instrument?	X		
4.4	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD ≤ 15%, ICV %D < 30%, and CCV %D ≤ 20%.	X		
	For initial Calibration: for %RSD > ± 15%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 20% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >20%, J(+).			
4.5	Do any SPCC compounds have an RRF < 0.05? (n-nitroso-di-n-propylamine, hexachlorocyclopentadiene, 2,4-dinitrophenol, & 4-nitrophenol) If yes, J(+)/R(-).		X	

Notes:

5.0 GC/MS Instrument Performance Check		Yes	No	NA
5.1	Are GC/MS Tuning and Mass Calibration forms present for decafluorotriphenylphosphine (DFTPP)?	X		
5.2	Are DFTPP enchanced bar graph spectrum and mass/charge (m/z) listing provided for each 12-hour shift?	X		
	If DFTPP was analyzed simultaneously with any calibration standard or blank, the instrument performance check (IPC) is rejected "R" as well as all associated data.			
5.3	Have all samples been analyzed within twelve hours of the DFTPP tune?	X		
	If twelve hours have elapsed according to the system clock, and the laboratory had analyzed standards, blanks, field samples or QC samples after twelve (12) hours, the data for the affected standards, blanks, field samples or QC samples are rejected "R".			
5.4	Have ion abundance criteria for DFTPP been met for each instrument used?	X		
	If the DFTPP criteria were not met prior to the analyses of the standards, blanks, field samples and QC samples, all standards, blanks, field samples and QC samples are rejected "R".			

Notes:

6.0 Surrogate Recovery		Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
6.2	Are surrogate recoveries within acceptance criteria not to exceed 10-150% for all samples and method blanks?	X		
6.3	If No in Section 6.2, are these sample(s) or method blank(s) reanalyzed?			X
	If any two base/neutral or acid fraction are out of specification, or if any one base/neutral or acid extractable surrogate has a recovery of less than 10%, then there should be a reanalysis to confirm that the non-compliance is because of sample matrix effects rather than laboratory deficiencies.			
6.4	If No in Section 6.3, is any sample dilution factor greater than 10? (recoveries may be diluted out.)			X
	1 or more <10% 2 or 3 high/low 2 or 3 all low 2 or 3 all high Positives L J L K Non-detects R UJ UL NONE			
	Note: The B qualifier remains over surrogate flagging.			

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 10-150%?	X		
7.4	Are there any RPDs outside the QC limits not to exceed 60%?	X		
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 10-150%?		X	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 50%?			X
	If Yes, J(+) only.			

Notes:

9.0 Internal Standard		Yes	No	NA
9.1	Are internal standard area of every sample and blank within upper and lower QC limits for each continuing calibration? If not, J(+)/UJ(-).	X		
	If extremely low area counts are reported, or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated. Non-detect target compounds should then be qualified as unusable (R).			
9.2	Are retention times of internal standards within 30 seconds of the associated calibration standard?	X		
	The chromatographic profile for that sample must be examined to determine if any false positives or negatives exist. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results should not needed to be qualified as "R", if the mass spectral criteria are met.			

Notes:

10.0 Field Duplicate		Yes	No	NA
10.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
10.2	Are all analyte duplicate results within control limits? Generally, no action is taken on the basis of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.		X	

Notes:

11.0 Tentatively Identified Compounds (TICs) and Detection Limit Verification		Yes	No	NA
11.1	Are any TICs detected in the field samples? If Yes, all TIC results should be flagged "NJ" (tentatively idenified, and approximate concentration).			X
11.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture?	X		
11.3	Were sample concentrations above the highest standard run at a dilution? If not, for ion saturation flag "L", unsaturated results "J".			X

Notes:

12.0 Data Completeness		Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	X		
	Number of samples: 7			
	Number of target compounds in each analysis: 67			
	Number of results rejected and not reported: 2			
	% Completeness = (12.1.1 x 12.1.2 - 12.1.3) x 100/(12.1.1 x 12.1.2)			
	% Completeness = 99.6%			

Notes:

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8270C

79554

SS 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30.2 g / 1 mL

Laboratory ID: 0914012-MS1

QC Batch: 0914012

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Acenaphthene	423	ND	372	88	45 - 110	ug/kg dry
Acenaphthylene	423	ND	371	88	45 - 105	ug/kg dry
Acetophenone	423	ND	362	86	50 - 150	ug/kg dry
Anthracene	423	ND	326	77	55 - 105	ug/kg dry
Atrazine	423	ND	323	76	61 - 146	ug/kg dry
Benzaldehyde	423	ND	312	74	50 - 150	ug/kg dry
Benzo(a)anthracene	423	8.91	397	92	50 - 110	ug/kg dry
Benzo(a)pyrene	423	7.22	347	80	50 - 110	ug/kg dry
Benzo(b)fluoranthene	423	8.49	380	88	45 - 115	ug/kg dry
Benzo(k)fluoranthene	423	3.82	350	82	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	423	2.55	289	68	40 - 125	ug/kg dry
1,1'-Biphenyl	423	ND	354	84	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	402	ND	342	85	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	402	ND	360	89	50 - 125	ug/kg dry
Caprolactam	423	ND	245	58. *	62 - 112	ug/kg dry
Carbazole	423	ND	293	69	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	415	ND	362	87	45 - 115	ug/kg dry
4-Chloroaniline	406	ND	7.62	2 *	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	402	ND	327	81	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	402	ND	325	81	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	402	ND	338	84	20 - 115	ug/kg dry
2-Chloronaphthalene	423	ND	387	91	45 - 105	ug/kg dry
2-Chlorophenol	415	ND	358	86	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	402	ND	340	85	45 - 110	ug/kg dry
Chrysene	423	8.49	319	73	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	423	ND	328	78	40 - 125	ug/kg dry
Dibenzofuran	406	ND	366	90	50 - 105	ug/kg dry
Di-n-butyl Phthalate	402	81.9	479	99	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	846	ND	44.8	5 *	10 - 130	ug/kg dry
2,4-Dichlorophenol	415	ND	368	89	45 - 110	ug/kg dry
Diethyl Phthalate	402	ND	361	90	50 - 115	ug/kg dry
2,4-Dimethylphenol	415	ND	347	84	30 - 105	ug/kg dry
Dimethyl Phthalate	402	ND	373	93	50 - 110	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

79554

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30.2 g / 1 mL
QC Batch: 0914012

Laboratory ID: 0914012-MS1

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
4,6-Dinitro-2-methylphenol	415	ND	333	80	30 - 135	ug/kg dry
2,4-Dinitrophenol	415	ND	248	60	15 - 130	ug/kg dry
2,4-Dinitrotoluene	423	ND	423	100	50 - 115	ug/kg dry
2,6-Dinitrotoluene	423	ND	354	84	50 - 110	ug/kg dry
Di-n-octyl Phthalate	402	ND	342	85	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	402	8.49	344	84	45 - 125	ug/kg dry
Fluoranthene	423	13.6	323	73	55 - 115	ug/kg dry
Fluorene	423	ND	363	86	50 - 110	ug/kg dry
Hexachlorobenzene	423	ND	339	80	45 - 120	ug/kg dry
Hexachlorobutadiene	423	ND	322	76	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	423	ND	260	61	10 - 113	ug/kg dry
Hexachloroethane	423	ND	315	74	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	423	ND	316	75	40 - 120	ug/kg dry
Isophorone	423	ND	344	81	45 - 110	ug/kg dry
2-Methylnaphthalene	406	ND	344	85	45 - 105	ug/kg dry
2-Methylphenol	415	ND	374	90	40 - 105	ug/kg dry
4-Methylphenol	415	ND	450	108 *	40 - 105	ug/kg dry
Naphthalene	423	ND	350	83	40 - 105	ug/kg dry
2-Nitroaniline	406	ND	393	97	45 - 120	ug/kg dry
3-Nitroaniline	406	ND	49.1	12 *	25 - 110	ug/kg dry
4-Nitroaniline	406	ND	113	28 *	35 - 115	ug/kg dry
Nitrobenzene	423	ND	364	86	40 - 115	ug/kg dry
4-Nitrophenol	415	ND	381	92	15 - 140	ug/kg dry
2-Nitrophenol	415	ND	346	83	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	402	ND	298	74	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	402	ND	344	86	40 - 115	ug/kg dry
Pentachlorophenol	415	ND	253	61	25 - 120	ug/kg dry
Phenanthrene	423	10.2	395	91	50 - 110	ug/kg dry
Phenol	415	ND	378	91	40 - 100	ug/kg dry
Pyrene	423	16.1	391	88	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	212	ND	186	88	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	415	ND	322	78	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	415	ND	368	89	45 - 110	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

79554

12/21/07

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30.2 g / 1 mL

Laboratory ID: 0914012-MS1

QC Batch: 0914012

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
2,4,5-Trichlorophenol	415	ND	355	86	50 - 110	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

79554
SS 12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30.3 g / 1 mL

Laboratory ID: 0914012-MSD1
QC Batch: 0914012

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Acenaphthene	422	353	84	5	30	45 - 110	ug/kg dry
Acenaphthylene	422	360	85	3	30	45 - 105	ug/kg dry
Acetophenone	422	337	80	7	30	50 - 150	ug/kg dry
Anthracene	422	326	77	0.2	30	55 - 105	ug/kg dry
Atrazine	422	347	82	7	30	61 - 146	ug/kg dry
Benzaldehyde	422	294	70	6	30	50 - 150	ug/kg dry
Benzo(a)anthracene	422	346	80	14	30	50 - 110	ug/kg dry
Benzo(a)pyrene	422	316	73	10	30	50 - 110	ug/kg dry
Benzo(b)fluoranthene	422	352	81	8	30	45 - 115	ug/kg dry
Benzo(k)fluoranthene	422	331	77	6	30	45 - 125	ug/kg dry
Benzo(g,h,i)perylene	422	287	67	0.5	30	40 - 125	ug/kg dry
1,1'-Biphenyl	422	325	77	9	30	60 - 131	ug/kg dry
4-Bromophenyl Phenyl Ether	401	325	81	5	30	45 - 115	ug/kg dry
Butyl Benzyl Phthalate	401	342	85	5	30	50 - 125	ug/kg dry
Caprolactam	422	259	62	6	30	62 - 112	ug/kg dry
Carbazole	422	313	74	6	30	45 - 115	ug/kg dry
4-Chloro-3-methylphenol	413	338	82	7	30	45 - 115	ug/kg dry
4-Chloroaniline	405	6.33	2 *	19	30	10 - 95	ug/kg dry
Bis(2-chloroethoxy)methane	401	305	76	7	30	45 - 110	ug/kg dry
Bis(2-chloroethyl) Ether	401	294	73	10	30	40 - 105	ug/kg dry
Bis(2-chloroisopropyl) Ether	401	288	72	16	30	20 - 115	ug/kg dry
2-Chloronaphthalene	422	358	85	8	30	45 - 105	ug/kg dry
2-Chlorophenol	413	321	78	11	30	45 - 105	ug/kg dry
4-Chlorophenyl Phenyl Ether	401	342	85	0.5	30	45 - 110	ug/kg dry
Chrysene	422	345	80	8	30	55 - 110	ug/kg dry
Dibenz(a,h)anthracene	422	296	70	10	30	40 - 125	ug/kg dry
Dibenzofuran	405	347	86	5	30	50 - 105	ug/kg dry
Di-n-butyl Phthalate	401	432	87	10	30	55 - 110	ug/kg dry
3,3'-Dichlorobenzidine	843	41.3	5 *	8	30	10 - 130	ug/kg dry
2,4-Dichlorophenol	413	328	79	12	30	45 - 110	ug/kg dry
Diethyl Phthalate	401	329	82	9	30	50 - 115	ug/kg dry
2,4-Dimethylphenol	413	316	76	9	30	30 - 105	ug/kg dry
Dimethyl Phthalate	401	335	84	11	30	50 - 110	ug/kg dry
4,6-Dinitro-2-methylphenol	413	281	68	17	30	30 - 135	ug/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY
USEPA-8270C

79554

SS AB 12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Preparation: 3550B Sonication Extraction
Initial/Final: 30.3 g / 1 mL

Laboratory ID: 0914012-MSD1
QC Batch: 0914012

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
2,4-Dinitrophenol	413	266	64	7	30	15 - 130	ug/kg dry
2,4-Dinitrotoluene	422	407	96	4	30	50 - 115	ug/kg dry
2,6-Dinitrotoluene	422	318	75	11	30	50 - 110	ug/kg dry
Di-n-octyl Phthalate	401	341	85	0.2	30	40 - 130	ug/kg dry
Bis(2-ethylhexyl) Phthalate	401	338	82	2	30	45 - 125	ug/kg dry
Fluoranthene	422	311	71	4	30	55 - 115	ug/kg dry
Fluorene	422	347	82	4	30	50 - 110	ug/kg dry
Hexachlorobenzene	422	326	77	4	30	45 - 120	ug/kg dry
Hexachlorobutadiene	422	277	66	15	30	40 - 115	ug/kg dry
Hexachlorocyclopentadiene	422	234	56	10	30	10 - 113	ug/kg dry
Hexachloroethane	422	299	71	5	30	35 - 110	ug/kg dry
Indeno(1,2,3-cd)pyrene	422	296	70	6	30	40 - 120	ug/kg dry
Isophorone	422	309	73	11	30	45 - 110	ug/kg dry
2-Methylnaphthalene	405	331	82	4	30	45 - 105	ug/kg dry
2-Methylphenol	413	347	84	7	30	40 - 105	ug/kg dry
4-Methylphenol	413	418	101	7	30	40 - 105	ug/kg dry
Naphthalene	422	328	78	6	30	40 - 105	ug/kg dry
2-Nitroaniline	405	301	74	26	30	45 - 120	ug/kg dry
3-Nitroaniline	405	70.8	18 *	36 *	30	25 - 110	ug/kg dry
4-Nitroaniline	405	141	35	22	30	35 - 115	ug/kg dry
Nitrobenzene	422	335	80	8	30	40 - 115	ug/kg dry
4-Nitrophenol	413	325	79	16	30	15 - 140	ug/kg dry
2-Nitrophenol	413	326	79	6	30	40 - 110	ug/kg dry
N-Nitroso-diphenylamine	401	275	69	8	30	50 - 115	ug/kg dry
N-Nitroso-di-n-propylamine	401	299	75	14	30	40 - 115	ug/kg dry
Pentachlorophenol	413	261	63	3	30	25 - 120	ug/kg dry
Phenanthrene	422	360	83	9	30	50 - 110	ug/kg dry
Phenol	413	337	81	12	30	40 - 100	ug/kg dry
Pyrene	422	369	84	6	30	45 - 125	ug/kg dry
1,2,4,5-Tetrachlorobenzene	211	163	77	13	30	30 - 150	ug/kg dry
2,3,4,6-Tetrachlorophenol	413	331	80	3	30	30 - 150	ug/kg dry
2,4,6-Trichlorophenol	413	334	81	10	30	45 - 110	ug/kg dry
2,4,5-Trichlorophenol	413	386	93	8	30	50 - 110	ug/kg dry

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Semivolatile Organic Compounds by EPA Method 8270C

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	
0911250-01 79554	3-Nitroaniline
0911250-01 79554	4-Methylphenol
0911250-01 79554	4-Nitroaniline
0911250-01 79554	Caprolactam

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8270C

Sample/Analyte:	
0911250-01 79554	3-Nitroaniline

Qualification: The MS and/or MSD recovery was less than 10%. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount. The non-spiked sample result is considered unusable.

Analysis: USEPA-8270C

Sample/Analyte:	
0911250-01 79554	3,3´-Dichlorobenzidine
0911250-01 79554	4-Chloroaniline

5560 Corporate Exchange Court SE • Grand Rapids, MI 49512 • (616) 975-4500 • Fax (616) 975-4565

DATA VALIDATION WORKSHEET

Pesticides/PCBs

Reviewer: Andrea Sansom
Date: December 21, 2009
DV Level: II III IV
Review Document:
X SW-846 - 8081/8082
X NFG - Region III Modifications
____ CLP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP1109
Test Name: PEST/PCB
Method No.: 8081A/8082

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Do any soil samples contain more than 50% water?		X	
	If any sample analyzed as a soil, other than TCLP, contains % moisture greater than 50%, noted in the DV report.			

Notes:

2.0 Preservation/ Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	If samples were not on ice or the ice was melted upon arrival at the laboratory and the temperature of the cooler was elevated (> 20 ^{o}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampleing to date of analysis, been exceeded? If yes, J(+)/UJ(-). For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding time grossly (twice the holding time) been exceeded? If yes, J(+)/R(-) .		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix)?	X		
3.2	Do any preparation/instrument/reagent blanks have positive results? Action: If yes, positive sample results should be reported and qualified "B", if the concentration of the compound in the sample is less than or equal to five times the amount in the associated blank.		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.			X
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note it in the DV report.		X	

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards included in the calibration curve? 1016 and 1260 need at least three peaks at five concentrations. The multi-component target compounds (the other Aroclors, Toxaphene, & Chlordane) must each be analyzed separately at a single concentration level during the initial calibration sequence.	X		
4.2	Has a continuing calibration standard been analyzed for every 12 hours or twenty samples?	X		
4.3	Are all calibration standard (IC and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r>0.99, %RSD < ± 20% and %D < ± 15%		X	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Do all standard retention times in the continuing calibration fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.	X		

Notes:

5.0 GC/ECD Instrument Performance Check for Pesticides		Yes	No	NA
5.1	Is the 4,4'-DDT breakdown </= to 15%? If No, for positive DDT results, DDT-L(+), DDD/DDE - NJ(+). For non detect DDT results, DDD/DDE - R(+).	X		
5.2	Is the endrin breakdown </= to 15%? If No, for positive endrin results, endrin-L(+), endrin aldehyde/ketone - NJ(+). For non-detect DDT results, endrin aldehyde/ketone - R(+).	X		

Notes:

6.0 Surrogate Recovery					Yes	No	NA
6.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?				X		
6.2	Do all surrogate retention times fall within the RT windows established during the initial calibration sequence? If No, the associated sample result should be carefully evaluated.				X		
6.3	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?				X		
6.4	If No in Section 6.3, are these sample(s) or method blank(s) reanalyzed?						X
6.5	If No in Section 6.4, is any sample dilution factor greater than 10? (recoveries may be diluted out.)						X
	# of outliers	Recovery	Sample result from column with non-conformance	Sample result from column without non-conformance			
	1 out	high/low	No action	No action			
	2 out	2 high same column	K	No action			
		2 low same column	L, UL	No action			
		mixed same column	J, UJ	No action			
		2 high diff columns	J	Not applicable			
		2 low diff columns	J, UJ	Not applicable			
		mixed diff columns	Professional judgement	Not applicable			
	3 out	All high	K	Not applicable			
		All low	L, UL	Not applicable			
		2 high, 1 low	K (2 high)	J (1 low 2nd column)			
		2 low, 1 high	L, UJ (2 low)	J (1 high 2nd column)			
		other mixed	J, UJ	Not applicable			
	4 out	All high	K	Not applicable			
		All low	L, UL	Not applicable			
		Mixed	J, UJ	Not applicable			
	If any recovery is >0% and <10% then L(+)/R(-).						
	If any recovery is 0% then R(+/-).						

Notes:

7.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
7.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
7.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 30-150%?	X		
7.4	Are there any RPDs outside the QC limits not to exceed 60%?	X		
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

8.0 Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)		Yes	No	NA
8.1	Is the LCS/LCSD recovery form present?	X		
8.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
8.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 30-150%?		X	
	If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
8.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	If Yes, J(+) only.			

Notes:

9.0 Field Duplicate		Yes	No	NA
9.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
9.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

10.0 Compound Identification and Detection Limit Verification		Yes	No	NA
10.1	Is the percent difference calculated for the positive sample results on both columns < 40%? If No, J(+).		X	
10.2	Do detection limits meet those required by the project QAPP and were properly adjusted for dilution factors and moisture?	X		

Notes:

11.0 Pesticide Cleanup Checks		Yes	No	NA
11.1	Is Form IX PEST-1 present and complete for each lot of Florisil Cartridges used? (Florisil Cleanup is required for all Pest/PCB extracts to reduce matrix interference caused by polar compounds.)			
	Every lot number of Florisil cartridges used for sample cleanup must be checked by spiking with 2,4,5-trichlorophenol and the midpoint concentration of Individual Standard Mixture A.			
11.2	Are all samples listed on the Pesticide Florisil cartridge Check Form?			
11.3	Are percent recoveries of pesticide and surrogate compounds within control limit, 80-120%(if the recovery of 2,4,5-trichlorophenol < 5%), for the florisil cartridge check? If No, the raw data should be examined for the presence of polar interferences and professional judgement should be used in qualifying the data.			

Notes:

CLP requirement, not provided

12.0 Data Completeness				Yes	No	NA
12.1	Is % completeness within the control limits? (Control limit 90%)	Pest	PCB	X		
	Number of samples:	7	7			
	Number of target compounds in each analysis:	21	7			
	Number of results rejected and not reported:	0	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)					
	% Completeness =	100%	100%			

Notes:

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9L02023

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9L02014

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9L02023-CAL1	A90_082-0	12/01/09 10:23
Cal Standard	9L02023-CAL1	B90_082-0	12/01/09 10:23
Cal Standard	9L02023-CAL2	A90_083-0	12/01/09 11:01
Cal Standard	9L02023-CAL2	B90_083-0	12/01/09 11:01
Cal Standard	9L02023-CAL3	A90_084-0	12/01/09 11:39
Cal Standard	9L02023-CAL3	B90_084-0	12/01/09 11:39
Cal Standard	9L02023-CAL4	A90_085-0	12/01/09 12:16
Cal Standard	9L02023-CAL4	B90_085-0	12/01/09 12:16
Cal Standard	9L02023-CAL5	A90_086-0	12/01/09 12:54
Cal Standard	9L02023-CAL5	B90_086-0	12/01/09 12:54
Cal Standard	9L02023-CAL6	A90_087-0	12/01/09 13:32
Cal Standard	9L02023-CAL6	B90_087-0	12/01/09 13:32
Secondary Cal Check	9L02023-SCV1	A90_088-0	12/01/09 14:09
Secondary Cal Check	9L02023-SCV1	B90_088-0	12/01/09 14:09
Cal Standard	9L02023-CAL7	A90_089-0	12/01/09 14:47
Cal Standard	9L02023-CAL7	B90_089-0	12/01/09 14:47
Cal Standard	9L02023-CAL8	A90_090-0	12/01/09 15:25
Cal Standard	9L02023-CAL8	B90_090-0	12/01/09 15:25
Cal Standard	9L02023-CAL9	A90_091-0	12/01/09 16:02
Cal Standard	9L02023-CAL9	B90_091-0	12/01/09 16:02
Cal Standard	9L02023-CALA	A90_092-0	12/01/09 16:40
Cal Standard	9L02023-CALA	B90_092-0	12/01/09 16:40
Cal Standard	9L02023-CALB	A90_093-0	12/01/09 17:18
Cal Standard	9L02023-CALB	B90_093-0	12/01/09 17:18
Cal Standard	9L02023-CALC	A90_094-0	12/01/09 17:55
Cal Standard	9L02023-CALC	B90_094-0	12/01/09 17:55
Secondary Cal Check	9L02023-SCV2	A90_095-0	12/01/09 18:33
Secondary Cal Check	9L02023-SCV2	B90_095-0	12/01/09 18:33
79SS5	0911250-03	A90_097-0	12/01/09 19:48
79SS5	0911250-03	B90_097-0	12/01/09 19:48
79SB3B	0911250-02	A90_098-0	12/01/09 20:26
79SB3B	0911250-02	B90_098-0	12/01/09 20:26

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9L02023

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9L02014

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
79584 SS AB 12/21/09	0911250-01	A90_099-0	12/01/09 21:04
79584 SS AB 12/21/09	0911250-01	B90_099-0	12/01/09 21:04
Blank	0913908-BLK1	A90_100-0	12/01/09 21:41
Blank	0913908-BLK1	B90_100-0	12/01/09 21:41
LCS Dup	0913908-BSD2	A90_101-0	12/01/09 22:19
LCS Dup	0913908-BSD2	B90_101-0	12/01/09 22:19
LCS	0913908-BS2	A90_102-0	12/01/09 22:57
LCS	0913908-BS2	B90_102-0	12/01/09 22:57
LCS	0913908-BS1	A90_103-0	12/01/09 23:35
LCS	0913908-BS1	B90_103-0	12/01/09 23:35
Calibration Check	9L02023-CCV1	A90_104-0	12/02/09 00:12
Calibration Check	9L02023-CCV1	B90_104-0	12/02/09 00:12
Calibration Check	9L02023-CCV2	A90_105-0	12/02/09 00:50 TOK ✓
Calibration Check	9L02023-CCV2	B90_105-0	12/02/09 00:50 ✓
72SB2B	0911250-06	A90_106-0	12/02/09 01:28
72SB2B	0911250-06	B90_106-0	12/02/09 01:28
79SB1B	0911250-05	A90_107-0	12/02/09 02:05
79SB1B	0911250-05	B90_107-0	12/02/09 02:05
DUP	0911250-04	A90_108-0	12/02/09 02:43
DUP	0911250-04	B90_108-0	12/02/09 02:43
Calibration Check	9L02023-CCV3	A90_109-0	12/02/09 03:21
Calibration Check	9L02023-CCV3	B90_109-0	12/02/09 03:21
Calibration Check	9L02023-CCV4	A90_110-0	12/02/09 03:58 TOK ✓
Calibration Check	9L02023-CCV4	B90_110-0	12/02/09 03:58 ✓

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9L02014
Lab File ID: A90_104-0
Calibration Date: 12/01/09 11:14
Sequence: 9L02023
Injection Date: 12/02/09
Lab Sample ID: 9L02023-CCV1
Injection Time: 00:12

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0355	3368660	2989498		-11.3	20
beta-BHC	A	0.0400	0.0341	1103375	942002.5		-14.6	20
gamma-BHC (Lindane)	A	0.0400	0.0358	2715265	2430647		-10.5	20
delta-BHC	A	0.0400	0.0338	2023496	1710824		-15.5	20
alpha-Chlordane	A	0.0400	0.0344	1961142	1685377		-14.1	20
gamma-Chlordane	A	0.0400	0.0347	2062351	1787584		-13.3	20
4,4'-DDD	A	0.0400	0.0322	1062286	855800.5		-19.4	20
4,4'-DDE	A	0.0400	0.0325	1472338	1196560		-18.7	20
4,4'-DDT	A	0.0400	0.0341	1149617	981049.3		-14.7	20
Aldrin	A	0.0400	0.0360	2584410	2323884		-10.1	20
Dieldrin	A	0.0400	0.0345	1826672	1576599		-13.7	20
Endosulfan I	A	0.0400	0.0350	1830610	1600959		-12.5	20
Endosulfan II	Q	0.0400	0.0366	1374427	1179928		-8.5	20
Endosulfan Sulfate	A	0.0400	0.0352	1172289	1031886		-12.0	20
Endrin	A	0.0400	0.0347	1526419	1322460		-13.4	20
Endrin Aldehyde	A	0.0400	0.0349	1062988	928134.3		-12.7	20
Endrin Ketone	A	0.0400	0.0352	1259957	1109335		-12.0	20
Heptachlor	A	0.0400	0.0352	2891546	2545205		-12.0	20
Heptachlor Epoxide	A	0.0400	0.0350	2135438	1865961		-12.6	20
Methoxychlor	A	0.0400	0.0324	550405.9	446115.8		-18.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9L02014
Lab File ID: B90_104-0
Calibration Date: 12/01/09 11:14
Sequence: 9L02023
Injection Date: 12/02/09
Lab Sample ID: 9L02023-CCV1
Injection Time: 00:12

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC [2C]	A	0.0400	0.0351	1909846	1675930		-12.2	20
beta-BHC [2C]	A	0.0400	0.0336	614999.3	516874.8		-16.0	20
gamma-BHC (Lindane) [2C]	A	0.0400	0.0343	1620214	1389580		-14.2	20
delta-BHC [2C]	A	0.0400	0.0321	1200878	964260.5		-19.7	20
alpha-Chlordane [2C]	A	0.0400	0.0330	1147058	946934		-17.4	20
gamma-Chlordane [2C]	A	0.0400	0.0333	1203752	1002301		-16.7	20
4,4'-DDD [2C]	Q	0.0400	0.0354	678992.9	540189.5		-11.5	20
4,4'-DDE [2C]	Q	0.0400	0.0355	913303.4	723721.3		-11.2	20
4,4'-DDT [2C]	Q	0.0400	0.0362	613980.6	496351.8		-9.5	20
Aldrin [2C]	A	0.0400	0.0345	1524373	1313996		-13.8	20
Dieldrin [2C]	A	0.0400	0.0333	1083730	903121		-16.7	20
Endosulfan I [2C]	A	0.0400	0.0331	1081255	895153.3		-17.2	20
Endosulfan II [2C]	A	0.0400	0.0337	863803.6	727192.3		-15.8	20
Endosulfan Sulfate [2C]	A	0.0400	0.0335	730100.7	612109		-16.2	20
Endrin [2C]	A	0.0400	0.0339	893253	756060		-15.4	20
Endrin Aldehyde [2C]	A	0.0400	0.0337	644670.9	542937.3		-15.8	20
Endrin Ketone [2C]	A	0.0400	0.0333	804471.2	670390.8		-16.7	20
Heptachlor [2C]	A	0.0400	0.0338	1522591	1285368		-15.6	20
Heptachlor Epoxide [2C]	A	0.0400	0.0334	1255362	1048969		-16.4	20
Methoxychlor [2C]	Q	0.0400	0.0335	293729	223665.3		-16.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9L02014
Lab File ID: A90_109-0
Calibration Date: 12/01/09 11:14
Sequence: 9L02023
Injection Date: 12/02/09
Lab Sample ID: 9L02023-CCV3
Injection Time: 03:21

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0354	3368660	2982338		-11.5	20
beta-BHC	A	0.0400	0.0343	1103375	944963.5		-14.4	20
gamma-BHC (Lindane)	A	0.0400	0.0355	2715265	2410141		-11.2	20
delta-BHC	A	0.0400	0.0347	2023496	1755124		-13.3	20
alpha-Chlordane	A	0.0400	0.0338	1961142	1657856		-15.5	20
gamma-Chlordane	A	0.0400	0.0338	2062351	1741596		-15.6	20
4,4'-DDD	A	0.0400	0.0341	1062286	906305.8		-14.7	20
4,4'-DDE	A	0.0400	0.0344	1472338	1267090		-13.9	20
4,4'-DDT	A	0.0400	0.0320	1149617	919374		-20.0	20
Aldrin	A	0.0400	0.0351	2584410	2265191		-12.4	20
Dieldrin	A	0.0400	0.0333	1826672	1521786		-16.7	20
Endosulfan I	A	0.0400	0.0338	1830610	1549098		-15.4	20
Endosulfan II	Q	0.0400	0.0338	1374427	1090361		-15.5	20
Endosulfan Sulfate	A	0.0400	0.0330	1172289	967507.8		-17.5	20
Endrin	A	0.0400	0.0336	1526419	1280425		-16.1	20
Endrin Aldehyde	A	0.0400	0.0321	1062988	852386		-19.8	20
Endrin Ketone	A	0.0400	0.0336	1259957	1058913		-16.0	20
Heptachlor	A	0.0400	0.0347	2891546	2511393		-13.1	20
Heptachlor Epoxide	A	0.0400	0.0340	2135438	1815044		-15.0	20
Methoxychlor	A	0.0400	0.0320	550405.9	439785.5		-20.1	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 199
Calibration: 9L02014
Lab File ID: B90_109-0
Calibration Date: 12/01/09 11:14
Sequence: 9L02023
Injection Date: 12/02/09
Lab Sample ID: 9L02023-CCV3
Injection Time: 03:21

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC [2C]	A	0.0400	0.0380	1909846	1815206		-5.0	20
beta-BHC [2C]	A	0.0400	0.0361	614999.3	555730.3		-9.6	20
gamma-BHC (Lindane) [2C]	A	0.0400	0.0371	1620214	1504347		-7.2	20
delta-BHC [2C]	A	0.0400	0.0351	1200878	1052421		-12.4	20
alpha-Chlordane [2C]	A	0.0400	0.0354	1147058	1014448		-11.6	20
gamma-Chlordane [2C]	A	0.0400	0.0357	1203752	1074599		-10.7	20
4,4'-DDD [2C]	Q	0.0400	0.0386	678992.9	589521.8		-3.5	20
4,4'-DDE [2C]	Q	0.0400	0.0393	913303.4	800251.5		-1.8	20
4,4'-DDT [2C]	Q	0.0400	0.0380	613980.6	520861		-5.0	20
Aldrin [2C]	A	0.0400	0.0373	1524373	1420562		-6.8	20
Dieldrin [2C]	A	0.0400	0.0350	1083730	947701.3		-12.6	20
Endosulfan I [2C]	A	0.0400	0.0355	1081255	960838.5		-11.1	20
Endosulfan II [2C]	A	0.0400	0.0341	863803.6	736728		-14.7	20
Endosulfan Sulfate [2C]	A	0.0400	0.0338	730100.7	617793.5		-15.4	20
Endrin [2C]	A	0.0400	0.0353	893253	788268.5		-11.8	20
Endrin Aldehyde [2C]	A	0.0400	0.0340	644670.9	547771.3		-15.0	20
Endrin Ketone [2C]	A	0.0400	0.0335	804471.2	673630.3		-16.3	20
Heptachlor [2C]	A	0.0400	0.0366	1522591	1391289		-8.6	20
Heptachlor Epoxide [2C]	A	0.0400	0.0362	1255362	1135189		-9.6	20
Methoxychlor [2C]	Q	0.0400	0.0362	293729	241571.3		-9.5	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

01028

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9L07040

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 199
Calibration: 9L07005

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9L07040-CCV1	A90_199-0	12/04/09 16:47
Calibration Check	9L07040-CCV1	B90_199-0	12/04/09 16:47
Cal Standard	9L07040-CAL1	A90_200-0	12/04/09 17:25
Cal Standard	9L07040-CAL1	B90_200-0	12/04/09 17:25
Cal Standard	9L07040-CAL2	A90_201-0	12/04/09 18:03
Cal Standard	9L07040-CAL2	B90_201-0	12/04/09 18:03
Cal Standard	9L07040-CAL3	A90_202-0	12/04/09 18:40
Cal Standard	9L07040-CAL3	B90_202-0	12/04/09 18:40
Cal Standard	9L07040-CAL4	A90_203-0	12/04/09 19:18
Cal Standard	9L07040-CAL4	B90_203-0	12/04/09 19:18
Cal Standard	9L07040-CAL5	A90_204-0	12/04/09 19:56
Cal Standard	9L07040-CAL5	B90_204-0	12/04/09 19:56
Cal Standard	9L07040-CAL6	A90_205-0	12/04/09 20:33
Cal Standard	9L07040-CAL6	B90_205-0	12/04/09 20:33
Secondary Cal Check	9L07040-SCV1	A90_206-0	12/04/09 21:11
Secondary Cal Check	9L07040-SCV1	B90_206-0	12/04/09 21:11
72SB3B	0911250-07	A90_208-0	12/04/09 22:27
72SB3B	0911250-07	B90_208-0	12/04/09 22:27
79554	0913908-MSD1	A90_209-0	12/04/09 23:04
79554	0913908-MSD1	B90_209-0	12/04/09 23:04
79554	0913908-MS1	A90_210-0	12/04/09 23:42
79554	0913908-MS1	B90_210-0	12/04/09 23:42
Calibration Check	9L07040-CCV2	A90_211-0	12/05/09 00:20
Calibration Check	9L07040-CCV2	B90_211-0	12/05/09 00:20
Calibration Check	9L07040-CCV3	A90_212-0	12/05/09 00:57
Calibration Check	9L07040-CCV3	B90_212-0	12/05/09 00:57

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A90_199-0
Sequence: 9L07040
Lab Sample ID: 9L07040-CCV1

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L07005
Calibration Date: 12/04/09 13:33
Injection Date: 12/04/09
Injection Time: 16:47

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	A	0.500	0.689	151145.7	206655.2		36.7	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B90_199-0
Sequence: 9L07040
Lab Sample ID: 9L07040-CCV1

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L07005
Calibration Date: 12/04/09 13:33
Injection Date: 12/04/09
Injection Time: 16:47

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.713	104695.1	148344.7		41.7	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A90_211-0
Sequence: 9L07040
Lab Sample ID: 9L07040-CCV2

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L07005
Calibration Date: 12/04/09 13:33
Injection Date: 12/05/09
Injection Time: 00:20

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC	A	0.0400	0.0342	2.1622E+07	.849225E+0		-14.5	20
beta-BHC	A	0.0400	0.0349	7592304	6620825		-12.8	20
gamma-BHC (Lindane)	A	0.0400	0.0373	.650137E+0	.537463E+0		-6.8	20
delta-BHC	A	0.0400	0.0341	.389125E+0	.184748E+0		-14.7	20
alpha-Chlordane	A	0.0400	0.0372	.191681E+0	1.10911E+07		-6.9	20
gamma-Chlordane	A	0.0400	0.0373	.246649E+0	.162098E+0		-6.8	20
4,4'-DDD	Q	0.0400	0.0457	7971324	8121400		14.2	20
4,4'-DDE	Q	0.0400	0.0403	9575138	8891925		0.8	20
4,4'-DDT	Q	0.0400	0.0478	6333764	7074400		19.5	20
Aldrin	A	0.0400	0.0383	.542536E+0	.477745E+0		-4.2	20
Dieldrin	A	0.0400	0.0372	.149752E+0	.067973E+0		-7.1	20
Endosulfan I	A	0.0400	0.0374	.191865E+0	.115143E+0		-6.4	20
Endosulfan II	Q	0.0400	0.0454	8954046	9080550		13.5	20
Endosulfan Sulfate	A	0.0400	0.0445	7096403	7897125		11.3	20
Endrin	A	0.0400	0.0387	9837082	9511725		-3.3	20
Endrin Aldehyde	Q	0.0400	0.0398	6992311	6334300		-0.5	20
Endrin Ketone	A	0.0400	0.0452	8626207	9749100		13.0	20
Heptachlor	A	0.0400	0.0355	.632179E+0	1.44724E+07		-11.3	20
Heptachlor Epoxide	A	0.0400	0.0375	.314955E+0	.232058E+0		-6.3	20
Methoxychlor	Q	0.0400	0.0437	3193857	3300825		9.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B90_211-0
Sequence: 9L07040
Lab Sample ID: 9L07040-CCV2

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L07005
Calibration Date: 12/04/09 13:33
Injection Date: 12/05/09
Injection Time: 00:20

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
alpha-BHC [2C]	A	0.0400	0.0365	.238093E+0	.131223E+0		-8.6	20
beta-BHC [2C]	A	0.0400	0.0375	4610574	4327375		-6.1	20
gamma-BHC (Lindane) [2C]	A	0.0400	0.0365	.064563E+0	9717400		-8.7	20
delta-BHC [2C]	A	0.0400	0.0359	8673717	7781625		-10.3	20
alpha-Chlordane [2C]	A	0.0400	0.0356	7525535	6694875		-11.0	20
gamma-Chlordane [2C]	A	0.0400	0.0358	7853375	7029150		-10.5	20
4,4'-DDD [2C]	A	0.0400	0.0334	5344570	4459225		-16.6	20
4,4'-DDE [2C]	A	0.0400	0.0345	6507797	5609850		-13.8	20
4,4'-DDT [2C]	A	0.0400	0.0342	4091590	3494125		-14.6	20
Aldrin [2C]	A	0.0400	0.0366	9557935	8739700		-8.6	20
Dieldrin [2C]	A	0.0400	0.0366	7289966	6672375		-8.5	20
Endosulfan I [2C]	A	0.0400	0.0354	7098090	6288950		-11.4	20
Endosulfan II [2C]	Q	0.0400	0.0326	6339038	5001350		-18.5	20
Endosulfan Sulfate [2C]	A	0.0400	0.0400	4882230	4888025		0.1	20
Endrin [2C]	A	0.0400	0.0359	6214515	5577875		-10.2	20
Endrin Aldehyde [2C]	A	0.0400	0.0357	4485750	4000450		-10.8	20
Endrin Ketone [2C]	A	0.0400	0.0337	6207927	5237100		-15.6	20
Heptachlor [2C]	A	0.0400	0.0349	.010012E+0	8816225		-12.7	20
Heptachlor Epoxide [2C]	A	0.0400	0.0353	8335383	7347025		-11.9	20
Methoxychlor [2C]	A	0.0400	0.0320	2158527	1728375		-19.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: A90_212-0
Sequence: 9L07040
Lab Sample ID: 9L07040-CCV3

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L07005
Calibration Date: 12/04/09 13:33
Injection Date: 12/05/09
Injection Time: 00:57

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene	A	0.500	0.628	151145.7	188321		24.6	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8081A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 199
Lab File ID: B90_212-0
Sequence: 9L07040
Lab Sample ID: 9L07040-CCV3

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L07005
Calibration Date: 12/04/09 13:33
Injection Date: 12/05/09
Injection Time: 00:57

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
Toxaphene [2C]	A	0.500	0.661	104695.1	137500.1		31.3	20 *

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

79554 SS

12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30.1 g / 10 mL

Laboratory ID: 0913908-MS1

QC Batch: 0913908

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
alpha-BHC	0.0170	ND	0.0144	85	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0170	ND	0.0150	88	60 - 125	mg/kg dry
beta-BHC	0.0170	ND	0.0128	75	60 - 125	mg/kg dry
beta-BHC [2C]	0.0170	ND	0.0152	90	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0170	ND	0.0133	78	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0170	ND	0.0151	89	60 - 125	mg/kg dry
delta-BHC	0.0170	ND	0.0135	80	55 - 130	mg/kg dry
delta-BHC [2C]	0.0170	ND	0.0167	98	55 - 130	mg/kg dry
alpha-Chlordane	0.0170	ND	0.0135	80	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0170	ND	0.0155	91	65 - 120	mg/kg dry
gamma-Chlordane	0.0170	ND	0.0138	81	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0170	ND	0.0159	93	65 - 125	mg/kg dry
4,4'-DDD	0.0170	ND	0.0181	107	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0170	ND	0.0182	107	30 - 135	mg/kg dry
4,4'-DDE	0.0170	ND	0.0161	95	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0170	ND	0.0168	99	70 - 125	mg/kg dry
4,4'-DDT	0.0170	ND	0.0216	127	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0170	ND	0.0205	121	45 - 140	mg/kg dry
Aldrin	0.0170	ND	0.0124	73	45 - 140	mg/kg dry
Aldrin [2C]	0.0170	ND	0.0155	91	45 - 140	mg/kg dry
Dieldrin	0.0170	ND	0.0142	84	65 - 125	mg/kg dry
Dieldrin [2C]	0.0170	ND	0.0165	97	65 - 125	mg/kg dry
Endosulfan I	0.0170	ND	0.0100	59	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0170	ND	0.0116	68	15 - 135	mg/kg dry
Endosulfan II	0.0170	ND	0.0146	86	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0170	ND	0.0150	88	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0170	ND	0.0181	107	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0170	ND	0.0191	113	60 - 135	mg/kg dry
Endrin	0.0170	ND	0.0148	87	60 - 135	mg/kg dry
Endrin [2C]	0.0170	ND	0.0172	102	60 - 135	mg/kg dry
Endrin Aldehyde	0.0170	ND	0.0132	77	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0170	ND	0.0148	87	35 - 145	mg/kg dry
Endrin Ketone	0.0170	ND	0.0174	102	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

79554 SS

AR 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30.1 g / 10 mL

Laboratory ID: 0913908-MS1

QC Batch: 0913908

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Endrin Ketone [2C]	0.0170	ND	0.0171	101	65 - 135	mg/kg dry
Heptachlor	0.0170	ND	0.0130	77	50 - 140	mg/kg dry
Heptachlor [2C]	0.0170	ND	0.0146	86	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0170	ND	0.0135	79	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0170	ND	0.0152	90	65 - 130	mg/kg dry
Methoxychlor	0.0170	ND	0.0207	122	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0170	ND	0.0283	167 *	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

79554

AB 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0913908-MSD1

QC Batch: 0913908

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
alpha-BHC	0.0170	0.0183	107	24	30	60 - 125	mg/kg dry
alpha-BHC [2C]	0.0170	0.0124	73	19	30	60 - 125	mg/kg dry
beta-BHC	0.0170	0.0146	85	13	30	60 - 125	mg/kg dry
beta-BHC [2C]	0.0170	0.0122	72	22	30	60 - 125	mg/kg dry
gamma-BHC (Lindane)	0.0170	0.0150	88	12	30	60 - 125	mg/kg dry
gamma-BHC (Lindane) [2C]	0.0170	0.0124	73	19	30	60 - 125	mg/kg dry
delta-BHC	0.0170	0.0156	92	14	30	55 - 130	mg/kg dry
delta-BHC [2C]	0.0170	0.0124	73	29	30	55 - 130	mg/kg dry
alpha-Chlordane	0.0170	0.0162	95	18	30	65 - 120	mg/kg dry
alpha-Chlordane [2C]	0.0170	0.0119	70	26	30	65 - 120	mg/kg dry
gamma-Chlordane	0.0170	0.0166	97	19	30	65 - 125	mg/kg dry
gamma-Chlordane [2C]	0.0170	0.0121	71	27	30	65 - 125	mg/kg dry
4,4'-DDD	0.0170	0.0210	123	14	30	30 - 135	mg/kg dry
4,4'-DDD [2C]	0.0170	0.0135	79	30	30	30 - 135	mg/kg dry
4,4'-DDE	0.0170	0.0203	119	23	30	70 - 125	mg/kg dry
4,4'-DDE [2C]	0.0170	0.0128	75	27	30	70 - 125	mg/kg dry
4,4'-DDT	0.0170	0.0255	150 *	16	30	45 - 140	mg/kg dry
4,4'-DDT [2C]	0.0170	0.0166	97	21	30	45 - 140	mg/kg dry
Aldrin	0.0170	0.0146	85	16	30	45 - 140	mg/kg dry
Aldrin [2C]	0.0170	0.0136	80	13	30	45 - 140	mg/kg dry
Dieldrin	0.0170	0.0177	104	22	30	65 - 125	mg/kg dry
Dieldrin [2C]	0.0170	0.0134	78	21	30	65 - 125	mg/kg dry
Endosulfan I	0.0170	0.0120	70	18	30	15 - 135	mg/kg dry
Endosulfan I [2C]	0.0170	0.00920	54	23	30	15 - 135	mg/kg dry
Endosulfan II	0.0170	0.0160	94	9	30	35 - 140	mg/kg dry
Endosulfan II [2C]	0.0170	0.0115	68	26	30	35 - 140	mg/kg dry
Endosulfan Sulfate	0.0170	0.0198	116	9	30	60 - 135	mg/kg dry
Endosulfan Sulfate [2C]	0.0170	0.0143	84	29	30	60 - 135	mg/kg dry
Endrin	0.0170	0.0177	104	18	30	60 - 135	mg/kg dry
Endrin [2C]	0.0170	0.0131	77	27	30	60 - 135	mg/kg dry
Endrin Aldehyde	0.0170	0.0157	92	18	30	35 - 145	mg/kg dry
Endrin Aldehyde [2C]	0.0170	0.0106	62	32 *	30	35 - 145	mg/kg dry
Endrin Ketone	0.0170	0.0169	99	3	30	65 - 135	mg/kg dry
Endrin Ketone [2C]	0.0170	0.0129	75	28	30	65 - 135	mg/kg dry

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8081A

79554

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30 g / 10 mL

Laboratory ID: 0913908-MSD1

QC Batch: 0913908

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Heptachlor	0.0170	0.0157	92	18	30	50 - 140	mg/kg dry
Heptachlor [2C]	0.0170	0.0121	71	19	30	50 - 140	mg/kg dry
Heptachlor Epoxide	0.0170	0.0157	92	15	30	65 - 130	mg/kg dry
Heptachlor Epoxide [2C]	0.0170	0.0129	75	17	30	65 - 130	mg/kg dry
Methoxychlor	0.0170	0.0201	118	3	30	55 - 145	mg/kg dry
Methoxychlor [2C]	0.0170	0.0191	112	39 *	30	55 - 145	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DUAL COLUMN CONFIRMATION CHECK

72SB3B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
Sampled: 11/11/09 15:00
Solids: 84.57
QC Batch: 0913908
GC Column(1):

Laboratory ID: 0911250-07
Prepared: 11/19/09 08:30
Preparation: 3550B Sonication Extracti
Sequence: 9L07040
GC Column(2): RTX CLP Pest2

SDG: SSP1109
Project: RFAAP SSP at Six Sites
File ID: A90_208-0
Analyzed: 12/04/09 22:27
Instrument: 199

Analyte	Col.	RT	EXP RT	Diff.	Area	Conc.	RPD
4,4'-DDE	* 1	15.89	15.92	0.03	593098	0.0262	58.8
	2	17.23	17.18167	0.0483	233970	0.0143	

* Column used for quantitation

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Organochlorine Pesticides by EPA Method 8081A

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8081A

Sample/Analyte:		
	0911250-01 79554	4,4'-DDT
	0911250-01 79554	Methoxychlor [2C]

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-8081A

Sample/Analyte:		
	0911250-01 79554	Endrin Aldehyde [2C]
	0911250-01 79554	Methoxychlor [2C]

Qualification: The RPD between the detected values from the primary and confirmation analyses exceeded 40%. The higher concentration result has been reported.

Analysis: USEPA-8081A

Sample/Analyte:		
	0911250-07 72SB3B	4,4'-DDE

Qualification: The surrogate recovery for TCMX was below the control limit on one of the two columns in the Matrix Spike Duplicate. The parent sample and the Matrix Spike had acceptable surrogate recoveries. No qualification is necessary.

Analysis: USEPA-8081A

Sample/Analyte: 0913908-MSD1

Qualification: The surrogate recovery for TCMX was below the control limit on one of the two columns in the Method Blank. All associated samples had acceptable recoveries. No corrective action was taken.

Analysis: USEPA-8081A

Sample/Analyte: 0913908-BLK1

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ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K24059

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 144
Calibration: 9K24012

'254 Only

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9K24059-CAL1	A49_182-0	11/23/09 22:02
Cal Standard	9K24059-CAL1	B49_182-0	11/23/09 22:02
Cal Standard	9K24059-CAL2	A49_183-0	11/23/09 22:26
Cal Standard	9K24059-CAL2	B49_183-0	11/23/09 22:26
Cal Standard	9K24059-CAL3	A49_184-0	11/23/09 22:50
Cal Standard	9K24059-CAL3	B49_184-0	11/23/09 22:50
Cal Standard	9K24059-CAL4	A49_185-0	11/23/09 23:14
Cal Standard	9K24059-CAL4	B49_185-0	11/23/09 23:14
Cal Standard	9K24059-CAL5	A49_186-0	11/23/09 23:39
Cal Standard	9K24059-CAL5	B49_186-0	11/23/09 23:39
Cal Standard	9K24059-CAL6	A49_187-0	11/24/09 00:03
Cal Standard	9K24059-CAL6	B49_187-0	11/24/09 00:03
Cal Standard	9K24059-CAL7	A49_188-0	11/24/09 00:27
Cal Standard	9K24059-CAL7	B49_188-0	11/24/09 00:27
Secondary Cal Check	9K24059-SCV1	A49_189-0	11/24/09 00:51
Secondary Cal Check	9K24059-SCV1	B49_189-0	11/24/09 00:51
72SB3B	0911250-07RE1	A49_190-0	11/24/09 01:16
72SB3B	0911250-07RE1	B49_190-0	11/24/09 01:16
79SS5	0911250-03RE1	A49_191-0	11/24/09 01:40
79SS5	0911250-03RE1	B49_191-0	11/24/09 01:40
DUP	0911250-04RE1	A49_192-0	11/24/09 02:04
DUP	0911250-04RE1	B49_192-0	11/24/09 02:04
79554	0911250-01RE1	A49_193-0	11/24/09 02:28
79554	0911250-01RE1	B49_193-0	11/24/09 02:28
Calibration Check	9K24059-CCV1	A49_194-0	11/24/09 02:53
Calibration Check	9K24059-CCV1	B49_194-0	11/24/09 02:53

CONTINUING CALIBRATION CHECK
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 144
Lab File ID: A49_194-0
Sequence: 9K24059
Lab Sample ID: 9K24059-CCV1

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9K24012
Calibration Date: 11/23/09 13:13
Injection Date: 11/24/09
Injection Time: 02:53

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
PCB-1254	A	0.400	0.336	526251.7	441337.8		-16.1	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9L08039

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 144
Calibration: 9L08011

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Cal Standard	9L08039-CAL1	A50_002-0	12/07/09 07:35	
Cal Standard	9L08039-CAL1	B50_002-0	12/07/09 07:35	
Cal Standard	9L08039-CAL2	A50_003-0	12/07/09 07:59	
Cal Standard	9L08039-CAL2	B50_003-0	12/07/09 07:59	
Cal Standard	9L08039-CAL3	A50_004-0	12/07/09 08:23	
Cal Standard	9L08039-CAL3	B50_004-0	12/07/09 08:23	
Cal Standard	9L08039-CAL4	A50_005-0	12/07/09 08:47	
Cal Standard	9L08039-CAL4	B50_005-0	12/07/09 08:47	
Cal Standard	9L08039-CAL5	A50_006-0	12/07/09 09:12	
Cal Standard	9L08039-CAL5	B50_006-0	12/07/09 09:12	
Cal Standard	9L08039-CAL6	A50_007-0	12/07/09 09:36	
Cal Standard	9L08039-CAL6	B50_007-0	12/07/09 09:36	
Calibration Check	9L08039-CCV1	A50_008-0	12/07/09 10:00	✓
Calibration Check	9L08039-CCV1	B50_008-0	12/07/09 10:00	✓
Calibration Check	9L08039-CCV2	A50_019-0	12/07/09 14:35	✓
Calibration Check	9L08039-CCV2	B50_019-0	12/07/09 14:35	✓
79554	0911250-01	A50_028-0	12/07/09 19:55	
79554	0911250-01	B50_028-0	12/07/09 19:55	
Calibration Check	9L08039-CCV3	A50_030-0	12/07/09 20:44	X
Calibration Check	9L08039-CCV3	B50_030-0	12/07/09 20:44	✓
79SS5	0911250-03	A50_031-0	12/07/09 21:08	
79SS5	0911250-03	B50_031-0	12/07/09 21:08	
DUP	0911250-04	A50_32-0	12/07/09 21:32	
DUP	0911250-04	B50_32-0	12/07/09 21:32	
Calibration Check	9L08039-CCV4	A50_033-0	12/07/09 21:56	X
Calibration Check	9L08039-CCV4	B50_033-0	12/07/09 21:56	✓

CONTINUING CALIBRATION CHECK
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 144
Lab File ID: A50_030-0
Sequence: 9L08039
Lab Sample ID: 9L08039-CCV3

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L08011
Calibration Date: 12/07/09 11:57
Injection Date: 12/07/09
Injection Time: 20:44

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
PCB-1016	L	0.400	0.454	344003.5	349819.5		13.5	20
PCB-1260	L	0.400	0.466	875628	905062.8		16.6	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Instrument ID: 144
Lab File ID: A50_033-0
Sequence: 9L08039
Lab Sample ID: 9L08039-CCV4

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Calibration: 9L08011
Calibration Date: 12/07/09 11:57
Injection Date: 12/07/09
Injection Time: 21:56

Analyte	Type	CONC. (ug/mL)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
PCB-1016	L	0.400	0.457	344003.5	351706.3		14.2	20
PCB-1260	L	0.400	0.468	875628	907256.5		16.9	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8082

79554

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 29.9 g / 10 mL

Laboratory ID: 0913907-MS1

QC Batch: 0913907

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
PCB-1016	214	ND	156	73	40 - 140	ug/kg dry
PCB-1016 [2C]	214	ND	159	74	40 - 140	ug/kg dry
PCB-1260	214	ND	166	78	60 - 130	ug/kg dry
PCB-1260 [2C]	214	ND	174	81	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

79554

USEPA-8082

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3550B Sonication Extraction

Initial/Final: 30.2 g / 10 mL

Laboratory ID: 0913907-MSD1

QC Batch: 0913907

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
PCB-1016	212	192	91	21	30	40 - 140	ug/kg dry
PCB-1016 [2C]	212	198	94	22	30	40 - 140	ug/kg dry
PCB-1260	212	211	100	24	30	60 - 130	ug/kg dry
PCB-1260 [2C]	212	221	104	24	30	60 - 130	ug/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET

Explosives

Reviewer: Andrea Sansom
Date: December 21, 2009
DV Level: II III IV

Review Document:

_X_ Region III Modified for National Functional Guidelines
___ NFG for organic Data review (February 1994)
_X_ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP1109
Test Name: Explosives
Method No.: 8330-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{O}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.			X
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.		X	

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%		X	
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria not to exceed 30-150% for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike recoveries outside the QC limits not to exceed 40-150%?	X		
6.4	Are there any RPDs outside the QC limits not to exceed 60%?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits not to exceed 40-150%?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits not to exceed 60%?		X	
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are all positive identifications confirmed on second column or detector? If not, reject or estimate this detection.	X		
9.2	For positive sample detections, is RPD <40% between first and second columns. If not, apply J.		X	
9.3	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	X		

Notes:

10.0 Data Completeness			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	7			
	Number of target compounds in each analysis:	14			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K25021

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 221
Calibration: 9F23012

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Calibration Check	9K25021-CCV1	data011-0	11/24/09 11:00
Blank	0914009-BLK1	data012-0	11/24/09 12:08
LCS	0914009-BS1	data013-0	11/24/09 12:51
79554	0911250-01	data014-0	11/24/09 13:33
79SB3B	0911250-02	data015-0	11/24/09 14:15
79SS5	0911250-03	data016-0	11/24/09 14:57
DUP	0911250-04	data017-0	11/24/09 15:39
79SB1B	0911250-05	data018-0	11/24/09 16:23
72SB2B	0911250-06	data019-0	11/24/09 17:07
72SB3B	0911250-07	data020-0	11/24/09 17:49
79554	0914009-MS1	data021-0	11/24/09 18:31
Calibration Check	9K25021-CCV2	data022-0	11/24/09 19:13
79554	0914009-MSD1	data023-0	11/24/09 19:55
Calibration Check	9K25021-CCV3	data024-0	11/24/09 20:38

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: data022-0
Calibration Date: 06/22/09 14:47
Sequence: 9K25021
Injection Date: 11/24/09
Lab Sample ID: 9K25021-CCV2
Injection Time: 19:13

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	788	21.60856	20.6927		-4.2	20
1,3-Dinitrobenzene	A	800	813	23.2766	23.12561		-0.6	20
2,4,6-Trinitrotoluene	A	800	785	14.05836	13.34321		-5.1	20
2,4-Dinitrotoluene	A	800	827	15.58131	15.83556		1.6	20
2,6-Dinitrotoluene	A	800	791	8.967104	8.8556		-1.2	20
2-Amino-4,6-dinitrotoluene	A	800	860	7.924614	8.092125		2.1	20
2-Nitrotoluene	A	800	811	6.897007	6.722638		-2.5	20
3-Nitrotoluene	A	800	822	6.600428	6.535213		-1.0	20
4-Amino-2,6-dinitrotoluene	A	800	839	6.172953	6.01135		-2.6	20
4-Nitrotoluene	A	800	796	5.405638	5.353113		-1.0	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	793	7.391476	7.19145		-2.7	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	650	9.42282	7.549713		-19.9	20
Nitrobenzene	A	800	811	14.12719	13.93411		-1.4	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	836	8.330255	8.147375		-2.2	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

CONTINUING CALIBRATION CHECK
USEPA-8330

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Instrument ID: 221
Calibration: 9F23012
Lab File ID: data024-0
Calibration Date: 06/22/09 14:47
Sequence: 9K25021
Injection Date: 11/24/09
Lab Sample ID: 9K25021-CCV3
Injection Time: 20:38

Analyte	Type	CONC. (ug/L)		Response Factor			% Diff. / Drift	
		STD	CCV	ICAL	CCV	MIN (#)	CCV	LIMIT (#)
1,3,5-Trinitrobenzene	A	800	786	21.60856	20.64178		-4.5	20
1,3-Dinitrobenzene	A	800	810	23.2766	23.05809		-0.9	20
2,4,6-Trinitrotoluene	A	800	785	14.05836	13.3495		-5.0	20
2,4-Dinitrotoluene	A	800	837	15.58131	16.01951		2.8	20
2,6-Dinitrotoluene	A	800	796	8.967104	8.906388		-0.7	20
2-Amino-4,6-dinitrotoluene	A	800	865	7.924614	8.14085		2.7	20
2-Nitrotoluene	A	800	837	6.897007	6.937575		0.6	20
3-Nitrotoluene	A	800	865	6.600428	6.87675		4.2	20
4-Amino-2,6-dinitrotoluene	A	800	864	6.172953	6.189688		0.3	20
4-Nitrotoluene	A	800	834	5.405638	5.606375		3.7	20
Hexahydro-1,3,5-trinitro-1,3,5-tr	A	800	796	7.391476	7.222313		-2.3	20
Methyl-2,4,6-trinitrophenylnitrar	A	800	642	9.42282	7.450275		-20.9	20 *
Nitrobenzene	A	800	808	14.12719	13.88818		-1.7	20
Octahydro-1,3,5,7-tetranitro-1,3,	A	800	828	8.330255	8.076313		-3.0	20

Column to be used to flag Response Factor and %Diff/Drift values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8330

79554 SG

AB 12/22/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 8330 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0914009-MS1

QC Batch: 0914009

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	ND	1.82	91	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	ND	2.00	100	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	ND	2.34	117	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	1.96	ND	2.38	121	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	ND	2.39	119	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	ND	4.10	102	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	ND	2.67	133 *	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	ND	2.49	125 *	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	ND	2.20	110	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	ND	2.31	116	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	1.97	ND	1.84	93	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	ND	2.27	114	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	ND	2.13	107	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	1.99	ND	1.88	94	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8330

79554

12/22/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 8330 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0914009-MSD1

QC Batch: 0914009

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
1,3,5-Trinitrobenzene	2.00	1.80	90	0.6	30	75 - 125	mg/kg dry wt.
1,3-Dinitrobenzene	2.00	1.99	100	0.5	30	80 - 125	mg/kg dry wt.
2,4,6-Trinitrotoluene	2.00	2.05	102	13	30	55 - 140	mg/kg dry wt.
2,4-Dinitrotoluene	1.96	2.20	112	8	30	80 - 125	mg/kg dry wt.
2,6-Dinitrotoluene	2.00	2.07	104	14	30	80 - 120	mg/kg dry wt.
2-Amino-4,6-dinitrotoluene	4.00	4.10	103	0.1	30	80 - 125	mg/kg dry wt.
2-Nitrotoluene	2.00	2.18	109	20	30	80 - 125	mg/kg dry wt.
3-Nitrotoluene	2.00	2.07	103	19	30	75 - 120	mg/kg dry wt.
4-Amino-2,6-dinitrotoluene	2.00	2.13	107	3	30	80 - 125	mg/kg dry wt.
4-Nitrotoluene	2.00	1.98	99	16	30	75 - 125	mg/kg dry wt.
Hexahydro-1,3,5-trinitro-1,3,5-tria	1.97	1.86	94	1	30	70 - 135	mg/kg dry wt.
Methyl-2,4,6-trinitrophenylnitram	2.00	1.84	92	21	30	10 - 150	mg/kg dry wt.
Nitrobenzene	2.00	2.06	103	3	30	75 - 125	mg/kg dry wt.
Octahydro-1,3,5,7-tetranitro-1,3,5	1.99	1.89	95	0.4	30	75 - 125	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

SINGLE-COMPONENT IDENTIFICATION SUMMARY

EPA SAMPLE #: 79ss5 LAB SAMPLE # 0911250-03

	COLUMN 1	COLUMN 2
Inst.ID:	221	221
Column:	AcclaimE2	Hydro
ID(mm):	4.6	4.6

Compound	Column	Retention Time	RT Window From	RT Window To	Concentration (ug/kg)	RPD
Nitrobenzene	1	14.58	13.58	14.64	52.90810	55.9%
	2	10.71	10.32	11.14	93.96330	

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Nitroaromatics & Nitramines by EPA Method 8330

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-8330

Sample/Analyte:	
0911250-01 79554	2-Nitrotoluene
0911250-01 79554	3-Nitrotoluene

Qualification: The RPD between the detected values from the primary and confirmation analyses exceeded 40%. The higher concentration result has been reported.

Analysis: USEPA-8330

Sample/Analyte:	
0911250-03 79SS5	Nitrobenzene

Qualification: Manual integration was performed on this sample for the analyte(s) listed below in accordance with the TriMatrix Manual Integration SOP. All necessary documentation, including the signed review, is included in the raw data section of the data package.

Analysis: USEPA-8330

Sample/Analyte:	
9F26032-CAL1	4-Nitroaniline
9F26032-CAL1	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
9F26032-CAL2	4-Nitroaniline
9F26032-CAL2	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)
9F26032-SCV1	4-Nitroaniline
9F26032-SCV1	Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)

5560 Corporate Exchange Court SE • Grand Rapids, MI 49512 • (616) 975-4500 • Fax (616) 942-9465

DATA VALIDATION WORKSHEET

Nitroglycerin/PETN

Reviewer: Andrea Sansom
Date: December 21, 2009
DV Level: II III IV
Review Document:
_X__ Region III Modified for National Functional Guidelines
____ NFG for organic Data review (February 1994)
____ Project QAPP/SAP

Project Name: Radford SSP
Project Number: 11657490.40000
Laboratory: TriMatrix
SDG No.: SSP1109
Test Name: Nitroglycerin/PETN
Method No.: 8332-HPLC

1.0 Laboratory Deliverables		Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples that were analyzed?	X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X	
1.4	Are the sample preparation benchsheets present and complete with sample volume/weights, dilutions, final volumes. %		X	
1.5	Are the measurement read out records legible and complete (properly labeled, and include all samples and QC)?	X		

Notes:

2.0 Holding Times		Yes	No	NA
2.1	Do sample preservation, collection and storage condition meet method requirement?	X		
	Action: If the temperature of the cooler was elevated (> 10 ^{o}C), then flag all positive results with a "J" and all non-detects "UJ".			
2.2	Have any technical holding times, determined from date of sampling to date of analysis (including dilution and reanalyese, been exceeded? Action: If yes, apply J (+) and UJ (-) to all analytes in the sample. For aqueous matrix - 7 days (extraction) and 40 days (analysis) For soil matrix - 14 days (extraction) and 40 days (analysis).		X	
2.3	Have any technical holding times been grossly (twice the holding time) exceeded? If yes, note in the DV report.		X	

Notes:

3.0 Blanks (Laboratory and Field)		Yes	No	NA
3.1	Were method blanks (MB) prepared at the appropriate frequency (one per 20 samples, per batch per matrix?)	X		
3.2	Do any method blanks have positive results? Action: If Yes, positive sample results< 5 Xblank conc. in the associated should be reported and qualified "B".		X	
3.3	Do any field equipment blanks/trip blanks have positive results? If yes, use same rules above.			X
3.4	Are there field equipment blank/trip blanks associated with every sample? If No, note in the DV report.		X	

Notes:

4.0 Initial and Continuing Calibration		Yes	No	NA
4.1	Are sufficient standards (5 for first order, 6 for second order, or 7 for third order) included in the calibration curve? If no, apply professional judgement towards usability.	X		
4.2	Was an initial calibration analyzed at the beginning of each analysis? If No, apply R to all results for specific analyte(s) for all samples associated with the calibration.	X		
4.3	Are all calibration standard (ICV and CCV) %RSD (or correlation coefficient) or % drift within the control limits? Control Limits: r≥0.99, %RSD < ± 20% and %D < ± 15%	X		
	For initial Calibration: for %RSD > ± 20%, but < ± 50%, J(+) only. for %RSD > ± 50%, but < ± 80%, J(+)/UJ(-); for %RSD > + 80%, J(+)/R(-).			
	For Continuing Calibration: displaying a negative bias: %D > + 15% and < + 50%, J(+)/UJ(-), >50%J(+)/R(-); displaying a positive bias >15%, J(+).			
4.4	Has a continuing calibration verification been analyzed prior to and after every 10 samples and at the end of the analysis sequence? If no, apply R to associated samples.	X		

Notes:

5.0 Surrogate Recovery		Yes	No	NA
5.1	Are all samples listed on the appropriate Surrogate Recovery Summary Form ?	X		
5.2	Are surrogate recoveries within acceptance criteria for all samples and method blanks?	X		
5.3	If No in Section 5.2, are these sample(s) or method blank(s) reanalyzed?			X
5.4	If No in Section 5.3, is any sample DF greater than 10? No action is taken if surrogate is expected to be diluted out.			X
	Action: If No, for any %R > UCL, apply K to all positive results of analytes; for any %R < LCL, but > 10%, L(+)/UL (-); for any %R < 10%, apply L (+) and R (-) to all results of analytes asociated with the surrogate.			

Notes:

6.0 Matrix Spike/Matrix Spike Duplicate (MS/MSD)		Yes	No	NA
6.1	Is the matrix spike/matrix spike duplicate recovery form present?	X		
6.2	Were matrix spikes analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
6.3	Are there any %R for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	Are there any RPD for matrix spike and matrix spike duplicate recoveries outside the QC limits?		X	
	No action is taken on MS/MSD data alone. However, using informed professional judgement, the data reviewer may use the MS and MSD results in conjunction with other QC criteria to determine the need for some qualification of the data. If determined to affect only the sample spiked, then qualify the parent sample alone. If determined that problem is systematic, flag all associated samples.			

Notes:

7.0 Laboratory Control Sample (LCS)		Yes	No	NA
7.1	Is the LCS/LCSD recovery form present?	X		
7.2	Were LCS/LCSD analyzed at required frequency (one per 20 samples per batch) for each matrix?	X		
7.3	Are there any %R for LCS/LCSD recoveries outside the QC limits?		X	
	Action: If Yes, for %R > UCL, J(+) only; for %R < LCL, J(+)/R(-).			
7.4	Are there any RPD for LCS/LCSD recoveries outside the QC limits?			X
	Action: If Yes, J(+) only.			

Notes:

8.0 Field Duplicate		Yes	No	NA
8.1	Were field duplicate prepared and analyzed at the corrected frequency (one per 20 samples, per matrix and per level)?	X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.			
8.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report.	X		

Notes:

9.0 Compound Identification and Detection Limit Verification		Yes	No	NA
9.1	Are any target compounds detected in the field samples? If Yes, is all positive identifications were confirmed in second column? Apply J flag if RPD >40% between first and second columns.		X	
9.2	Do detection limits meet those required by the project QAPP and were they properly adjusted for dilution factors and moisture (including adjustment of wet weight aliquot)?	DQOs		

Notes:

10.0 Data Completeness			Yes	No	NA
10.1	Is % completeness within the control limits? (Control limit 90%)		X		
	Number of samples:	7			
	Number of target compounds in each analysis:	2			
	Number of results rejected and not reported:	0			
	% Completeness = (10.1.1 x 10.1.2 - 10.1.3) x 100/(10.1.1 x 10.1.2)				
	% Completeness =	100%			

Notes:

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8332

79554 55

12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 8332 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0914010-MS1

QC Batch: 0914010

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Nitroglycerin	10.0	ND	9.00	90	70 - 120	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	0.339	9.18	88	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-8332

79554

12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 8332 Extraction

Initial/Final: 2 g / 20 mL

Laboratory ID: 0914010-MSD1

QC Batch: 0914010

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Nitroglycerin	10.0	9.22	92	2	20	70 - 120	mg/kg dry wt.
Pentaerythritol Tetranitrate	10.0	9.32	90	2	20	30 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DATA VALIDATION WORKSHEET
INORGANIC - ICP, CVAA, AND CYANIDE
REGION III - NATIONAL FUNCTIONAL GUIDELINES

Project Name: Radford SSP
SDG No.: SSP1109 **Reviewer:** Andrea Sansom
Project No.: 11657490.40000 **Date:** December 21, 2009

		6020			6010B			CVAA-Hg			Cyanide		
1.0 Chain of Custody/Sample Condition/Raw Data		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
1.1	Do Chain-of-Custody forms list all samples which were analyzed?	X			X			X			X		
1.2	Are all Chain-of-Custody forms signed, indicating sample chain-of-custody was maintained?	X			X			X			X		
1.3	Do the traffic Reports, chain-of-custody, and lab narrative indicate any problems with sample receipt, condition of samples, analytical problems or special circumstances affecting the quality of the data?		X			X			X			X	
1.4	Does sample preservation, collection and storage meet method requirement? (For metal: water samples: with Nitric Acid to pH < 2, and soil/sediment samples: 4 ^{o}C $\pm$ 2 ^{o}C)	X			X			X			X		
1.5	Are the digestion logs present and complete with pH values, sample weights, dilutions, final volumes. % solids (for soil samples), and preparation dates? For any missing or incomplete documentation, contact the laboratory for explanation/resubmittal.	X			X			X			X		

Note: _____

		6020			6010B			CVAA-Hg			Cyanide		
2.0 Holding Time		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
2.1	Have any technical holding times, determined from date of collection to date of analysis, been exceeded? (Hg: 28days, CN: 14 days, other metals: 6 months) Action:L(+)/UL(-). If the holding time is grossly exceeded (twice the holding time criteria), L(+)/R(-).		X			X			X			X	

Note: _____

3.0 Instrument Calibration		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
3.1	Are sufficient standards included in the calibration curve? (ICP& ICPMS: blank + one standard & a RL standard OR 3 standards and a blank with one standard at the RL; CVAA: blank + five standards with one standard at the RL). If not, qualify with "R".	6+BLK			4+BLK			5+BLK			6+BLK		
3.2	Are the correlation coefficients > 0.99? Action: J(+)/UJ(-).	X			X			X			X		
3.3	Once per calibration, did a high and low distilled standard recovery within 85-115%? If no, follow 3.6.										X		
3.4	Was an initial calibration check standard (ICV) analyzed immediately after instrument system had been calibrated? Action: If no, all associated data are rejected "R".	X			X			X			X		
3.5	Was continuing calibration verification (CCV) analyzed at a minimum frequency of 10% (every 10 samples) during an analytical run and at the end of the analytical run? If not, document and flag based on professional judgement.	X			X			X			X		
3.6	Are all calibration standard percent recoveries (ICV and CCV) within the control limits? For ICP 90%-110%; Hg 80-120%; CN 85-115%.	X			X			X			X		
	ICV and CCV: Action: L(+)/R(-) L(+)/UL(-) K(+) Mercury < 65% 65% - 79% > 120% Cyanide < 65% 65% - 84% > 115% Other Metals < 75% 75% - 89% > 110%												
3.7	For ICP & ICPMS, did the CRDL standard recover between 80-120%?			X			X	X			X		
	<50% 50%-79% >120% 2xCRDL>[sample]>IDL L(+)/R(-) L(+)/UL(-) K												

Note: _____

4.0 Blanks

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
4.1	Were method blank (MB) prepared at the appropriate frequency (one per 20 samples, per batch, per matrix and per level)?	X			X			X			X		
4.2	Were calibration blanks (ICB and CCBs) analyzed immediately after each and every ICV and CCVs? Action: If no ICB was run, all associated data are rejected. If the frequency of the CCBs does not follow requirement, all associated data are qualified "J".	X			X			X			X		
4.3	Are there reported MB or ICB/CCBs values > MDL?		X		X				X			X	
	Sample Results > MDL												
	< 5X Blank Contamination B												
4.4	Are there negative blank results with the absolute value > MDL?	X			X				X			X	
	Sample Results Non-detects > MDL												
	< 5X absolute Blank Contamination UL L												
4.5	Are there reported field blank > ± MDL?			X			X			X			X
	Sample Results > MDL												
	< 5X Blank Contamination B												

Note: _____

5.0 ICP Interference Check Sample (ICS)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
5.1	Was ICS analyzed at beginning of each ICP run?	X			X								
5.2	Are the ICS AB recoveries within 80% - 120%?	X			X								
5.3	Are the results for unspiked analytes (in ICS A) < ± RL?	X				X							
5.4	If not, are the associated sample Al, Ca, Fe, and Mg concentrations less than the level in the ICS?			X		X							
	If not...												
	Action: Not Spiked Analytes Spiked analytes (ICS AB analytes)												
	< -MDL > MDL < 50% 50% - 79% >120%												
	L(+)/UL(-) K(+) L(+)/R(-) L(+)/UL(-) K(+)												

Note: _____

6.0 Laboratory Control Sample (LCS)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
6.1	Was an LCS prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+) any sample not associated with LCS results.	X			X			X			X		
6.2	Is any LCS recovery outside the control limits? (Aqueous limits: 80% - 120% - except Ag and Sb; Solid limits: as per EPA-EMSL/LV)		X			X			X			X	
	Action: Solid: < LCL L(+)/UL(-); > UCL K(+). Aqueous: < 50% L(+)/R(-); 50% - 79% L(+)/UL(-); > 120% K(+)												

Note:

7.0 Laboratory Duplicates (MSD)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
7.1	Were Laboratory duplicates prepared and analyzed at the correct frequency (one per 20 samples, per batch, per matrix and per level)? Action: If no, J(+), using professional judgement, analytes not associated with duplicate results.	X			X			X			X		
	For aqueous 6010B and Hg - RPD< 25%, aqueous CN - RPD < 20%, aqueous 6020 - RPD < 20%, and for soil - use laboratory generated limits for MS/MSD.												
7.2	Are all analyte duplicate results within control limits? If no, qualify all associated field samples J(+)/UJ(-) for the analyte with results that fall outside criteria.	X			X			X			X		

Note:

8.0 Spike Sample Analysis -Pre-Digestion/Post-Digestion

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
8.1	Was a spiked sample prepared and analyzed at the correct frequency (one per 20 samples, batch, matrix and level)? If not, J(+) with professional judgement.	X			X			X			X		
8.2	For all analytes with sample concentration > 4 x spike concentration, are spike recoveries within the control limit of 75-125%?		X			X		X			X		
	%R > 125% / 30%< %R < 74% / < 30%												
	Positive: K / L / L												
	Non-detect: None / UL / R												
8.3	Where pre-digestion matrix spike analytes were outside the acceptable recovery limits(except Ag), was a post-digestion spike performed? Note any failures in DV report, but no data qualifying action is required.	X			X			X			X		

Note: _____

9.0 Instrument Detection Limits (IDL)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
9.1	Are all IDLs/RLs equal to or less than the reporting limits specified?	X			X			X			X		

Note: _____

10.0 ICP/AA Serial Dilutions (Not for Mercury Analysis)

		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
10.1	Were serial dilutions performed?	X			X								
10.2	Was a five-fold dilution performed?	X			X								
10.3	Did the serial dilution results agree within 10% for ICP analyte concentration > 5 X the RL for 6010 or > 20 X the RL for 6020 in the original sample? If no, J(+).	X			X								

Note: _____

11.0 Field Duplicate Samples		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
11.1	Were any field duplicates submitted for metal analysis?	X			X			X			X		
	For sample results > 5 x RL, a control limit of 25% RPD for water and 35% RPD for soil will be used. For sample results < 5 x RL, a control limit of 2 x RL for water and 4 X RL for soil will be used.												
11.2	Are all analyte duplicate results within control limits? Generally, no action is taken on percent difference of field duplicate results. Results that fall outside criteria recommended above should be noted during data validation and discussed in the DV report	X			X			X			X		

Note: _____

12.0 Result Verification/ Internal Standards/ Tune		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
12.1	Were all results and detection limits for solid-matrix samples reported on a dry-weight basis?			X			X			X	X		
12.2	Were all dilution reflected in the positive results and detection limits?	X			X					X			X
12.3	Were the Internal Standard recoveries within 30-120%	X			X								
12.4	Were the tunes run at a minimum of four times with RSD < 5% for analytes in solution?	X											
12.5	Were the tune mass calibrations < 0.1 amu from the true value?	X											
12.6	Was the resolution check peak width < 0.9 amu at 10% peak height?	X											

Note: 6020, 6010, 7471 soils were air dried before digestion therefore no percent solids adjustments were required.

13.0 Completeness Calculation		6020			6010B			CVAA-Hg			Cyanide		
		Yes	No	NA	Yes	No	NA	Yes	No	NA	Yes	No	NA
13.1	Is % completeness within the control limits? (Control limit 90%)	X			X			X			X		
13.1.1	Number of samples: 7												
13.1.2	Number of target compounds in each analysis:												
13.1.3	Number of results rejected and not reported:												
	% Completeness = (13.1.1 x 13.1.2 - 13.1.3) x 100/(13.1.1 x 13.1.2)												
	% Completeness =	100%			100%			100%			100%		

Note: _____

BLANKS
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K23075

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument ID: 114
Calibration: 9K23026

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9K23075-CCB1	Arsenic	0.0000060	0.00020	0.000060	mg/L	U	11/23/09 15:35
	Copper	0.0000030	0.00040	0.000086	mg/L	U	11/23/09 15:35
	Lead	-0.000013	0.00040	0.000099	mg/L	U	11/23/09 15:35
	Nickel	0.0000030	0.00020	0.000050	mg/L	U	11/23/09 15:35
	Selenium	0.00012	0.00040	0.000099	mg/L	J	11/23/09 15:35
	Silver	0.000020	0.00020	0.000022	mg/L	U	11/23/09 15:35
	Thallium	0.0000020	0.00020	0.000012	mg/L	U	11/23/09 15:35
	Vanadium	-0.0000010	0.00020	0.000065	mg/L	U	11/23/09 15:35
9K23075-CCB2	Arsenic	-0.00010	0.00020	0.000060	mg/L	J	11/23/09 15:52
	Copper	0.0000030	0.00040	0.000086	mg/L	U	11/23/09 15:52
	Lead	-0.000016	0.00040	0.000099	mg/L	U	11/23/09 15:52
	Nickel	0.0000030	0.00020	0.000050	mg/L	U	11/23/09 15:52
	Selenium	0.000063	0.00040	0.000099	mg/L	U	11/23/09 15:52
	Silver	0.000018	0.00020	0.000022	mg/L	U	11/23/09 15:52
	Thallium	0.0000010	0.00020	0.000012	mg/L	U	11/23/09 15:52
	Vanadium	-0.0000090	0.00020	0.000065	mg/L	U	11/23/09 15:52
9K23075-CCB3	Arsenic	-0.000042	0.00020	0.000060	mg/L	U	11/23/09 16:42
	Copper	0.0000050	0.00040	0.000086	mg/L	U	11/23/09 16:42
	Lead	-0.000017	0.00040	0.000099	mg/L	U	11/23/09 16:42
	Nickel	0.0000030	0.00020	0.000050	mg/L	U	11/23/09 16:42
	Selenium	0.000062	0.00040	0.000099	mg/L	U	11/23/09 16:42
	Silver	0.000015	0.00020	0.000022	mg/L	U	11/23/09 16:42
	Thallium	0.0	0.00020	0.000012	mg/L	U	11/23/09 16:42
	Vanadium	-0.000024	0.00020	0.000065	mg/L	U	11/23/09 16:42
9K23075-CCB4	Arsenic	-0.000066	0.00020	0.000060	mg/L	J	11/23/09 17:25
	Copper	0.0000090	0.00040	0.000086	mg/L	U	11/23/09 17:25
	Lead	-0.000021	0.00040	0.000099	mg/L	U	11/23/09 17:25
	Nickel	0.0	0.00020	0.000050	mg/L	U	11/23/09 17:25
	Selenium	-0.000094	0.00040	0.000099	mg/L	U	11/23/09 17:25
	Silver	0.000015	0.00020	0.000022	mg/L	U	11/23/09 17:25
	Thallium	0.0	0.00020	0.000012	mg/L	U	11/23/09 17:25
	Vanadium	-0.000035	0.00020	0.000065	mg/L	U	11/23/09 17:25

* Values outside of QC limits

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K23075

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9K23026

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9K23075-CAL1	9k23075-003	11/23/09 15:03
Cal Standard	9K23075-CAL2	9k23075-004	11/23/09 15:06
Cal Standard	9K23075-CAL3	9k23075-005	11/23/09 15:09
Cal Standard	9K23075-CAL4	9k23075-006	11/23/09 15:12
Cal Standard	9K23075-CAL5	9k23075-007	11/23/09 15:15
Cal Standard	9K23075-CAL6	9k23075-008	11/23/09 15:18
Cal Standard	9K23075-CAL7	9k23075-009	11/23/09 15:21
Cal Standard	9K23075-CAL8	9k23075-010	11/23/09 15:25
Secondary Cal Check	9K23075-SCV1	9k23075-011	11/23/09 15:30
Calibration Check	9K23075-CCV1	9k23075-011	11/23/09 15:30
Calibration Blank	9K23075-CCB1	9k23075-012	11/23/09 15:35
Interference Check A	9K23075-IFA1	9k23075-013	11/23/09 15:39
Interference Check B	9K23075-IFB1	9k23075-014	11/23/09 15:43
Calibration Check	9K23075-CCV2	9k23075-015	11/23/09 15:47
Calibration Blank	9K23075-CCB2	9k23075-016	11/23/09 15:52
Blank	0913884-BLK1	9k23075-017	11/23/09 15:55
LCS	0913884-BS1	9k23075-018	11/23/09 15:59
79554	0911250-01	9k23075-019	11/23/09 16:04
79554	0911250-01	9k23075-019	11/23/09 16:04
79554	0911250-01	9k23075-019	11/23/09 16:04
79554	0911250-01	9k23075-019	11/23/09 16:04
79554	0911250-01	9k23075-019	11/23/09 16:04
79554	0911250-01	9k23075-019	11/23/09 16:04
79554	0911250-01	9k23075-019	11/23/09 16:04
79554	0913884-MS1	9k23075-020	11/23/09 16:07
79554	0913884-MSD1	9k23075-021	11/23/09 16:13
79554	9K23075-SRD1	9k23075-022	11/23/09 16:18
79554	0913884-PS1	9k23075-023	11/23/09 16:21
79SB3B	0911250-02	9k23075-024	11/23/09 16:27
79SB3B	0911250-02	9k23075-024	11/23/09 16:27
79SB3B	0911250-02	9k23075-024	11/23/09 16:27
79SB3B	0911250-02	9k23075-024	11/23/09 16:27

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K23075

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9K23026

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
79SB3B	0911250-02	9k23075-024	11/23/09 16:27
79SB3B	0911250-02	9k23075-024	11/23/09 16:27
79SB3B	0911250-02	9k23075-024	11/23/09 16:27
79SB3B	0911250-02	9k23075-024	11/23/09 16:27
79SS5	0911250-03	9k23075-025	11/23/09 16:30
79SS5	0911250-03	9k23075-025	11/23/09 16:30
79SS5	0911250-03	9k23075-025	11/23/09 16:30
79SS5	0911250-03	9k23075-025	11/23/09 16:30
79SS5	0911250-03	9k23075-025	11/23/09 16:30
79SS5	0911250-03	9k23075-025	11/23/09 16:30
79SS5	0911250-03	9k23075-025	11/23/09 16:30
79SS5	0911250-03	9k23075-025	11/23/09 16:30
DUP	0911250-04	9k23075-026	11/23/09 16:33
DUP	0911250-04	9k23075-026	11/23/09 16:33
DUP	0911250-04	9k23075-026	11/23/09 16:33
DUP	0911250-04	9k23075-026	11/23/09 16:33
DUP	0911250-04	9k23075-026	11/23/09 16:33
DUP	0911250-04	9k23075-026	11/23/09 16:33
DUP	0911250-04	9k23075-026	11/23/09 16:33
DUP	0911250-04	9k23075-026	11/23/09 16:33
Calibration Check	9K23075-CCV3	9k23075-027	11/23/09 16:36
Calibration Blank	9K23075-CCB3	9k23075-028	11/23/09 16:42
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
79SB1B	0911250-05	9k23075-029	11/23/09 16:45
72SB2B	0911250-06	9k23075-030	11/23/09 16:48
72SB2B	0911250-06	9k23075-030	11/23/09 16:48

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K23075

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 114
Calibration: 9K23026

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
72SB2B	0911250-06	9k23075-030	11/23/09 16:48
72SB2B	0911250-06	9k23075-030	11/23/09 16:48
72SB2B	0911250-06	9k23075-030	11/23/09 16:48
72SB2B	0911250-06	9k23075-030	11/23/09 16:48
72SB2B	0911250-06	9k23075-030	11/23/09 16:48
72SB3B	0911250-07	9k23075-031	11/23/09 16:51
72SB3B	0911250-07	9k23075-031	11/23/09 16:51
72SB3B	0911250-07	9k23075-031	11/23/09 16:51
72SB3B	0911250-07	9k23075-031	11/23/09 16:51
72SB3B	0911250-07	9k23075-031	11/23/09 16:51
72SB3B	0911250-07	9k23075-031	11/23/09 16:51
72SB3B	0911250-07	9k23075-031	11/23/09 16:51
79554	0911250-01	9k23075-032	11/23/09 16:54
79554	0913884-MS1	9k23075-033	11/23/09 16:58
79554	0913884-MSD1	9k23075-034	11/23/09 17:01
79554	9K23075-SRD2	9k23075-035	11/23/09 17:04
79554	0913884-PS2	9k23075-036	11/23/09 17:07
72SB2B	0911250-06	9k23075-037	11/23/09 17:13
72SB3B	0911250-07	9k23075-038	11/23/09 17:16
Calibration Check	9K23075-CCV4	9k23075-039	11/23/09 17:19
Calibration Blank	9K23075-CCB4	9k23075-040	11/23/09 17:25

Sample Information

Sample ID: 9K23075-CCB
Autosampler Position: 1
Sample Date/Time: Monday, November 23, 2009 15:52:49
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\9K23075-CCB.016
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

-0.00015

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	3045.976	-0.000	-0.000009	0.000	131.638	mg/L
	Ni	60	74.446	0.000	0.000003	0.000	76.306	mg/L
	Ni	62	22.222	-0.000	-0.000005	0.000	295.278	mg/L
	Cu	63	295.842	0.000	0.000003	0.000	18.273	mg/L
	Cu	65	147.503	0.000	0.000001	0.000	120.201	mg/L
>	Ge	72	353710.848	353710.848				mg/L
	As	75	-93.764	-0.000	-0.000103	0.000	33.949	mg/L
	Se	77	171.948	-0.000	-0.000013	0.000	769.408	mg/L
	Se	82	14.008	0.000	0.000063	0.000	279.007	mg/L
>	Rh	103	332802.010	332802.010				mg/L
	Ag	107	191.116	0.000	0.000018	0.000	4.614	mg/L
	Tl	203	65.001	0.000	0.000001	0.000	108.139	mg/L
	Tl	205	150.836	0.000	0.000001	0.000	23.500	mg/L
	Pb	208	1425.903	-0.001	-0.000016	0.000	7.881	mg/L
>	Bi	209	330075.535	330075.535				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	97.689
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	95.133
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.011

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	3063.738	0.000	-0.000003	mg/L
Ni	60	75.001	0.000	0.000003	mg/L
Ni	62	16.667	0.000	-0.000023	mg/L
Cu	63	294.176	0.000	0.000004	mg/L
Cu	65	145.836	0.000	0.000001	mg/L

02443

Sample Information

Sample ID: 0911250-01
Autosampler Position: 19
Sample Date/Time: Monday, November 23, 2009 16:04:31
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-01.019
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	781541.419	2.195	0.092286	0.001	0.548	mg/L
	Ni	60	53975.423	0.152	0.026185	0.000	1.719	mg/L
	Ni	62	8866.424	0.025	0.028522	0.000	1.170	mg/L
	Cu	63	135722.023	0.382	0.029089	0.000	0.852	mg/L
	Cu	65	65975.074	0.186	0.029458	0.000	0.796	mg/L
>	Ge	72	354565.292	354565.292				mg/L
	As	75	10262.205	0.029	0.006277	0.000	1.070	mg/L
	Se	77	434.740	0.001	0.001978	0.000	3.375	mg/L
	Se	82	75.961	0.000	0.000406	0.000	25.673	mg/L
>	Rh	103	319249.179	319249.179				mg/L
	Ag	107	1180.109	0.004	0.000134	0.000	3.769	mg/L
	Tl	203	3262.444	0.010	0.000425	0.000	0.391	mg/L
	Tl	205	7707.567	0.023	0.000419	0.000	1.828	mg/L
	Pb	208	843808.649	2.531	0.034050	0.001	1.541	mg/L
>	Bi	209	332747.114	332747.114				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	97.925
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	91.259
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.829

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	798048.204	2.209	0.092868	mg/L
Ni	60	54453.968	0.151	0.026032	mg/L
Ni	62	9091.707	0.025	0.028823	mg/L
Cu	63	136526.260	0.379	0.028832	mg/L
Cu	65	66471.017	0.184	0.029245	mg/L

02449

Sample Information

Sample ID: 0911250-02
Autosampler Position: 24
Sample Date/Time: Monday, November 23, 2009 16:27:14
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-02.024
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	554536.144	1.504	0.063219	0.001	1.085	mg/L
	Ni	60	67793.669	0.185	0.031816	0.000	0.560	mg/L
	Ni	62	10517.288	0.029	0.032738	0.001	1.993	mg/L
	Cu	63	355411.917	0.969	0.073768	0.001	1.890	mg/L
	Cu	65	171595.963	0.468	0.074197	0.000	0.085	mg/L
>	Ge	72	366601.582	366601.582				mg/L
	As	75	11478.345	0.031	0.006794	0.000	0.779	mg/L
	Se	77	562.806	0.001	0.002809	0.000	5.740	mg/L
	Se	82	130.008	0.000	0.000684	0.000	13.301	mg/L
>	Rh	103	322208.624	322208.624				mg/L
	Ag	107	1018.138	0.003	0.000114	0.000	4.837	mg/L
	Tl	203	1199.279	0.003	0.000153	0.000	2.563	mg/L
	Tl	205	2860.601	0.008	0.000153	0.000	1.883	mg/L
	Pb	208	332083.684	1.003	0.013496	0.000	1.339	mg/L
>	Bi	209	329301.811	329301.811				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	101.249
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	92.105
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.774

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	555660.576	1.494	0.062759	mg/L
Ni	60	68320.867	0.185	0.031782	mg/L
Ni	62	10431.883	0.028	0.032184	mg/L
Cu	63	351304.276	0.949	0.072269	mg/L
Cu	65	173032.444	0.467	0.074153	mg/L

Sample Information

Sample ID: 0911250-03
Autosampler Position: 25
Sample Date/Time: Monday, November 23, 2009 16:30:24
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-03.025
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	503364.036	1.466	0.061640	0.000	0.746	mg/L
	Ni	60	40748.819	0.119	0.020537	0.000	2.124	mg/L
	Ni	62	7388.338	0.022	0.024694	0.001	2.634	mg/L
	Cu	63	128687.159	0.376	0.028659	0.000	1.241	mg/L
	Cu	65	63620.293	0.186	0.029514	0.000	1.477	mg/L
>	Ge	72	341235.241	341235.241				mg/L
	As	75	9078.128	0.026	0.005767	0.000	2.395	mg/L
	Se	77	371.124	0.001	0.001605	0.000	6.488	mg/L
	Se	82	90.249	0.000	0.000507	0.000	29.942	mg/L
>	Rh	103	303236.655	303236.655				mg/L
	Ag	107	1056.200	0.003	0.000126	0.000	5.615	mg/L
	Tl	203	3471.156	0.010	0.000455	0.000	1.794	mg/L
	Tl	205	8408.364	0.025	0.000460	0.000	0.652	mg/L
	Pb	208	2106897.626	6.352	0.085466	0.001	0.905	mg/L
>	Bi	209	331422.334	331422.334				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.244
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	86.681
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.423

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	495417.681	1.454	0.061126	mg/L
Ni	60	40338.588	0.119	0.020481	mg/L
Ni	62	7436.443	0.022	0.025038	mg/L
Cu	63	127356.306	0.375	0.028578	mg/L
Cu	65	64075.922	0.189	0.029953	mg/L

Sample Information

Sample ID: 0911250-04
Autosampler Position: 26
Sample Date/Time: Monday, November 23, 2009 16:33:32
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-04.026
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	555599.041	1.613	0.067796	0.000	0.686	mg/L
	Ni	60	41713.809	0.122	0.020934	0.000	0.433	mg/L
	Ni	62	7317.710	0.021	0.024352	0.001	2.977	mg/L
	Cu	63	117791.411	0.343	0.026117	0.000	0.297	mg/L
	Cu	65	56802.215	0.165	0.026237	0.000	1.432	mg/L
>	Ge	72	342642.013	342642.013				mg/L
	As	75	9654.382	0.028	0.006110	0.000	1.195	mg/L
	Se	77	385.570	0.001	0.001706	0.000	6.574	mg/L
	Se	82	83.625	0.000	0.000466	0.000	35.397	mg/L
>	Rh	103	307489.942	307489.942				mg/L
	Ag	107	1062.312	0.003	0.000125	0.000	1.137	mg/L
	Tl	203	3424.188	0.010	0.000454	0.000	1.902	mg/L
	Tl	205	8331.607	0.025	0.000461	0.000	1.160	mg/L
	Pb	208	2176954.774	6.647	0.089428	0.000	0.295	mg/L
>	Bi	209	327264.188	327264.188				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.632
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	87.897
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.151

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	553249.027	1.605	0.067492	mg/L
Ni	60	41553.178	0.121	0.020899	mg/L
Ni	62	7350.520	0.021	0.024454	mg/L
Cu	63	117689.469	0.343	0.026088	mg/L
Cu	65	57579.217	0.168	0.026590	mg/L

Sample Information

Sample ID: 0911250-05
Autosampler Position: 27
Sample Date/Time: Monday, November 23, 2009 16:45:14
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-05.029
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	689937.715	1.968	0.082722	0.001	1.230	mg/L
	Ni	60	42122.322	0.120	0.020752	0.000	1.250	mg/L
	Ni	62	6526.657	0.019	0.021312	0.000	1.245	mg/L
	Cu	63	116427.127	0.333	0.025340	0.000	0.335	mg/L
	Cu	65	57711.391	0.165	0.026169	0.000	0.802	mg/L
>	Ge	72	349028.996	349028.996				mg/L
	As	75	4042.171	0.011	0.002485	0.000	1.087	mg/L
	Se	77	484.744	0.001	0.002415	0.000	7.046	mg/L
	Se	82	48.348	0.000	0.000258	0.000	34.109	mg/L
>	Rh	103	310375.411	310375.411				mg/L
	Ag	107	847.003	0.003	0.000098	0.000	2.272	mg/L
	Tl	203	1185.944	0.003	0.000151	0.000	4.344	mg/L
	Tl	205	2849.764	0.008	0.000151	0.000	0.945	mg/L
	Pb	208	210811.380	0.631	0.008495	0.000	2.239	mg/L
>	Bi	209	331099.186	331099.186				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	96.396
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	88.722
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.324

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	689986.846	1.979	0.083185	mg/L
Ni	60	42603.769	0.121	0.020840	mg/L
Ni	62	6519.706	0.018	0.021136	mg/L
Cu	63	116971.139	0.332	0.025278	mg/L
Cu	65	57648.944	0.164	0.025954	mg/L

92163

Sample Information

Sample ID: 0911250-06
Autosampler Position: 28
Sample Date/Time: Monday, November 23, 2009 16:48:44
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-06.030
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	1127988.945	3.274	0.137625	0.001	0.874	mg/L
	Ni	60	64916.836	0.189	0.032504	0.000	0.333	mg/L
	Ni	62	11940.369	0.035	0.039669	0.000	0.737	mg/L
	Cu	63	140502.334	0.408	0.031077	0.000	0.808	mg/L
	Cu	65	68894.678	0.200	0.031749	0.000	1.332	mg/L
>	Ge	72	343620.109	343620.109				mg/L
	As	75	7507.931	0.022	0.004728	0.000	1.903	mg/L
	Se	77	258.341	0.000	0.000701	0.000	5.724	mg/L
	Se	82	-60.201	-0.000	-0.000360	0.000	35.587	mg/L
>	Rh	103	299734.669	299734.669				mg/L
	Ag	107	806.165	0.003	0.000097	0.000	3.164	mg/L
	Tl	203	3779.371	0.011	0.000504	0.000	2.086	mg/L
	Tl	205	9041.643	0.027	0.000503	0.000	1.460	mg/L
	Pb	208	661408.618	2.023	0.027214	0.000	0.820	mg/L
>	Bi	209	326132.742	326132.742				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.902
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	85.680
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	99.804

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	1141911.545	3.264	0.137222	mg/L
Ni	60	65709.007	0.158	0.032421	mg/L
Ni	62	12053.615	0.034	0.039459	mg/L
Cu	63	141261.220	0.404	0.030787	mg/L
Cu	65	68924.127	0.197	0.031295	mg/L

02471

Sample Information

Sample ID: 0911250-07
Autosampler Position: 29
Sample Date/Time: Monday, November 23, 2009 16:51:52
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-07.031
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	930028.541	2.707	0.113805	0.001	1.111	mg/L
	Ni	60	54200.687	0.158	0.027230	0.000	1.069	mg/L
	Ni	62	10181.242	0.030	0.033937	0.001	2.348	mg/L
	Cu	63	119520.170	0.348	0.026516	0.000	1.595	mg/L
	Cu	65	59128.007	0.172	0.027328	0.000	1.008	mg/L
>	Ge	72	342440.468	342440.468				mg/L
	As	75	5785.055	0.017	0.003646	0.000	3.243	mg/L
	Se	77	380.292	0.001	0.001663	0.000	16.169	mg/L
	Se	82	-19.673	-0.000	-0.000127	0.000	65.050	mg/L
>	Rh	103	300007.659	300007.659				mg/L
	Ag	107	723.655	0.002	0.000086	0.000	1.970	mg/L
	Tl	203	3298.295	0.010	0.000444	0.000	2.453	mg/L
	Tl	205	7977.032	0.024	0.000448	0.000	0.660	mg/L
	Pb	208	978818.553	3.031	0.040782	0.000	0.797	mg/L
>	Bi	209	322370.606	322370.606				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.577
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	85.758
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	98.653

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	938110.354	2.682	0.112743	mg/L
Ni	60	54532.920	0.156	0.026906	mg/L
Ni	62	10090.556	0.029	0.033026	mg/L
Cu	63	122741.822	0.351	0.026747	mg/L
Cu	65	60720.097	0.174	0.027567	mg/L

Sample ID: 0911250-07
Report Date/Time: Monday, November 23, 2009 16:53:18

62473

Sample Information

Sample ID: 0911250-01
Autosampler Position: 30
Sample Date/Time: Monday, November 23, 2009 16:54:59
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-01.032
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

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Dr

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	380190.297	1.100	0.046249	0.001	1.440	mg/L
	Ni	60	26168.109	0.076	0.013112	0.000	1.013	mg/L
	Ni	62	4388.336	0.013	0.014560	0.000	1.261	mg/L
	Cu	63	67419.361	0.196	0.014913	0.000	1.490	mg/L
	Cu	65	32729.316	0.095	0.015080	0.000	0.524	mg/L
>	Ge	72	342868.097	342868.097				mg/L
	As	75	5238.243	0.015	0.003293	0.000	3.432	mg/L
	Se	77	297.787	0.000	0.001016	0.000	8.817	mg/L
	Se	82	46.481	0.000	0.000252	0.000	23.409	mg/L
>	Rh	103	308201.930	308201.930				mg/L
	Ag	107	488.911	0.001	0.000056	0.000	3.502	mg/L
	Tl	203	1586.859	0.005	0.000204	0.000	0.461	mg/L
	Tl	205	3838.014	0.011	0.000207	0.000	1.600	mg/L
	Pb	208	423196.256	1.275	0.017157	0.000	1.785	mg/L
>	Bi	209	330515.574	330515.574				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.695
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	88.101
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	101.146

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	379357.586	1.094	0.045978	mg/L
Ni	60	26035.058	0.075	0.012999	mg/L
Ni	62	4382.221	0.013	0.014490	mg/L
Cu	63	66500.456	0.192	0.014657	mg/L
Cu	65	33041.576	0.096	0.015171	mg/L

02475

Sample Information

Sample ID: 0911250-06
Autosampler Position: 35
Sample Date/Time: Monday, November 23, 2009 17:13:39
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-06.038
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	576161.552	1.648	0.069287	0.001	1.229	mg/L
	Ni	60	33764.974	0.097	0.016693	0.001	3.006	mg/L
	Ni	62	6190.521	0.018	0.020287	0.000	2.080	mg/L
	Cu	63	74325.168	0.213	0.016217	0.000	1.379	mg/L
	Cu	65	36418.253	0.104	0.016551	0.000	1.003	mg/L
>	Ge	72	347736.273	347736.273				mg/L
	As	75	4039.553	0.011	0.002492	0.000	1.770	mg/L
	Se	77	210.561	0.000	0.000307	0.000	56.039	mg/L
	Se	82	5.683	0.000	0.000017	0.000	386.270	mg/L
>	Rh	103	307548.291	307548.291				mg/L
	Ag	107	568.639	0.002	0.000065	0.000	2.917	mg/L
	Tl	203	1929.169	0.006	0.000254	0.000	1.195	mg/L
	Tl	205	4692.143	0.014	0.000258	0.000	1.407	mg/L
	Pb	208	335311.111	1.025	0.013796	0.000	0.602	mg/L
>	Bi	209	325297.381	325297.381				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	96.039
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	87.914
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	99.549

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	577409.140	1.631	0.068548	mg/L
Ni	60	33253.590	0.094	0.016228	mg/L
Ni	62	6166.557	0.017	0.019955	mg/L
Cu	63	74432.376	0.211	0.016032	mg/L
Cu	65	36613.966	0.104	0.016429	mg/L

02485

Sample Information

Sample ID: 0911250-07
Autosampler Position: 36
Sample Date/Time: Monday, November 23, 2009 17:16:49
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\0911250-07.039
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

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Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	476951.743	1.382	0.058110	0.001	1.825	mg/L
	Ni	60	28391.877	0.083	0.014229	0.000	1.819	mg/L
	Ni	62	5166.921	0.015	0.017163	0.001	4.128	mg/L
	Cu	63	61643.835	0.179	0.013631	0.000	2.570	mg/L
	Cu	65	30624.148	0.089	0.014106	0.000	1.396	mg/L
>	Ge	72	342908.679	342908.679				mg/L
	As	75	3108.552	0.009	0.001935	0.000	1.766	mg/L
	Se	77	269.452	0.000	0.000794	0.000	19.253	mg/L
	Se	82	29.933	0.000	0.000158	0.000	71.746	mg/L
>	Rh	103	306425.729	306425.729				mg/L
	Ag	107	445.574	0.001	0.000051	0.000	5.869	mg/L
	Tl	203	1634.370	0.005	0.000216	0.000	2.410	mg/L
	Tl	205	4033.123	0.012	0.000223	0.000	1.709	mg/L
	Pb	208	488472.369	1.511	0.020325	0.000	1.996	mg/L
>	Bi	209	322279.015	322279.015				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.706
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	87.593
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	98.625

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	477040.423	1.382	0.057266	mg/L
Ni	60	28235.589	0.081	0.013943	mg/L
Ni	62	5001.801	0.014	0.016365	mg/L
Cu	63	60725.981	0.174	0.013230	mg/L
Cu	65	30600.714	0.088	0.013889	mg/L

02487

Sample Information

Sample ID: 9K23075-CCB
Autosampler Position: 1
Sample Date/Time: Monday, November 23, 2009 17:25:24
Initial Sample Quantity (mg):
Sample Prep Volume (mL):
Aliquot Volume (mL):
Diluted To Volume (mL):
Number of Replicates: 3
Sample File: C:\Elandata\Sample\9K23075.sam
Method File: C:\elandata\Method\DoD_soils_114.mth
Dataset File: C:\Elandata\DataSet\9K23075\9K23075-CCB.041
Tuning File: C:\elandata\Tuning\23nov2009_6020a_e.tun
Optimization File: C:\elandata\Optimize\23nov2009_6020a.dac

-0.00033

Summary

	Analyte	Mass	Meas. Intens. Mean	Net Intens. Mean	Conc. Mean	Conc. SD	Conc. RSD	Report Unit
	V	51	2719.585	-0.001	-0.000035	0.000	10.020	mg/L
	Ni	60	66.668	0.000	0.000000	0.000	1821.492	mg/L
	Ni	62	23.056	0.000	0.000000	0.000	8878.204	mg/L
	Cu	63	307.510	0.000	0.000009	0.000	55.875	mg/L
	Cu	65	144.725	0.000	0.000002	0.000	136.617	mg/L
>	Ge	72	340362.782	340362.782				mg/L
	As	75	-33.262	-0.000	-0.000066	0.000	93.718	mg/L
	Se	77	166.948	-0.000	-0.000001	0.000	5944.091	mg/L
	Se	82	-13.754	-0.000	-0.000094	0.000	51.177	mg/L
>	Rh	103	315298.498	315298.498				mg/L
	Ag	107	156.670	0.000	0.000015	0.000	7.821	mg/L
	Tl	203	58.334	0.000	0.000000	0.000	654.839	mg/L
	Tl	205	131.114	0.000	0.000000	0.000	42.433	mg/L
	Pb	208	1276.724	-0.002	-0.000021	0.000	11.284	mg/L
>	Bi	209	327342.217	327342.217				mg/L

QC Calculated Values

	Analyte	Mass	Int Std % Recovery
	V	50.944	
	Ni	59.933	
	Ni	61.928	
	Cu	62.930	
	Cu	64.928	
>	Ge	71.922	94.003
	As	74.922	
	Se	76.920	
	Se	81.917	
>	Rh	102.905	90.129
	Ag	106.905	
	Tl	202.972	
	Tl	204.975	
	Pb	207.977	
>	Bi	208.980	100.175

QC Out Of Limits

Measurement Type	Analyte	Mass	Out of Limits Message

Replicates

Repeat 1

Analyte	Mass	Meas. Intensity	Net Intensity	Concentration	Report Unit
V	51	2713.581	0.001	-0.000038	mg/L
Ni	60	62.501	0.000	-0.000002	mg/L
Ni	62	15.000	0.000	0.000027	mg/L
Cu	63	291.676	0.000	0.000005	mg/L
Cu	65	140.003	0.000	0.000000	mg/L

02491

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

79554

USEPA-6020A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5191 g / 250 mL

Laboratory ID: 0913884-MS1

QC Batch: 0913884

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Arsenic, Total	19.3	2.89	17.2	74 *	80 - 120	mg/kg dry wt.
Copper, Total	19.3	13.4	28.7	79 *	80 - 120	mg/kg dry wt.
Lead, Total	19.3	15.7	31.5	82	80 - 120	mg/kg dry wt.
Nickel, Total	19.3	12.1	28.6	86	80 - 120	mg/kg dry wt.
Selenium, Total	19.3	0.187	14.2	73 *	80 - 120	mg/kg dry wt.
Silver, Total	19.3	0.0617	6.14	32 *	75 - 120	mg/kg dry wt.
Thallium, Total	19.3	0.196	17.7	91	80 - 120	mg/kg dry wt.
Vanadium, Total	19.3	42.6	55.9	69 *	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

79554

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5468 g / 250 mL

Laboratory ID: 0913884-MSD1

QC Batch: 0913884

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Arsenic, Total	18.3	17.2	78 *	0.2	20	80 - 120	mg/kg dry wt.
Copper, Total	18.3	29.1	86	1	20	80 - 120	mg/kg dry wt.
Lead, Total	18.3	33.3	96	5	20	80 - 120	mg/kg dry wt.
Nickel, Total	18.3	28.1	88	2	20	80 - 120	mg/kg dry wt.
Selenium, Total	18.3	13.9	75 *	2	20	80 - 120	mg/kg dry wt.
Silver, Total	18.3	16.9	92	94 *	20	75 - 120	mg/kg dry wt.
Thallium, Total	18.3	17.1	92	3	20	80 - 120	mg/kg dry wt.
Vanadium, Total	18.3	56.8	78 *	2	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

79554

AB, 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5244 g / 250 mL

Laboratory ID: 0914070-MS1

QC Batch: 0914070

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Antimony, Total	19.1	0.180	18.7	97	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6020A

79554

12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5006 g / 250 mL

Laboratory ID: 0914070-MSD1

QC Batch: 0914070

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Antimony, Total	20.0	19.3	96	3	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

79584

12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0913884-PS1

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.021716 g / 10 mL

QC Batch: 0913884

Sequence: 9K23075

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Arsenic, Total	75 - 125	0.0242	0.00628	0.0200	90	mg/L
Copper, Total	75 - 125	0.0460	0.0291	0.0200	84	mg/L
Lead, Total	75 - 125	0.0521	0.0340	0.0200	90	mg/L
Nickel, Total	75 - 125	0.0431	0.0262	0.0200	85	mg/L
Selenium, Total	75 - 125	0.0173	0.000406	0.0200	84	mg/L
Silver, Total	75 - 125	0.0190	0.000134	0.0200	94	mg/L
Thallium, Total	75 - 125	0.0194	0.000425	0.0200	95	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

79554 SS

kg 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0913884-PS2

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.0021716 g / 1 mL

QC Batch: 0913884

Sequence: 9K23075

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Vanadium, Total	75 - 125	0.128	0.0925	0.0400	89	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6020A

79554 SS

AK 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0914070-PS1

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.01 g / 5 mL

QC Batch: 0914070

Sequence: 9K21004

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Antimony, Total	75 - 125	0.0216	0.000359	0.0200	106	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6020A

79554 GS

12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 78.26
Laboratory ID: 9K21004-SRD3
Lab Source ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
QC Batch: 9K21004
Sequence: 9K21004

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Antimony, Total	0.000359	J	0.000395	J	10.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6020A

79554 99

12/21/09

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 78.26
Laboratory ID: 9K23075-SRD1
Lab Source ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
QC Batch: 9K23075
Sequence: 9K23075

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Arsenic, Total	0.00628		0.00665		6.0		mg/L	10
Copper, Total	0.0291		0.0303		4.0		mg/L	10
Lead, Total	0.0341		0.0335		2.0		mg/L	10
Nickel, Total	0.0262		0.0269		3.0		mg/L	10
Selenium, Total	0.000406		0.000560	J	38.0 #		mg/L	10
Silver, Total	0.000134	J	0.000225	J	68.0 #		mg/L	10
Thallium, Total	0.000425		0.000415	J	2.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6020A

79554 SY

12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 9K23075-SRD2

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

QC Batch: 9K23075

Sequence: 9K23075

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Vanadium, Total	0.0462		0.0463		0.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K20033

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9K21003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
Cal Standard	9K20033-CAL1	9K20033-013	11/20/09 12:22
Cal Standard	9K20033-CAL2	9K20033-014	11/20/09 12:26
Cal Standard	9K20033-CAL3	9K20033-015	11/20/09 12:30
Cal Standard	9K20033-CAL4	9K20033-016	11/20/09 12:34
Cal Standard	9K20033-CAL5	9K20033-017	11/20/09 12:38
Secondary Cal Check	9K20033-SCV1	9K20033-018	11/20/09 12:42
Calibration Check	9K20033-CCV1	9K20033-018	11/20/09 12:42
Calibration Blank	9K20033-CCB1	9K20033-019	11/20/09 12:46
Interference Check A	9K20033-IFA1	9K20033-020	11/20/09 12:50
Interference Check A	9K20033-IFA2	9K20033-021	11/20/09 12:56
Interference Check B	9K20033-IFB1	9K20033-022	11/20/09 13:03
Interference Check B	9K20033-IFB2	9K20033-023	11/20/09 13:09
Calibration Check	9K20033-CCV2	9K20033-024	11/20/09 13:15
Calibration Blank	9K20033-CCB2	9K20033-025	11/20/09 13:19
Blank	0913883-BLK1	9K20033-026	11/20/09 13:23
LCS	0913883-BS1	9K20033-027	11/20/09 13:27
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0911250-01	9K20033-028	11/20/09 13:31
79554	0913883-MS1	9K20033-029	11/20/09 13:37
79554	0913883-MSD1	9K20033-030	11/20/09 13:42
79554	9K20033-SRD1	9K20033-031	11/20/09 13:48
79554	0913883-PS1	9K20033-032	11/20/09 13:54
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K20033

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9K21003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SB3B	0911250-02	9K20033-033	11/20/09 13:59
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
79SS5	0911250-03	9K20033-034	11/20/09 14:05
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
DUP	0911250-04	9K20033-035	11/20/09 14:11
Calibration Check	9K20033-CCV3	9K20033-036	11/20/09 14:16
Calibration Blank	9K20033-CCB3	9K20033-038	11/20/09 14:29

Al 0.023

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K20033

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9K21003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
79SB1B	0911250-05	9K20033-039	11/20/09 14:33
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB2B	0911250-06	9K20033-040	11/20/09 14:39
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44
72SB3B	0911250-07	9K20033-041	11/20/09 14:44

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K20033

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 311
Calibration: 9K21003

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
72SB3B	0911250-07	9K20033-041	11/20/09 14:44	
79554	0911250-01	9K20033-045	11/20/09 15:02	
79554	9K20033-SRD3	9K20033-046	11/20/09 15:06	
79554	0913883-PS3	9K20033-047	11/20/09 15:10	
79554	0911250-01	9K20033-048	11/20/09 15:13	
Calibration Check	9K20033-CCV4	9K20033-049	11/20/09 15:19	
Calibration Blank	9K20033-CCB4	9K20033-050	11/20/09 15:23	
79554	9K20033-SRD4	9K20033-051	11/20/09 15:27	
79554	0913883-PS4	9K20033-052	11/20/09 15:31	
Calibration Check	9K20033-CCV5	9K20033-061	11/20/09 16:12	
Calibration Blank	9K20033-CCB5	9K20033-062	11/20/09 16:16	Al 0.029
Calibration Check	9K20033-CCV6	9K20033-064	11/20/09 16:24	
Calibration Blank	9K20033-CCB6	9K20033-065	11/20/09 16:28	Al 0.021

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K20033

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument ID: 311
Calibration: 9K21003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9K20033-CCB1	Aluminum	0.016	0.10	0.018	mg/L	U	11/20/09 12:46
	Barium	0.0018	0.010	0.0028	mg/L	U	11/20/09 12:46
	Beryllium	-0.00017	0.010	0.00035	mg/L	U	11/20/09 12:46
	Cadmium	-0.0021	0.020	0.0024	mg/L	U	11/20/09 12:46
	Calcium	0.073	0.50	0.087	mg/L	U	11/20/09 12:46
	Chromium	-0.0019	0.050	0.0074	mg/L	U	11/20/09 12:46
	Cobalt	-0.0013	0.020	0.0044	mg/L	U	11/20/09 12:46
	Magnesium	0.039	0.50	0.044	mg/L	U	11/20/09 12:46
	Manganese	-0.00095	0.010	0.0021	mg/L	U	11/20/09 12:46
	Potassium	-0.054	0.50	0.068	mg/L	U	11/20/09 12:46
	Zinc	-0.00096	0.050	0.0079	mg/L	U	11/20/09 12:46
9K20033-CCB2	Aluminum	0.016	0.10	0.018	mg/L	U	11/20/09 13:19
	Barium	0.0018	0.010	0.0028	mg/L	U	11/20/09 13:19
	Beryllium	-0.00020	0.010	0.00035	mg/L	U	11/20/09 13:19
	Cadmium	-0.0020	0.020	0.0024	mg/L	U	11/20/09 13:19
	Calcium	0.073	0.50	0.087	mg/L	U	11/20/09 13:19
	Chromium	-0.0012	0.050	0.0074	mg/L	U	11/20/09 13:19
	Cobalt	-0.0012	0.020	0.0044	mg/L	U	11/20/09 13:19
	Magnesium	0.036	0.50	0.044	mg/L	U	11/20/09 13:19
	Manganese	0.00020	0.010	0.0021	mg/L	U	11/20/09 13:19
	Potassium	-0.013	0.50	0.068	mg/L	U	11/20/09 13:19
	Zinc	-0.0014	0.050	0.0079	mg/L	U	11/20/09 13:19
9K20033-CCB3	Aluminum	0.023	0.10	0.018	mg/L	J	11/20/09 14:29
	Barium	0.0016	0.010	0.0028	mg/L	U	11/20/09 14:29
	Beryllium	-0.00014	0.010	0.00035	mg/L	U	11/20/09 14:29
	Cadmium	-0.0022	0.020	0.0024	mg/L	U	11/20/09 14:29
	Calcium	0.054	0.50	0.087	mg/L	U	11/20/09 14:29
	Chromium	-0.0021	0.050	0.0074	mg/L	U	11/20/09 14:29
	Cobalt	-0.0016	0.020	0.0044	mg/L	U	11/20/09 14:29
	Magnesium	0.027	0.50	0.044	mg/L	U	11/20/09 14:29
	Manganese	-0.00036	0.010	0.0021	mg/L	U	11/20/09 14:29
	Potassium	-0.025	0.50	0.068	mg/L	U	11/20/09 14:29
	Zinc	-0.0021	0.050	0.0079	mg/L	U	11/20/09 14:29

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K20033

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument ID: 311
Calibration: 9K21003

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9K20033-CCB4	Aluminum	0.0096	0.10	0.018	mg/L	U	11/20/09 15:23
	Barium	0.0018	0.010	0.0028	mg/L	U	11/20/09 15:23
	Beryllium	-0.00013	0.010	0.00035	mg/L	U	11/20/09 15:23
	Cadmium	-0.0023	0.020	0.0024	mg/L	U	11/20/09 15:23
	Calcium	0.055	0.50	0.087	mg/L	U	11/20/09 15:23
	Chromium	-0.0013	0.050	0.0074	mg/L	U	11/20/09 15:23
	Cobalt	-0.0013	0.020	0.0044	mg/L	U	11/20/09 15:23
	Magnesium	0.023	0.50	0.044	mg/L	U	11/20/09 15:23
	Manganese	-0.00064	0.010	0.0021	mg/L	U	11/20/09 15:23
	Potassium	-0.011	0.50	0.068	mg/L	U	11/20/09 15:23
	Zinc	-0.0015	0.050	0.0079	mg/L	U	11/20/09 15:23
9K20033-CCB5	Aluminum	0.029	0.10	0.018	mg/L	J	11/20/09 16:16
	Barium	0.0018	0.010	0.0028	mg/L	U	11/20/09 16:16
	Beryllium	-0.00026	0.010	0.00035	mg/L	U	11/20/09 16:16
	Cadmium	-0.0019	0.020	0.0024	mg/L	U	11/20/09 16:16
	Calcium	0.058	0.50	0.087	mg/L	U	11/20/09 16:16
	Chromium	-0.0015	0.050	0.0074	mg/L	U	11/20/09 16:16
	Cobalt	-0.0015	0.020	0.0044	mg/L	U	11/20/09 16:16
	Magnesium	0.031	0.50	0.044	mg/L	U	11/20/09 16:16
	Manganese	0.000020	0.010	0.0021	mg/L	U	11/20/09 16:16
	Potassium	0.025	0.50	0.068	mg/L	U	11/20/09 16:16
	Zinc	-0.0020	0.050	0.0079	mg/L	U	11/20/09 16:16
9K20033-CCB6	Aluminum	0.021	0.10	0.018	mg/L	J	11/20/09 16:28
	Barium	0.0018	0.010	0.0028	mg/L	U	11/20/09 16:28
	Beryllium	-0.00028	0.010	0.00035	mg/L	U	11/20/09 16:28
	Cadmium	-0.0018	0.020	0.0024	mg/L	U	11/20/09 16:28
	Calcium	0.050	0.50	0.087	mg/L	U	11/20/09 16:28
	Chromium	-0.0017	0.050	0.0074	mg/L	U	11/20/09 16:28
	Cobalt	-0.0022	0.020	0.0044	mg/L	U	11/20/09 16:28
	Magnesium	0.026	0.50	0.044	mg/L	U	11/20/09 16:28
	Manganese	-0.00035	0.010	0.0021	mg/L	U	11/20/09 16:28
	Potassium	-0.015	0.50	0.068	mg/L	U	11/20/09 16:28
	Zinc	-0.00035	0.050	0.0079	mg/L	U	11/20/09 16:28

* Values outside of QC limits

ICP INTERFERENCE CHECK SAMPLE

USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Sequence: 9K20033

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Instrument ID: 311

Calibration: 9K21003

Lab Sample ID	Analyte ½ MRL	True	Found	%R	Units
9K20033-IFA1	Aluminum 0.05	100	96.4	96 ✓	mg/L
	Barium 0.005	0.00	0.00185		mg/L
	Beryllium 0.005	0.00	0.000237		mg/L
	Cadmium 0.010	0.00	0.00168		mg/L
	Calcium 0.25	100	95.2	95 ✓	mg/L
	Chromium 0.025	0.00	-0.00220		mg/L
	Cobalt 0.010	0.00	-0.000397		mg/L
	Magnesium 0.25	100	94.0	94 ✓	mg/L
	Manganese 0.005	0.00	0.00290		mg/L
	Potassium 0.25	0.00	-0.0250		mg/L
	Zinc 0.025	0.00	-0.00104		mg/L
9K20033-IFA2	Aluminum	0.00	0.0261		mg/L
	Barium	0.00	0.00132		mg/L
	Beryllium	0.00	0.00000751		mg/L
	Cadmium	0.00	0.0116	LRL	mg/L
	Calcium	0.00	0.323		mg/L
	Chromium	20.0	20.7	103 ✓	mg/L
	Cobalt	0.00	-0.00957		mg/L
	Magnesium	0.00	0.141		mg/L
	Manganese	20.0	20.1	101 ✓	mg/L
	Potassium	0.00	0.00428		mg/L
	Zinc	0.00	-0.00625		mg/L
9K20033-IFB1	Aluminum	100	96.8	97	mg/L
	Barium	0.500	0.489	98	mg/L
	Beryllium	0.0500	0.0512	102	mg/L
	Cadmium	1.00	0.962	96	mg/L
	Calcium	100	95.2	95	mg/L
	Chromium	0.500	0.492	98	mg/L
	Cobalt	0.500	0.477	95	mg/L

2	Se 196.026†	-50.0	12.3	0.0144009 mg/L	0.0144009 mg/L	12:59:58
2	Si 251.611†	17868.0	17065.4	0.556728 mg/L	0.556728 mg/L	12:59:38
2	Sn 189.927†	-30.4	-48.1	-0.0140794 mg/L	-0.0140794 mg/L	12:59:58
2	Tl 190.801†	-342.0	-304.8	-0.0857648 mg/L	-0.0857648 mg/L	12:59:58
2	V 292.395†	1283927.7	1339064.1	20.9673 mg/L	20.9673 mg/L	12:59:33
2	Zn 206.200†	-6.1	115.0	-0.0073183 mg/L	-0.0073183 mg/L	12:59:33

Mean Data: 9K20033-IFA2

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	255768.5	96.5259	%	0.73559				0.76%
Y 360.076	234710.1	99.0616	%	0.71558				0.72%
Ag 328.068†	-181.1	0.0028068	mg/L	0.00002868	0.0028068	mg/L	0.00002868	1.02%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153†	63.1	0.0261332	mg/L	0.00676962	0.0261332	mg/L	0.00676962	25.90%
QC value within limits for Al 396.153 Recovery = Not calculated								
As 188.979†	217.5	0.0411109	mg/L	0.00034932	0.0411109	mg/L	0.00034932	0.85%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	836.1	0.0128312	mg/L	0.00009243	0.0128312	mg/L	0.00009243	0.72%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 455.398†	-155.7	0.0013190	mg/L	0.00004330	0.0013190	mg/L	0.00004330	3.28%
QC value within limits for Ba 455.398 Recovery = Not calculated								
Be 234.861†	31.6	0.0000075	mg/L	0.00002544	0.0000075	mg/L	0.00002544	338.89%
QC value within limits for Be 234.861 Recovery = Not calculated								
Ca 315.887†	152.6	0.323079	mg/L	0.0062574	0.323079	mg/L	0.0062574	1.94%
QC value within limits for Ca 315.887 Recovery = Not calculated								
Cd 214.437†	889.6	0.0115655	mg/L	0.00001805	0.0115655	mg/L	0.00001805	0.16%
QC value within limits for Cd 214.437 Recovery = Not calculated								
Ce 413.764†	229.3	0.0091768	mg/L	0.00019428	0.0091768	mg/L	0.00019428	2.12%
Co 228.616†	387.1	-0.0095708	mg/L	0.00109197	-0.0095708	mg/L	0.00109197	11.41%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 205.557†	359866.5	20.6753	mg/L	0.12422	20.6753	mg/L	0.12422	0.60%
QC value within limits for Cr 205.557 Recovery = 103.38%								
Cu 327.397†	1372044.3	21.2115	mg/L	0.20881	21.2115	mg/L	0.20881	0.98%
QC value within limits for Cu 327.397 Recovery = 106.06%								
Fe 238.204†	15.5	0.0076291	mg/L	0.00049510	0.0076291	mg/L	0.00049510	6.49%
QC value within limits for Fe 238.204 Recovery = Not calculated								
K 766.490	14.7	0.0042802	mg/L	0.01715013	0.0042802	mg/L	0.01715013	400.69%
QC value within limits for K 766.490 Recovery = Not calculated								
Li 670.784†	10.5	0.0023627	mg/L	0.00040378	0.0023627	mg/L	0.00040378	17.09%
QC value within limits for Li 670.784 Recovery = Not calculated								
Mg 279.071†	-69.4	0.141303	mg/L	0.0111446	0.141303	mg/L	0.0111446	7.89%
QC value within limits for Mg 279.071 Recovery = Not calculated								
Mn 257.610†	3857190.9	20.1164	mg/L	0.12001	20.1164	mg/L	0.12001	0.60%
QC value within limits for Mn 257.610 Recovery = 100.58%								
Mo 202.031†	40.9	0.0021260	mg/L	0.00071779	0.0021260	mg/L	0.00071779	33.76%
QC value within limits for Mo 202.031 Recovery = Not calculated								
Na 589.592†	275.5	0.0492879	mg/L	0.00215738	0.0492879	mg/L	0.00215738	4.38%
QC value within limits for Na 589.592 Recovery = Not calculated								
Ni 231.604†	385995.0	21.0322	mg/L	0.12499	21.0322	mg/L	0.12499	0.59%
QC value within limits for Ni 231.604 Recovery = 105.16%								
Pb 220.353†	84.6	0.0145352	mg/L	0.00158417	0.0145352	mg/L	0.00158417	10.90%
QC value within limits for Pb 220.353 Recovery = Not calculated								
Sb 217.584†	-138.9	-0.0373227	mg/L	0.00103525	-0.0373227	mg/L	0.00103525	2.77%
QC value within limits for Sb 217.584 Recovery = Not calculated								
Se 196.026†	2.9	-0.0020099	mg/L	0.02320828	-0.0020099	mg/L	0.02320828	>999.9%
QC value within limits for Se 196.026 Recovery = Not calculated								
Si 251.611†	16801.2	0.543899	mg/L	0.0181432	0.543899	mg/L	0.0181432	3.34%
QC value within limits for Si 251.611 Recovery = Not calculated								
Sn 189.927†	-51.5	-0.0150801	mg/L	0.00141517	-0.0150801	mg/L	0.00141517	9.38%
QC value within limits for Sn 189.927 Recovery = Not calculated								
Sr 407.771†	215.4	0.0034286	mg/L	0.00009126	0.0034286	mg/L	0.00009126	2.66%
QC value within limits for Sr 407.771 Recovery = Not calculated								
Ti 334.940†	463270.2	19.4226	mg/L	0.19460	19.4226	mg/L	0.19460	1.00%
QC value within limits for Ti 334.940 Recovery = 97.11%								
Tl 190.801†	-308.3	-0.0898403	mg/L	0.00576374	-0.0898403	mg/L	0.00576374	6.42%
QC value within limits for Tl 190.801 Recovery = Not calculated								
V 292.395†	1332435.5	20.8635	mg/L	0.14675	20.8635	mg/L	0.14675	0.70%
QC value within limits for V 292.395 Recovery = 104.32%								
Zn 206.200†	131.9	-0.0062548	mg/L	0.00150402	-0.0062548	mg/L	0.00150402	24.05%

2	Na 589.592†	2666.3	1358.3	0.170472 mg/L	0.170472 mg/L	13:33:03
2	Sr 407.771†	68973.5	66266.9	0.0560633 mg/L	0.0560633 mg/L	13:33:03
2	Ti 334.940†	70704.3	68778.7	2.88669 mg/L	2.88669 mg/L	13:33:03
2	Sc 357.234	286275.3	286275.3	108.039 %		13:33:36
2	Ag 328.068†	-9417.4	-9510.0	-0.0924919 mg/L	-0.0924919 mg/L	13:33:36
2	As 188.979†	38.7	68.5	0.0462230 mg/L	0.0462230 mg/L	13:33:56
2	B 249.677†	1215.3	607.3	0.0148727 mg/L	0.0148727 mg/L	13:33:36
2	Be 234.861†	27275.4	26163.3	0.0068966 mg/L	0.0068966 mg/L	13:33:36
2	Cd 214.437†	1949.1	1262.9	0.0103196 mg/L	0.0103196 mg/L	13:33:56
2	Ce 413.764†	31039.8	27367.8	0.532573 mg/L	0.532573 mg/L	13:33:36
2	Co 228.616†	940.2	950.1	0.0889984 mg/L	0.0889984 mg/L	13:33:56
2	Cr 205.557†	4080.1	3796.4	0.225074 mg/L	0.225074 mg/L	13:33:56
2	Cu 327.397†	7923.9	8687.6	0.138413 mg/L	0.138413 mg/L	13:33:36
2	Mn 257.610†	1200939.9	1111230.1	5.80506 mg/L	5.80506 mg/L	13:33:36
2	Mo 202.031†	184.0	54.4	0.0033273 mg/L	0.0033273 mg/L	13:33:56
2	Ni 231.604†	2708.8	2003.7	0.108271 mg/L	0.108271 mg/L	13:33:56
2	Pb 220.353†	564.6	484.5	0.185931 mg/L	0.185931 mg/L	13:33:56
2	Sb 217.584†	-2108.0	-1885.8	-0.411005 mg/L	-0.411005 mg/L	13:33:56
2	Se 196.026†	-195.6	-116.7	-0.105162 mg/L	-0.105162 mg/L	13:33:56
2	Si 251.611†	203018.2	186366.1	11.5742 mg/L	11.5742 mg/L	13:33:36
2	Sn 189.927†	25.4	7.1	0.0023677 mg/L	0.0023677 mg/L	13:33:56
2	Tl 190.801†	-112.1	-52.3	-0.0217046 mg/L	-0.0217046 mg/L	13:33:56
2	V 292.395†	29764.5	29268.8	0.419873 mg/L	0.419873 mg/L	13:33:36
2	Zn 206.200†	7646.9	7199.3	0.428893 mg/L	0.428893 mg/L	13:33:56

Mean Data: 0911250-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	285216.5	107.639	%	0.5651				0.52%
Y 360.076	243476.3	102.761	%	0.1071				0.10%
Ag 328.068†	-9483.0	-0.0922395	mg/L	0.00035702	-0.0922395	mg/L	0.00035702	0.39%
Al 396.153†	710069.0	163.751	mg/L	0.6937	163.751	mg/L	0.6937	0.42%
As 188.979†	74.3	0.0524189	mg/L	0.00876229	0.0524189	mg/L	0.00876229	16.72%
B 249.677†	595.6	0.0144348	mg/L	0.00061937	0.0144348	mg/L	0.00061937	4.29%
Ba 455.398†	404409.4	0.874196	mg/L	0.0025038	0.874196	mg/L	0.0025038	0.29%
Be 234.861†	26154.8	0.0071979	mg/L	0.00042613	0.0071979	mg/L	0.00042613	5.92%
Ca 315.887†	23167.6	8.62941	mg/L	0.057916	8.62941	mg/L	0.057916	0.67%
Cd 214.437†	1281.9	0.0108401	mg/L	0.00073602	0.0108401	mg/L	0.00073602	6.79%
Ce 413.764†	27401.3	0.533112	mg/L	0.0007633	0.533112	mg/L	0.0007633	0.14%
Co 228.616†	956.1	0.0896808	mg/L	0.00096503	0.0896808	mg/L	0.00096503	1.08%
Cr 205.557†	3820.7	0.226441	mg/L	0.0019322	0.226441	mg/L	0.0019322	0.85%
Cu 327.397†	8693.6	0.138495	mg/L	0.0001157	0.138495	mg/L	0.0001157	0.08%
Fe 238.204†	445543.6	224.497	mg/L	1.2234	224.497	mg/L	1.2234	0.54%
K 766.490	11176.9	13.1855	mg/L	0.07198	13.1855	mg/L	0.07198	0.55%
Li 670.784†	11074.6	0.241237	mg/L	0.0012135	0.241237	mg/L	0.0012135	0.50%
Mg 279.071†	10433.3	17.6716	mg/L	0.06764	17.6716	mg/L	0.06764	0.38%
Mn 257.610†	1111531.2	5.80659	mg/L	0.002167	5.80659	mg/L	0.002167	0.04%
Mo 202.031†	44.9	0.0024840	mg/L	0.00119253	0.0024840	mg/L	0.00119253	48.01%
Na 589.592†	1341.1	0.168541	mg/L	0.0027304	0.168541	mg/L	0.0027304	1.62%
Ni 231.604†	2022.7	0.109304	mg/L	0.0014606	0.109304	mg/L	0.0014606	1.34%
Pb 220.353†	493.2	0.188645	mg/L	0.0038386	0.188645	mg/L	0.0038386	2.03%
Sb 217.584†	-1914.2	-0.429317	mg/L	0.0258978	-0.429317	mg/L	0.0258978	6.03%
Se 196.026†	-121.5	-0.114034	mg/L	0.0125475	-0.114034	mg/L	0.0125475	11.00%
Si 251.611†	186631.3	11.5907	mg/L	0.02331	11.5907	mg/L	0.02331	0.20%
Sn 189.927†	9.8	0.0031875	mg/L	0.00115938	0.0031875	mg/L	0.00115938	36.37%
Sr 407.771†	66125.8	0.0559505	mg/L	0.00015951	0.0559505	mg/L	0.00015951	0.29%
Ti 334.940†	68632.8	2.88057	mg/L	0.008652	2.88057	mg/L	0.008652	0.30%
Tl 190.801†	-55.6	-0.0244695	mg/L	0.00391017	-0.0244695	mg/L	0.00391017	15.98%
V 292.395†	29298.3	0.420470	mg/L	0.0008451	0.420470	mg/L	0.0008451	0.20%
Zn 206.200†	7258.9	0.432463	mg/L	0.0050493	0.432463	mg/L	0.0050493	1.17%

Sequence No.: 17
Sample ID: 0913883-ms1
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 20
Date Collected: 11/20/2009 1:37:10 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0913883-ms1

2	Sc 357.234	300194.0	300194.0	113.292 %		14:01:52
2	Ag 328.068†	-17340.3	-16099.3	-0.157653 mg/L	-0.157653 mg/L	14:01:52
2	As 188.979†	54.8	81.0	0.0673835 mg/L	0.0673835 mg/L	14:02:12
2	B 249.677†	1333.7	659.6	0.0181709 mg/L	0.0181709 mg/L	14:01:52
2	Be 234.861†	48242.4	43499.8	0.0084473 mg/L	0.0084473 mg/L	14:01:46
2	Cd 214.437†	2692.3	1835.2	0.0179866 mg/L	0.0179866 mg/L	14:02:12
2	Ce 413.764†	38940.7	33009.7	0.653351 mg/L	0.653351 mg/L	14:01:52
2	Co 228.616†	772.6	761.9	0.0702622 mg/L	0.0702622 mg/L	14:02:12
2	Cr 205.557†	6517.5	5772.7	0.344656 mg/L	0.344656 mg/L	14:02:12
2	Cu 327.397†	25021.3	23439.0	0.363165 mg/L	0.363165 mg/L	14:01:52
2	Mn 257.610†	1538516.3	1357661.4	7.09739 mg/L	7.09739 mg/L	14:01:46
2	Mo 202.031†	100.9	-26.9	-0.0039089 mg/L	-0.0039089 mg/L	14:01:52
2	Ni 231.604†	4123.7	3136.3	0.169947 mg/L	0.169947 mg/L	14:02:12
2	Pb 220.353†	350.7	271.6	0.114314 mg/L	0.114314 mg/L	14:02:12
2	Sb 217.584†	-3655.5	-3161.3	-0.696357 mg/L	-0.696357 mg/L	14:01:52
2	Se 196.026†	-288.2	-190.0	-0.159755 mg/L	-0.159755 mg/L	14:02:12
2	Si 251.611†	143004.3	124680.6	7.82125 mg/L	7.82125 mg/L	14:01:52
2	Sn 189.927†	21.9	2.9	0.0011165 mg/L	0.0011165 mg/L	14:02:12
2	Tl 190.801†	-120.9	-55.3	-0.0366290 mg/L	-0.0366290 mg/L	14:02:12
2	V 292.395†	25449.3	24182.5	0.316330 mg/L	0.316330 mg/L	14:01:52
2	Zn 206.200†	6182.1	5578.2	0.331977 mg/L	0.331977 mg/L	14:02:12

Mean Data: 0911250-02

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	299722.8	113.114	%	0.2515				0.22%
Y 360.076	251782.6	106.267	%	0.0442				0.04%
Ag 328.068†	-16089.1	-0.157566	mg/L	0.0001225	-0.157566	mg/L	0.0001225	0.08%
Al 396.153†	681843.8	157.239	mg/L	0.1550	157.239	mg/L	0.1550	0.10%
As 188.979†	80.1	0.0664349	mg/L	0.00134162	0.0664349	mg/L	0.00134162	2.02%
B 249.677†	672.9	0.0186689	mg/L	0.00070423	0.0186689	mg/L	0.00070423	3.77%
Ba 455.398†	331152.7	0.716184	mg/L	0.0004584	0.716184	mg/L	0.0004584	0.06%
Be 234.861†	43649.9	0.0091532	mg/L	0.00099832	0.0091532	mg/L	0.00099832	10.91%
Ca 315.887†	6259.2	2.47119	mg/L	0.003399	2.47119	mg/L	0.003399	0.14%
Cd 214.437†	1836.0	0.0180297	mg/L	0.00006107	0.0180297	mg/L	0.00006107	0.34%
Ce 413.764†	33067.0	0.654378	mg/L	0.0014517	0.654378	mg/L	0.0014517	0.22%
Co 228.616†	773.3	0.0715188	mg/L	0.00177699	0.0715188	mg/L	0.00177699	2.48%
Cr 205.557†	5749.7	0.343313	mg/L	0.0018985	0.343313	mg/L	0.0018985	0.55%
Cu 327.397†	23493.7	0.364006	mg/L	0.0011891	0.364006	mg/L	0.0011891	0.33%
Fe 238.204†	762890.7	384.401	mg/L	0.6242	384.401	mg/L	0.6242	0.16%
K 766.490	12318.9	14.5341	mg/L	0.01940	14.5341	mg/L	0.01940	0.13%
Li 670.784†	6016.3	0.132029	mg/L	0.0010449	0.132029	mg/L	0.0010449	0.79%
Mg 279.071†	5381.6	9.16834	mg/L	0.055620	9.16834	mg/L	0.055620	0.61%
Mn 257.610†	1362479.6	7.12250	mg/L	0.035510	7.12250	mg/L	0.035510	0.50%
Mo 202.031†	-16.8	-0.0030151	mg/L	0.00126396	-0.0030151	mg/L	0.00126396	41.92%
Na 589.592†	1233.4	0.156491	mg/L	0.0017041	0.156491	mg/L	0.0017041	1.09%
Ni 231.604†	3137.4	0.170010	mg/L	0.0000890	0.170010	mg/L	0.0000890	0.05%
Pb 220.353†	265.9	0.112460	mg/L	0.0026212	0.112460	mg/L	0.0026212	2.33%
Sb 217.584†	-3192.6	-0.715104	mg/L	0.0265131	-0.715104	mg/L	0.0265131	3.71%
Se 196.026†	-195.0	-0.168685	mg/L	0.0126293	-0.168685	mg/L	0.0126293	7.49%
Si 251.611†	124848.1	7.83163	mg/L	0.014675	7.83163	mg/L	0.014675	0.19%
Sn 189.927†	4.6	0.0016454	mg/L	0.00074806	0.0016454	mg/L	0.00074806	45.46%
Sr 407.771†	62543.7	0.0530659	mg/L	0.00001413	0.0530659	mg/L	0.00001413	0.03%
Ti 334.940†	22907.8	0.963044	mg/L	0.0032120	0.963044	mg/L	0.0032120	0.33%
Tl 190.801†	-47.6	-0.0302507	mg/L	0.00902033	-0.0302507	mg/L	0.00902033	29.82%
V 292.395†	24202.5	0.316722	mg/L	0.0005556	0.316722	mg/L	0.0005556	0.18%
Zn 206.200†	5561.7	0.330990	mg/L	0.0013946	0.330990	mg/L	0.0013946	0.42%

Sequence No.: 22
Sample ID: 0911250-03
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 25
Date Collected: 11/20/2009 2:05:27 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-03

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	247175.8	247175.8	104.323	%			14:06:38

1	Al 396.153†	628272.9	601723.0	138.778 mg/L	138.778 mg/L	14:06:33
1	Ba 455.398†	513770.5	492605.7	1.06442 mg/L	1.06442 mg/L	14:06:33
1	Ca 315.887†	83704.2	79777.7	29.3761 mg/L	29.3761 mg/L	14:06:38
1	Fe 238.204†	409354.7	392322.2	197.681 mg/L	197.681 mg/L	14:06:33
1	K 766.490	11682.9	11271.4	13.2971 mg/L	13.2971 mg/L	14:06:38
1	Li 670.784†	7190.0	6573.4	0.144056 mg/L	0.144056 mg/L	14:06:38
1	Mg 279.071†	18089.9	17314.3	29.2655 mg/L	29.2655 mg/L	14:06:38
1	Na 589.592†	3918.0	2517.4	0.300189 mg/L	0.300189 mg/L	14:06:38
1	Sr 407.771†	117561.9	111787.8	0.0924607 mg/L	0.0924607 mg/L	14:06:38
1	Ti 334.940†	97894.9	93762.1	3.93486 mg/L	3.93486 mg/L	14:06:38
1	Sc 357.234	273980.4	273980.4	103.399 %		14:06:55
1	Ag 328.068†	-8365.8	-8884.2	-0.0881010 mg/L	-0.0881010 mg/L	14:07:15
1	As 188.979†	56.8	87.5	0.0632276 mg/L	0.0632276 mg/L	14:07:15
1	B 249.677†	1140.7	585.6	0.0134006 mg/L	0.0134006 mg/L	14:06:55
1	Be 234.861†	24094.1	24219.5	0.0106214 mg/L	0.0106214 mg/L	14:06:55
1	Cd 214.437†	1848.6	1246.6	0.0124728 mg/L	0.0124728 mg/L	14:07:15
1	Ce 413.764†	18893.7	16910.2	0.334796 mg/L	0.334796 mg/L	14:06:55
1	Co 228.616†	803.1	856.6	0.0764412 mg/L	0.0764412 mg/L	14:07:15
1	Cr 205.557†	3599.8	3501.3	0.207075 mg/L	0.207075 mg/L	14:07:15
1	Cu 327.397†	7644.0	8746.0	0.141791 mg/L	0.141791 mg/L	14:06:55
1	Mn 257.610†	1103891.4	1067254.0	5.57447 mg/L	5.57447 mg/L	14:06:55
1	Mo 202.031†	192.9	70.7	0.0047811 mg/L	0.0047811 mg/L	14:07:15
1	Ni 231.604†	2674.1	2082.6	0.112594 mg/L	0.112594 mg/L	14:07:15
1	Pb 220.353†	1474.1	1387.6	0.475193 mg/L	0.475193 mg/L	14:07:15
1	Sb 217.584†	-1905.2	-1777.2	-0.424811 mg/L	-0.424811 mg/L	14:07:15
1	Se 196.026†	-182.6	-112.2	-0.110964 mg/L	-0.110964 mg/L	14:07:15
1	Si 251.611†	42682.9	39733.9	2.41869 mg/L	2.41869 mg/L	14:06:55
1	Sn 189.927†	-24.6	-40.3	-0.0117450 mg/L	-0.0117450 mg/L	14:07:15
1	Tl 190.801†	-123.9	-68.3	-0.0294989 mg/L	-0.0294989 mg/L	14:07:15
1	V 292.395†	22011.0	23006.4	0.325299 mg/L	0.325299 mg/L	14:06:55
1	Zn 206.200†	22350.9	21737.6	1.29919 mg/L	1.29919 mg/L	14:06:55
2	Y 360.076	244911.4	244911.4	103.367 %		14:06:49
2	Al 396.153†	630409.6	609358.2	140.539 mg/L	140.539 mg/L	14:06:43
2	Ba 455.398†	515011.1	498359.2	1.07683 mg/L	1.07683 mg/L	14:06:43
2	Ca 315.887†	83362.2	80188.7	29.5275 mg/L	29.5275 mg/L	14:06:49
2	Fe 238.204†	412246.6	398747.8	200.919 mg/L	200.919 mg/L	14:06:43
2	K 766.490	11613.8	11202.2	13.2155 mg/L	13.2155 mg/L	14:06:49
2	Li 670.784†	7161.3	6609.4	0.144833 mg/L	0.144833 mg/L	14:06:49
2	Mg 279.071†	18031.3	17417.9	29.4402 mg/L	29.4402 mg/L	14:06:49
2	Na 589.592†	3930.0	2563.7	0.305376 mg/L	0.305376 mg/L	14:06:49
2	Sr 407.771†	116817.5	112109.6	0.0927177 mg/L	0.0927177 mg/L	14:06:49
2	Ti 334.940†	97350.8	94103.4	3.94917 mg/L	3.94917 mg/L	14:06:49
2	Sc 357.234	273302.3	273302.3	103.143 %		14:07:21
2	Ag 328.068†	-8331.9	-8871.4	-0.0876444 mg/L	-0.0876444 mg/L	14:07:41
2	As 188.979†	63.8	94.5	0.0704806 mg/L	0.0704806 mg/L	14:07:41
2	B 249.677†	1185.4	631.6	0.0151328 mg/L	0.0151328 mg/L	14:07:21
2	Be 234.861†	23994.1	24180.3	0.0092395 mg/L	0.0092395 mg/L	14:07:21
2	Cd 214.437†	1824.9	1228.0	0.0117990 mg/L	0.0117990 mg/L	14:07:41
2	Ce 413.764†	18837.1	16900.6	0.334933 mg/L	0.334933 mg/L	14:07:21
2	Co 228.616†	778.1	834.3	0.0738937 mg/L	0.0738937 mg/L	14:07:41
2	Cr 205.557†	3613.4	3523.2	0.208454 mg/L	0.208454 mg/L	14:07:41
2	Cu 327.397†	7594.9	8716.8	0.141368 mg/L	0.141368 mg/L	14:07:21
2	Mn 257.610†	1102998.0	1069036.5	5.58391 mg/L	5.58391 mg/L	14:07:21
2	Mo 202.031†	182.3	60.9	0.0039056 mg/L	0.0039056 mg/L	14:07:41
2	Ni 231.604†	2664.0	2079.3	0.112412 mg/L	0.112412 mg/L	14:07:41
2	Pb 220.353†	1475.0	1392.0	0.476900 mg/L	0.476900 mg/L	14:07:41
2	Sb 217.584†	-1906.2	-1782.8	-0.418748 mg/L	-0.418748 mg/L	14:07:41
2	Se 196.026†	-185.9	-115.8	-0.115827 mg/L	-0.115827 mg/L	14:07:41
2	Si 251.611†	42842.2	39990.8	2.43500 mg/L	2.43500 mg/L	14:07:21
2	Sn 189.927†	-8.9	-25.1	-0.0072215 mg/L	-0.0072215 mg/L	14:07:41
2	Tl 190.801†	-120.8	-65.7	-0.0271916 mg/L	-0.0271916 mg/L	14:07:41
2	V 292.395†	21995.1	23043.8	0.325353 mg/L	0.325353 mg/L	14:07:21
2	Zn 206.200†	22351.9	21792.1	1.30245 mg/L	1.30245 mg/L	14:07:21

Mean Data: 0911250-03

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	273641.4	103.271	%	0.1809				0.18%
Y 360.076	246043.6	103.845	%	0.6758				0.65%
Ag 328.068†	-8877.8	-0.0878727	mg/L	0.00032289	-0.0878727	mg/L	0.00032289	0.37%

Al 396.153†	605540.6	139.659 mg/L	1.2450	139.659 mg/L	1.2450	0.89%
As 188.979†	91.0	0.0668541 mg/L	0.00512871	0.0668541 mg/L	0.00512871	7.67%
B 249.677†	608.6	0.0142667 mg/L	0.00122488	0.0142667 mg/L	0.00122488	8.59%
Ba 455.398†	495482.5	1.07062 mg/L	0.008777	1.07062 mg/L	0.008777	0.82%
Be 234.861†	24199.9	0.0099305 mg/L	0.00097712	0.0099305 mg/L	0.00097712	9.84%
Ca 315.887†	79983.2	29.4518 mg/L	0.10705	29.4518 mg/L	0.10705	0.36%
Cd 214.437†	1237.3	0.0121359 mg/L	0.00047644	0.0121359 mg/L	0.00047644	3.93%
Ce 413.764†	16905.4	0.334864 mg/L	0.0000969	0.334864 mg/L	0.0000969	0.03%
Co 228.616†	845.4	0.0751675 mg/L	0.00180131	0.0751675 mg/L	0.00180131	2.40%
Cr 205.557†	3512.2	0.207764 mg/L	0.0009750	0.207764 mg/L	0.0009750	0.47%
Cu 327.397†	8731.4	0.141580 mg/L	0.0002995	0.141580 mg/L	0.0002995	0.21%
Fe 238.204†	395535.0	199.300 mg/L	2.2894	199.300 mg/L	2.2894	1.15%
K 766.490	11236.8	13.2563 mg/L	0.05770	13.2563 mg/L	0.05770	0.44%
Li 670.784†	6591.4	0.144444 mg/L	0.0005495	0.144444 mg/L	0.0005495	0.38%
Mg 279.071†	17366.1	29.3528 mg/L	0.12354	29.3528 mg/L	0.12354	0.42%
Mn 257.610†	1068145.3	5.57919 mg/L	0.006675	5.57919 mg/L	0.006675	0.12%
Mo 202.031†	65.8	0.0043433 mg/L	0.00061907	0.0043433 mg/L	0.00061907	14.25%
Na 589.592†	2540.6	0.302783 mg/L	0.0036677	0.302783 mg/L	0.0036677	1.21%
Ni 231.604†	2081.0	0.112503 mg/L	0.0001287	0.112503 mg/L	0.0001287	0.11%
Pb 220.353†	1389.8	0.476047 mg/L	0.0012073	0.476047 mg/L	0.0012073	0.25%
Sb 217.584†	-1780.0	-0.421780 mg/L	0.0042870	-0.421780 mg/L	0.0042870	1.02%
Se 196.026†	-114.0	-0.113395 mg/L	0.0034385	-0.113395 mg/L	0.0034385	3.03%
Si 251.611†	39862.3	2.42685 mg/L	0.011534	2.42685 mg/L	0.011534	0.48%
Sn 189.927†	-32.7	-0.0094832 mg/L	0.00319862	-0.0094832 mg/L	0.00319862	33.73%
Sr 407.771†	111948.7	0.0925892 mg/L	0.00018172	0.0925892 mg/L	0.00018172	0.20%
Ti 334.940†	93932.7	3.94201 mg/L	0.010122	3.94201 mg/L	0.010122	0.26%
Tl 190.801†	-67.0	-0.0283452 mg/L	0.00163154	-0.0283452 mg/L	0.00163154	5.76%
V 292.395†	23025.1	0.325326 mg/L	0.0000386	0.325326 mg/L	0.0000386	0.01%
Zn 206.200†	21764.9	1.30082 mg/L	0.002305	1.30082 mg/L	0.002305	0.18%

Sequence No.: 23
Sample ID: 0911250-04
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 26
Date Collected: 11/20/2009 2:11:02 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-04

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	245529.3	245529.3	103.628	%			14:12:12
1	Al 396.153†	631728.6	609096.4	140.481	mg/L	140.481	mg/L	14:12:07
1	Ba 455.398†	459525.2	443562.1	0.958611	mg/L	0.958611	mg/L	14:12:07
1	Ca 315.887†	93182.2	89461.9	32.9205	mg/L	32.9205	mg/L	14:12:12
1	Fe 238.204†	390711.0	376962.6	189.942	mg/L	189.942	mg/L	14:12:12
1	K 766.490	10244.8	9833.2	11.5988	mg/L	11.5988	mg/L	14:12:12
1	Li 670.784†	7131.4	6563.0	0.143832	mg/L	0.143832	mg/L	14:12:12
1	Mg 279.071†	18320.9	17653.5	29.8260	mg/L	29.8260	mg/L	14:12:12
1	Na 589.592†	3497.2	2136.5	0.257563	mg/L	0.257563	mg/L	14:12:12
1	Sr 407.771†	119385.9	114303.7	0.0944744	mg/L	0.0944744	mg/L	14:12:12
1	Ti 334.940†	82982.1	80000.6	3.35792	mg/L	3.35792	mg/L	14:12:12
1	Sc 357.234	276309.3	276309.3	104.278	%			14:12:29
1	Ag 328.068†	-7822.3	-8294.8	-0.0816479	mg/L	-0.0816479	mg/L	14:12:49
1	As 188.979†	46.2	76.9	0.0551943	mg/L	0.0551943	mg/L	14:12:49
1	B 249.677†	1062.9	501.6	0.0106608	mg/L	0.0106608	mg/L	14:12:29
1	Be 234.861†	22677.7	22664.8	0.0079822	mg/L	0.0079822	mg/L	14:12:29
1	Cd 214.437†	1792.7	1178.0	0.0110069	mg/L	0.0110069	mg/L	14:12:49
1	Ce 413.764†	17937.8	15839.5	0.314067	mg/L	0.314067	mg/L	14:12:29
1	Co 228.616†	677.8	729.9	0.0644782	mg/L	0.0644782	mg/L	14:12:49
1	Cr 205.557†	3483.8	3360.7	0.198704	mg/L	0.198704	mg/L	14:12:49
1	Cu 327.397†	6893.4	7963.9	0.129162	mg/L	0.129162	mg/L	14:12:29
1	Mn 257.610†	906164.5	868640.3	4.53827	mg/L	4.53827	mg/L	14:12:29
1	Mo 202.031†	184.3	60.9	0.0039033	mg/L	0.0039033	mg/L	14:12:49
1	Ni 231.604†	2411.3	1808.9	0.0976814	mg/L	0.0976814	mg/L	14:12:49
1	Pb 220.353†	1206.1	1118.6	0.387992	mg/L	0.387992	mg/L	14:12:49
1	Sb 217.584†	-1803.7	-1664.4	-0.381337	mg/L	-0.381337	mg/L	14:12:49
1	Se 196.026†	-175.7	-104.2	-0.100573	mg/L	-0.100573	mg/L	14:12:49
1	Si 251.611†	43219.5	39900.5	2.44252	mg/L	2.44252	mg/L	14:12:29
1	Sn 189.927†	-36.1	-51.1	-0.0149793	mg/L	-0.0149793	mg/L	14:12:49
1	Tl 190.801†	-114.7	-58.6	-0.0254165	mg/L	-0.0254165	mg/L	14:12:49

1	V 292.395†	21703.8	22532.5	0.319556 mg/L	0.319556 mg/L	14:12:29
1	Zn 206.200†	18162.8	17539.1	1.04776 mg/L	1.04776 mg/L	14:12:29
2	Y 360.076	244187.9	244187.9	103.062 %		14:12:22
2	Al 396.153†	630490.6	611243.7	140.976 mg/L	140.976 mg/L	14:12:17
2	Ba 455.398†	458484.2	444987.8	0.961687 mg/L	0.961687 mg/L	14:12:17
2	Ca 315.887†	92991.5	89770.9	33.0340 mg/L	33.0340 mg/L	14:12:22
2	Fe 238.204†	390001.7	378345.4	190.638 mg/L	190.638 mg/L	14:12:22
2	K 766.490	10249.7	9838.1	11.6047 mg/L	11.6047 mg/L	14:12:22
2	Li 670.784†	7142.9	6612.1	0.144891 mg/L	0.144891 mg/L	14:12:22
2	Mg 279.071†	18341.5	17770.6	30.0236 mg/L	30.0236 mg/L	14:12:22
2	Na 589.592†	3539.4	2196.0	0.264224 mg/L	0.264224 mg/L	14:12:22
2	Sr 407.771†	119129.5	114687.7	0.0947809 mg/L	0.0947809 mg/L	14:12:22
2	Ti 334.940†	82976.2	80434.8	3.37612 mg/L	3.37612 mg/L	14:12:22
2	Sc 357.234	276632.4	276632.4	104.400 %		14:12:55
2	Ag 328.068†	-7856.1	-8318.4	-0.0818692 mg/L	-0.0818692 mg/L	14:13:15
2	As 188.979†	36.0	67.1	0.0447329 mg/L	0.0447329 mg/L	14:13:15
2	B 249.677†	1109.6	545.1	0.0122861 mg/L	0.0122861 mg/L	14:12:55
2	Be 234.861†	22794.1	22750.9	0.0080225 mg/L	0.0080225 mg/L	14:12:55
2	Cd 214.437†	1801.5	1184.3	0.0111078 mg/L	0.0111078 mg/L	14:13:15
2	Ce 413.764†	18016.8	15895.1	0.315176 mg/L	0.315176 mg/L	14:12:55
2	Co 228.616†	686.4	737.3	0.0652243 mg/L	0.0652243 mg/L	14:13:15
2	Cr 205.557†	3481.1	3354.3	0.198358 mg/L	0.198358 mg/L	14:13:15
2	Cu 327.397†	6906.0	7968.2	0.129259 mg/L	0.129259 mg/L	14:12:55
2	Mn 257.610†	910902.2	872163.2	4.55668 mg/L	4.55668 mg/L	14:12:55
2	Mo 202.031†	223.5	98.2	0.0072307 mg/L	0.0072307 mg/L	14:13:15
2	Ni 231.604†	2410.0	1804.8	0.0974683 mg/L	0.0974683 mg/L	14:13:15
2	Pb 220.353†	1214.2	1125.0	0.390163 mg/L	0.390163 mg/L	14:13:15
2	Sb 217.584†	-1823.2	-1681.0	-0.388640 mg/L	-0.388640 mg/L	14:13:15
2	Se 196.026†	-160.6	-89.5	-0.0746403 mg/L	-0.0746403 mg/L	14:13:15
2	Si 251.611†	43218.7	39851.3	2.43910 mg/L	2.43910 mg/L	14:12:55
2	Sn 189.927†	-30.7	-45.9	-0.0134157 mg/L	-0.0134157 mg/L	14:13:15
2	Tl 190.801†	-120.0	-63.5	-0.0293525 mg/L	-0.0293525 mg/L	14:13:15
2	V 292.395†	21837.0	22635.7	0.321076 mg/L	0.321076 mg/L	14:12:55
2	Zn 206.200†	18461.5	17804.9	1.06367 mg/L	1.06367 mg/L	14:12:55

Mean Data: 0911250-04

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	276470.8	104.339	%	0.0862				0.08%
Y 360.076	244858.6	103.345	%	0.4003				0.39%
Ag 328.068†	-8306.6	-0.0817586	mg/L	0.00015642	-0.0817586	mg/L	0.00015642	0.19%
Al 396.153†	610170.0	140.728	mg/L	0.3501	140.728	mg/L	0.3501	0.25%
As 188.979†	72.0	0.0499636	mg/L	0.00739735	0.0499636	mg/L	0.00739735	14.81%
B 249.677†	523.4	0.0114735	mg/L	0.00114928	0.0114735	mg/L	0.00114928	10.02%
Ba 455.398†	444275.0	0.960149	mg/L	0.0021750	0.960149	mg/L	0.0021750	0.23%
Be 234.861†	22707.8	0.0080023	mg/L	0.00002852	0.0080023	mg/L	0.00002852	0.36%
Ca 315.887†	89616.4	32.9772	mg/L	0.08025	32.9772	mg/L	0.08025	0.24%
Cd 214.437†	1181.1	0.0110573	mg/L	0.00007135	0.0110573	mg/L	0.00007135	0.65%
Ce 413.764†	15867.3	0.314622	mg/L	0.0007836	0.314622	mg/L	0.0007836	0.25%
Co 228.616†	733.6	0.0648513	mg/L	0.00052761	0.0648513	mg/L	0.00052761	0.81%
Cr 205.557†	3357.5	0.198531	mg/L	0.0002445	0.198531	mg/L	0.0002445	0.12%
Cu 327.397†	7966.1	0.129211	mg/L	0.0000688	0.129211	mg/L	0.0000688	0.05%
Fe 238.204†	377654.0	190.290	mg/L	0.4927	190.290	mg/L	0.4927	0.26%
K 766.490	9835.7	11.6017	mg/L	0.00411	11.6017	mg/L	0.00411	0.04%
Li 670.784†	6587.5	0.144362	mg/L	0.0007483	0.144362	mg/L	0.0007483	0.52%
Mg 279.071†	17712.0	29.9248	mg/L	0.13971	29.9248	mg/L	0.13971	0.47%
Mn 257.610†	870401.7	4.54748	mg/L	0.013014	4.54748	mg/L	0.013014	0.29%
Mo 202.031†	79.5	0.0055670	mg/L	0.00235286	0.0055670	mg/L	0.00235286	42.26%
Na 589.592†	2166.3	0.260893	mg/L	0.0047103	0.260893	mg/L	0.0047103	1.81%
Ni 231.604†	1806.8	0.0975749	mg/L	0.00015065	0.0975749	mg/L	0.00015065	0.15%
Pb 220.353†	1121.8	0.389077	mg/L	0.0015351	0.389077	mg/L	0.0015351	0.39%
Sb 217.584†	-1672.7	-0.384988	mg/L	0.0051642	-0.384988	mg/L	0.0051642	1.34%
Se 196.026†	-96.8	-0.0876068	mg/L	0.01833733	-0.0876068	mg/L	0.01833733	20.93%
Si 251.611†	39875.9	2.44081	mg/L	0.002418	2.44081	mg/L	0.002418	0.10%
Sn 189.927†	-48.5	-0.0141975	mg/L	0.00110561	-0.0141975	mg/L	0.00110561	7.79%
Sr 407.771†	114495.7	0.0946276	mg/L	0.00021669	0.0946276	mg/L	0.00021669	0.23%
Ti 334.940†	80217.7	3.36702	mg/L	0.012874	3.36702	mg/L	0.012874	0.38%
Tl 190.801†	-61.0	-0.0273845	mg/L	0.00278316	-0.0273845	mg/L	0.00278316	10.16%
V 292.395†	22584.1	0.320316	mg/L	0.0010752	0.320316	mg/L	0.0010752	0.34%
Zn 206.200†	17672.0	1.05571	mg/L	0.011251	1.05571	mg/L	0.011251	1.07%

1	Si 251.611†	738.4	-796.4	-0.0420789 mg/L	-0.0420789 mg/L	14:31:56
1	Sn 189.927†	28.0	12.0	0.0038389 mg/L	0.0038389 mg/L	14:31:56
1	Tl 190.801†	-47.5	3.2	0.0006082 mg/L	0.0006082 mg/L	14:31:56
1	V 292.395†	-1684.4	9.1	-0.0006595 mg/L	-0.0006595 mg/L	14:31:56
1	Zn 206.200†	-126.0	-6.5	-0.0020974 mg/L	-0.0020974 mg/L	14:31:56
2	Y 360.076	232018.3	232018.3	97.9255 %		14:31:10
2	Al 396.153†	560.2	56.0	0.0245754 mg/L	0.0245754 mg/L	14:31:10
2	Ba 455.398†	-142.2	-20.7	0.0016091 mg/L	0.0016091 mg/L	14:31:10
2	Ca 315.887†	422.4	-26.7	0.0536878 mg/L	0.0536878 mg/L	14:31:30
2	Fe 238.204†	77.2	8.9	0.0074564 mg/L	0.0074564 mg/L	14:31:30
2	K 766.490	419.3	7.7	-0.0039667 mg/L	-0.0039667 mg/L	14:31:10
2	Li 670.784†	336.8	25.2	0.0026805 mg/L	0.0026805 mg/L	14:31:10
2	Mg 279.071†	20.2	-5.4	0.0210301 mg/L	0.0210301 mg/L	14:31:30
2	Na 589.592†	1171.7	-41.7	0.0137798 mg/L	0.0137798 mg/L	14:31:10
2	Sr 407.771†	893.4	9.7	0.0032653 mg/L	0.0032653 mg/L	14:31:10
2	Ti 334.940†	63.6	-11.4	0.0020349 mg/L	0.0020349 mg/L	14:31:30
2	Sc 357.234	261676.4	261676.4	98.7555 %		14:32:01
2	Ag 328.068†	770.2	-13.5	0.0010240 mg/L	0.0010240 mg/L	14:32:01
2	As 188.979†	-32.7	-0.5	-0.0054721 mg/L	-0.0054721 mg/L	14:32:21
2	B 249.677†	573.8	63.4	-0.0033873 mg/L	-0.0033873 mg/L	14:32:21
2	Be 234.861†	-918.8	-13.0	-0.0001519 mg/L	-0.0001519 mg/L	14:32:21
2	Cd 214.437†	534.3	-0.2	-0.0023301 mg/L	-0.0023301 mg/L	14:32:21
2	Ce 413.764†	1331.8	-13.8	-0.0002587 mg/L	-0.0002587 mg/L	14:32:01
2	Co 228.616†	-87.2	-8.3	-0.0018377 mg/L	-0.0018377 mg/L	14:32:21
2	Cr 205.557†	-35.6	-16.2	-0.0024782 mg/L	-0.0024782 mg/L	14:32:21
2	Cu 327.397†	-1449.6	-114.6	-0.0016315 mg/L	-0.0016315 mg/L	14:32:01
2	Mn 257.610†	382.6	37.1	-0.0003033 mg/L	-0.0003033 mg/L	14:32:21
2	Mo 202.031†	120.1	5.7	-0.0010098 mg/L	-0.0010098 mg/L	14:32:21
2	Ni 231.604†	491.8	-5.6	-0.0011651 mg/L	-0.0011651 mg/L	14:32:21
2	Pb 220.353†	32.1	-5.5	-0.0007751 mg/L	-0.0007751 mg/L	14:32:21
2	Sb 217.584†	-72.8	-8.3	-0.0046070 mg/L	-0.0046070 mg/L	14:32:21
2	Se 196.026†	-68.5	-5.0	-0.0157584 mg/L	-0.0157584 mg/L	14:32:21
2	Si 251.611†	738.7	-798.0	-0.0421729 mg/L	-0.0421729 mg/L	14:32:21
2	Sn 189.927†	19.0	2.8	0.0010870 mg/L	0.0010870 mg/L	14:32:21
2	Tl 190.801†	-51.0	-0.2	-0.0022715 mg/L	-0.0022715 mg/L	14:32:21
2	V 292.395†	-1737.8	-40.8	-0.0014533 mg/L	-0.0014533 mg/L	14:32:21
2	Zn 206.200†	-124.8	-5.0	-0.0020092 mg/L	-0.0020092 mg/L	14:32:21

Mean Data: 9K20033-CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	261353.1	98.6334	%	0.17257				0.17%
Y 360.076	231950.5	97.8969	%	0.04049				0.04%
Ag 328.068†	4.2	0.0012420	mg/L	0.00030839	0.0012420	mg/L	0.00030839	24.83%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153†	50.1	0.0231744	mg/L	0.00198138	0.0231744	mg/L	0.00198138	8.55%
QC value within limits for Al 396.153 Recovery = Not calculated								
As 188.979†	-3.9	-0.0090190	mg/L	0.00501600	-0.0090190	mg/L	0.00501600	55.62%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	61.8	-0.0034463	mg/L	0.00008342	-0.0034463	mg/L	0.00008342	2.42%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 455.398†	-2.0	0.0016495	mg/L	0.00005718	0.0016495	mg/L	0.00005718	3.47%
QC value within limits for Ba 455.398 Recovery = Not calculated								
Be 234.861†	-9.3	-0.0001391	mg/L	0.00001810	-0.0001391	mg/L	0.00001810	13.01%
QC value within limits for Be 234.861 Recovery = Not calculated								
Ca 315.887†	-24.6	0.0544440	mg/L	0.00106930	0.0544440	mg/L	0.00106930	1.96%
QC value within limits for Ca 315.887 Recovery = Not calculated								
Cd 214.437†	5.0	-0.0022054	mg/L	0.00017645	-0.0022054	mg/L	0.00017645	8.00%
QC value within limits for Cd 214.437 Recovery = Not calculated								
Ce 413.764†	16.6	0.0003107	mg/L	0.00080525	0.0003107	mg/L	0.00080525	259.16%
Co 228.616†	-6.1	-0.0015905	mg/L	0.00034953	-0.0015905	mg/L	0.00034953	21.98%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 205.557†	-10.4	-0.0021484	mg/L	0.00046638	-0.0021484	mg/L	0.00046638	21.71%
QC value within limits for Cr 205.557 Recovery = Not calculated								
Cu 327.397†	-138.2	-0.0019967	mg/L	0.00051658	-0.0019967	mg/L	0.00051658	25.87%
QC value within limits for Cu 327.397 Recovery = Not calculated								
Fe 238.204†	11.2	0.0086230	mg/L	0.00164990	0.0086230	mg/L	0.00164990	19.13%
QC value within limits for Fe 238.204 Recovery = Not calculated								
K 766.490	-10.2	-0.0251541	mg/L	0.02996355	-0.0251541	mg/L	0.02996355	119.12%
QC value within limits for K 766.490 Recovery = Not calculated								

Li 670.784†	2.2	0.0021844 mg/L	0.00070166	0.0021844 mg/L	0.00070166	32.12%
QC value within limits for Li 670.784 Recovery = Not calculated						
Mg 279.071†	-1.8	0.0271790 mg/L	0.00869582	0.0271790 mg/L	0.00869582	31.99%
QC value within limits for Mg 279.071 Recovery = Not calculated						
Mn 257.610†	26.3	-0.0003595 mg/L	0.00007948	-0.0003595 mg/L	0.00007948	22.11%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	14.8	-0.0001956 mg/L	0.00115147	-0.0001956 mg/L	0.00115147	588.80%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592†	-43.2	0.0136126 mg/L	0.00023646	0.0136126 mg/L	0.00023646	1.74%
QC value within limits for Na 589.592 Recovery = Not calculated						
Ni 231.604†	-4.0	-0.0010775 mg/L	0.00012391	-0.0010775 mg/L	0.00012391	11.50%
QC value within limits for Ni 231.604 Recovery = Not calculated						
Pb 220.353†	-1.6	0.0004906 mg/L	0.00179004	0.0004906 mg/L	0.00179004	364.83%
QC value within limits for Pb 220.353 Recovery = Not calculated						
Sb 217.584†	-8.1	-0.0044563 mg/L	0.00021321	-0.0044563 mg/L	0.00021321	4.78%
QC value within limits for Sb 217.584 Recovery = Not calculated						
Se 196.026†	-3.4	-0.0130491 mg/L	0.00383155	-0.0130491 mg/L	0.00383155	29.36%
QC value within limits for Se 196.026 Recovery = Not calculated						
Si 251.611†	-797.2	-0.0421259 mg/L	0.00006646	-0.0421259 mg/L	0.00006646	0.16%
QC value less than the lower limit for Si 251.611 Recovery = Not calculated						
Sn 189.927†	7.4	0.0024630 mg/L	0.00194595	0.0024630 mg/L	0.00194595	79.01%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 407.771†	-1.1	0.0032566 mg/L	0.00001237	0.0032566 mg/L	0.00001237	0.38%
QC value within limits for Sr 407.771 Recovery = Not calculated						
Ti 334.940†	-16.4	0.0018255 mg/L	0.00029603	0.0018255 mg/L	0.00029603	16.22%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	1.5	-0.0008317 mg/L	0.00203622	-0.0008317 mg/L	0.00203622	244.84%
QC value within limits for Tl 190.801 Recovery = Not calculated						
V 292.395†	-15.8	-0.0010564 mg/L	0.00056127	-0.0010564 mg/L	0.00056127	53.13%
QC value within limits for V 292.395 Recovery = Not calculated						
Zn 206.200†	-5.7	-0.0020533 mg/L	0.00006236	-0.0020533 mg/L	0.00006236	3.04%
QC value within limits for Zn 206.200 Recovery = Not calculated						

QC Failed. Continue with analysis.

Sequence No.: 21
Sample ID: 0911250-05
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 27
Date Collected: 11/20/2009 2:33:39 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-05

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	248794.3	248794.3	105.006	%			14:34:45
1	Al 396.153†	693442.8	659868.1	152.172	mg/L	152.172	mg/L	14:34:45
1	Ba 455.398†	295584.8	281617.8	0.609351	mg/L	0.609351	mg/L	14:34:45
1	Ca 315.887†	13661.3	12552.0	4.71585	mg/L	4.71585	mg/L	14:34:50
1	Fe 238.204†	457672.9	435784.2	219.580	mg/L	219.580	mg/L	14:34:45
1	K 766.490	7686.7	7275.1	8.57800	mg/L	8.57800	mg/L	14:34:50
1	Li 670.784†	8303.5	7589.0	0.165983	mg/L	0.165983	mg/L	14:34:50
1	Mg 279.071†	7469.1	7087.0	11.9795	mg/L	11.9795	mg/L	14:34:50
1	Na 589.592†	2648.2	1283.7	0.162120	mg/L	0.162120	mg/L	14:34:50
1	Sr 407.771†	126522.4	119588.0	0.0985933	mg/L	0.0985933	mg/L	14:34:45
1	Ti 334.940†	20112.1	19077.0	0.802488	mg/L	0.802488	mg/L	14:34:50
1	Sc 357.234	293530.2	293530.2	110.777	%			14:35:07
1	Ag 328.068†	-9660.5	-9514.1	-0.0922536	mg/L	-0.0922536	mg/L	14:35:27
1	As 188.979†	20.1	50.8	0.0351217	mg/L	0.0351217	mg/L	14:35:27
1	B 249.677†	885.5	281.7	0.0041705	mg/L	0.0041705	mg/L	14:35:07
1	Be 234.861†	28792.8	26909.1	0.0118393	mg/L	0.0118393	mg/L	14:35:07
1	Cd 214.437†	1938.5	1208.7	0.0097971	mg/L	0.0097971	mg/L	14:35:27
1	Ce 413.764†	45654.5	39850.6	0.764833	mg/L	0.764833	mg/L	14:35:07
1	Co 228.616†	354.4	399.9	0.0352111	mg/L	0.0352111	mg/L	14:35:27
1	Cr 205.557†	5517.0	5000.1	0.293997	mg/L	0.293997	mg/L	14:35:27
1	Cu 327.397†	6893.6	7576.3	0.118258	mg/L	0.118258	mg/L	14:35:07
1	Mn 257.610†	117781.0	105972.4	0.561946	mg/L	0.561946	mg/L	14:35:07
1	Mo 202.031†	214.2	77.5	0.0053860	mg/L	0.0053860	mg/L	14:35:27
1	Ni 231.604†	2513.1	1765.1	0.0952513	mg/L	0.0952513	mg/L	14:35:27
1	Pb 220.353†	193.8	136.9	0.0700424	mg/L	0.0700424	mg/L	14:35:27
1	Sb 217.584†	-2133.6	-1860.7	-0.416109	mg/L	-0.416109	mg/L	14:35:27

1	Se 196.026†	-208.1	-123.5	-0.118474 mg/L	-0.118474 mg/L	14:35:27
1	Si 251.611†	147288.5	131413.6	8.20887 mg/L	8.20887 mg/L	14:35:07
1	Sn 189.927†	26.2	7.2	0.0024001 mg/L	0.0024001 mg/L	14:35:27
1	Tl 190.801†	-100.6	-39.4	-0.0231950 mg/L	-0.0231950 mg/L	14:35:27
1	V 292.395†	29914.4	28723.2	0.413873 mg/L	0.413873 mg/L	14:35:07
1	Zn 206.200†	6155.2	5677.8	0.337914 mg/L	0.337914 mg/L	14:35:27
2	Y 360.076	250520.6	250520.6	105.735 %		14:34:55
2	Al 396.153†	698652.9	660245.2	152.259 mg/L	152.259 mg/L	14:34:55
2	Ba 455.398†	297788.7	281762.4	0.609663 mg/L	0.609663 mg/L	14:34:55
2	Ca 315.887†	13897.9	12686.0	4.76509 mg/L	4.76509 mg/L	14:35:00
2	Fe 238.204†	461762.5	436648.6	220.016 mg/L	220.016 mg/L	14:34:55
2	K 766.490	7806.8	7395.3	8.71989 mg/L	8.71989 mg/L	14:35:00
2	Li 670.784†	8340.6	7569.6	0.165564 mg/L	0.165564 mg/L	14:35:00
2	Mg 279.071†	7592.4	7154.6	12.0934 mg/L	12.0934 mg/L	14:35:00
2	Na 589.592†	2736.9	1350.2	0.169566 mg/L	0.169566 mg/L	14:35:00
2	Sr 407.771†	127656.6	119830.4	0.0987867 mg/L	0.0987867 mg/L	14:34:55
2	Ti 334.940†	20347.3	19167.5	0.806284 mg/L	0.806284 mg/L	14:35:00
2	Sc 357.234	291683.0	291683.0	110.080 %		14:35:32
2	Ag 328.068†	-9581.2	-9497.2	-0.0920061 mg/L	-0.0920061 mg/L	14:35:52
2	As 188.979†	24.2	54.6	0.0391077 mg/L	0.0391077 mg/L	14:35:52
2	B 249.677†	928.0	325.4	0.0058139 mg/L	0.0058139 mg/L	14:35:32
2	Be 234.861†	28504.0	26811.4	0.0113233 mg/L	0.0113233 mg/L	14:35:32
2	Cd 214.437†	1917.4	1200.6	0.0095810 mg/L	0.0095810 mg/L	14:35:52
2	Ce 413.764†	45407.3	39887.0	0.765553 mg/L	0.765553 mg/L	14:35:32
2	Co 228.616†	349.1	397.1	0.0348861 mg/L	0.0348861 mg/L	14:35:52
2	Cr 205.557†	5465.7	4985.1	0.293153 mg/L	0.293153 mg/L	14:35:52
2	Cu 327.397†	6900.2	7621.6	0.118965 mg/L	0.118965 mg/L	14:35:32
2	Mn 257.610†	116752.0	105711.0	0.560602 mg/L	0.560602 mg/L	14:35:32
2	Mo 202.031†	197.3	63.4	0.0041288 mg/L	0.0041288 mg/L	14:35:52
2	Ni 231.604†	2474.7	1744.6	0.0941314 mg/L	0.0941314 mg/L	14:35:52
2	Pb 220.353†	180.5	126.0	0.0665022 mg/L	0.0665022 mg/L	14:35:52
2	Sb 217.584†	-2089.4	-1832.8	-0.399250 mg/L	-0.399250 mg/L	14:35:52
2	Se 196.026†	-203.7	-120.7	-0.113438 mg/L	-0.113438 mg/L	14:35:52
2	Si 251.611†	146404.7	131452.8	8.21131 mg/L	8.21131 mg/L	14:35:32
2	Sn 189.927†	28.6	9.5	0.0030832 mg/L	0.0030832 mg/L	14:35:52
2	Tl 190.801†	-107.3	-46.0	-0.0287165 mg/L	-0.0287165 mg/L	14:35:52
2	V 292.395†	29636.5	28641.7	0.412514 mg/L	0.412514 mg/L	14:35:32
2	Zn 206.200†	6101.5	5664.2	0.337096 mg/L	0.337096 mg/L	14:35:52

Mean Data: 0911250-05

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	292606.6	110.428	%	0.4929				0.45%
Y 360.076	249657.5	105.370	%	0.5152				0.49%
Ag 328.068†	-9505.7	-0.0921299	mg/L	0.00017506	-0.0921299	mg/L	0.00017506	0.19%
Al 396.153†	660056.7	152.216	mg/L	0.0615	152.216	mg/L	0.0615	0.04%
As 188.979†	52.7	0.0371147	mg/L	0.00281852	0.0371147	mg/L	0.00281852	7.59%
B 249.677†	303.6	0.0049922	mg/L	0.00116205	0.0049922	mg/L	0.00116205	23.28%
Ba 455.398†	281690.1	0.609507	mg/L	0.0002208	0.609507	mg/L	0.0002208	0.04%
Be 234.861†	26860.2	0.0115813	mg/L	0.00036487	0.0115813	mg/L	0.00036487	3.15%
Ca 315.887†	12619.0	4.74047	mg/L	0.034815	4.74047	mg/L	0.034815	0.73%
Cd 214.437†	1204.6	0.0096890	mg/L	0.00015283	0.0096890	mg/L	0.00015283	1.58%
Ce 413.764†	39868.8	0.765193	mg/L	0.0005093	0.765193	mg/L	0.0005093	0.07%
Co 228.616†	398.5	0.0350486	mg/L	0.00022979	0.0350486	mg/L	0.00022979	0.66%
Cr 205.557†	4992.6	0.293575	mg/L	0.0005967	0.293575	mg/L	0.0005967	0.20%
Cu 327.397†	7598.9	0.118612	mg/L	0.0004997	0.118612	mg/L	0.0004997	0.42%
Fe 238.204†	436216.4	219.798	mg/L	0.3080	219.798	mg/L	0.3080	0.14%
K 766.490	7335.2	8.64895	mg/L	0.100337	8.64895	mg/L	0.100337	1.16%
Li 670.784†	7579.3	0.165774	mg/L	0.0002963	0.165774	mg/L	0.0002963	0.18%
Mg 279.071†	7120.8	12.0365	mg/L	0.08052	12.0365	mg/L	0.08052	0.67%
Mn 257.610†	105841.7	0.561274	mg/L	0.0009504	0.561274	mg/L	0.0009504	0.17%
Mo 202.031†	70.4	0.0047574	mg/L	0.00088894	0.0047574	mg/L	0.00088894	18.69%
Na 589.592†	1317.0	0.165843	mg/L	0.0052653	0.165843	mg/L	0.0052653	3.17%
Ni 231.604†	1754.8	0.0946913	mg/L	0.00079186	0.0946913	mg/L	0.00079186	0.84%
Pb 220.353†	131.4	0.0682723	mg/L	0.00250325	0.0682723	mg/L	0.00250325	3.67%
Sb 217.584†	-1846.7	-0.407680	mg/L	0.0119214	-0.407680	mg/L	0.0119214	2.92%
Se 196.026†	-122.1	-0.115956	mg/L	0.0035606	-0.115956	mg/L	0.0035606	3.07%
Si 251.611†	131433.2	8.21009	mg/L	0.001726	8.21009	mg/L	0.001726	0.02%
Sn 189.927†	8.3	0.0027416	mg/L	0.00048301	0.0027416	mg/L	0.00048301	17.62%
Sr 407.771†	119709.2	0.0986900	mg/L	0.00013677	0.0986900	mg/L	0.00013677	0.14%

Ti 334.940†	19122.2	0.804386 mg/L	0.0026841	0.804386 mg/L	0.0026841	0.33%
Tl 190.801†	-42.7	-0.0259557 mg/L	0.00390434	-0.0259557 mg/L	0.00390434	15.04%
V 292.395†	28682.5	0.413194 mg/L	0.0009609	0.413194 mg/L	0.0009609	0.23%
Zn 206.200†	5671.0	0.337505 mg/L	0.0005781	0.337505 mg/L	0.0005781	0.17%

Sequence No.: 22
Sample ID: 0911250-06
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 28
Date Collected: 11/20/2009 2:39:12 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-06

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	238068.7	238068.7	100.479	%			14:40:17
1	Al 396.153†	1192474.0	1186271.7	273.561	mg/L	273.561	mg/L	14:40:17
1	Ba 455.398†	459308.0	457242.2	0.988137	mg/L	0.988137	mg/L	14:40:17
1	Ca 315.887†	27746.1	27155.8	10.1108	mg/L	10.1108	mg/L	14:40:22
1	Fe 238.204†	636035.3	632932.4	318.915	mg/L	318.915	mg/L	14:40:17
1	K 766.490	14401.2	13989.7	16.5071	mg/L	16.5071	mg/L	14:40:22
1	Li 670.784†	8288.8	7930.6	0.173359	mg/L	0.173359	mg/L	14:40:22
1	Mg 279.071†	13582.2	13491.4	22.8298	mg/L	22.8298	mg/L	14:40:22
1	Na 589.592†	4305.8	3047.0	0.359459	mg/L	0.359459	mg/L	14:40:22
1	Sr 407.771†	79416.8	78135.4	0.0655760	mg/L	0.0655760	mg/L	14:40:22
1	Ti 334.940†	177048.4	176127.8	7.38802	mg/L	7.38802	mg/L	14:40:17
1	Sc 357.234	287295.6	287295.6	108.424	%			14:40:45
1	Ag 328.068†	-13386.0	-13139.4	-0.128778	mg/L	-0.128778	mg/L	14:40:45
1	As 188.979†	71.9	98.9	0.0572128	mg/L	0.0572128	mg/L	14:41:05
1	B 249.677†	1083.9	482.0	0.0069714	mg/L	0.0069714	mg/L	14:40:45
1	Be 234.861†	37528.8	35530.4	0.0041850	mg/L	0.0041850	mg/L	14:40:39
1	Cd 214.437†	2630.7	1885.1	0.0158675	mg/L	0.0158675	mg/L	14:41:05
1	Ce 413.764†	22314.6	19218.4	0.389764	mg/L	0.389764	mg/L	14:40:45
1	Co 228.616†	1646.0	1598.0	0.144424	mg/L	0.144424	mg/L	14:41:05
1	Cr 205.557†	5619.8	5203.0	0.309426	mg/L	0.309426	mg/L	14:41:05
1	Cu 327.397†	8702.6	9379.8	0.155207	mg/L	0.155207	mg/L	14:40:45
1	Mn 257.610†	1141354.6	1052326.5	5.50200	mg/L	5.50200	mg/L	14:40:39
1	Mo 202.031†	140.1	13.3	-0.0003317	mg/L	-0.0003317	mg/L	14:41:05
1	Ni 231.604†	3382.7	2616.4	0.141676	mg/L	0.141676	mg/L	14:41:05
1	Pb 220.353†	459.1	385.4	0.174238	mg/L	0.174238	mg/L	14:41:05
1	Sb 217.584†	-2976.6	-2680.0	-0.580193	mg/L	-0.580193	mg/L	14:41:05
1	Se 196.026†	-245.5	-162.1	-0.142406	mg/L	-0.142406	mg/L	14:41:05
1	Si 251.611†	218334.6	199825.1	12.3137	mg/L	12.3137	mg/L	14:40:45
1	Sn 189.927†	8.4	-8.7	-0.0023348	mg/L	-0.0023348	mg/L	14:41:05
1	Tl 190.801†	-180.5	-115.0	-0.0441979	mg/L	-0.0441979	mg/L	14:41:05
1	V 292.395†	46868.3	44945.8	0.647152	mg/L	0.647152	mg/L	14:40:45
1	Zn 206.200†	10965.3	10234.8	0.610467	mg/L	0.610467	mg/L	14:41:05
2	Y 360.076	239844.8	239844.8	101.229	%			14:40:28
2	Al 396.153†	1201153.5	1186057.6	273.511	mg/L	273.511	mg/L	14:40:28
2	Ba 455.398†	462833.7	457340.3	0.988349	mg/L	0.988349	mg/L	14:40:28
2	Ca 315.887†	28247.9	27446.9	10.2179	mg/L	10.2179	mg/L	14:40:33
2	Fe 238.204†	642296.4	634430.2	319.670	mg/L	319.670	mg/L	14:40:28
2	K 766.490	14481.3	14069.8	16.6017	mg/L	16.6017	mg/L	14:40:33
2	Li 670.784†	8411.4	7990.7	0.174655	mg/L	0.174655	mg/L	14:40:33
2	Mg 279.071†	13736.9	13544.1	22.9191	mg/L	22.9191	mg/L	14:40:33
2	Na 589.592†	4245.3	2955.5	0.349227	mg/L	0.349227	mg/L	14:40:33
2	Sr 407.771†	80355.9	78477.9	0.0658492	mg/L	0.0658492	mg/L	14:40:33
2	Ti 334.940†	178547.8	176304.2	7.39542	mg/L	7.39542	mg/L	14:40:28
2	Sc 357.234	286576.5	286576.5	108.153	%			14:41:15
2	Ag 328.068†	-13487.6	-13264.3	-0.130229	mg/L	-0.130229	mg/L	14:41:15
2	As 188.979†	67.0	94.6	0.0525829	mg/L	0.0525829	mg/L	14:41:35
2	B 249.677†	1014.4	420.2	0.0046350	mg/L	0.0046350	mg/L	14:41:15
2	Be 234.861†	37877.9	35940.0	0.0053656	mg/L	0.0053656	mg/L	14:41:10
2	Cd 214.437†	2633.7	1893.9	0.0160552	mg/L	0.0160552	mg/L	14:41:35
2	Ce 413.764†	22322.6	19277.5	0.390939	mg/L	0.390939	mg/L	14:41:15
2	Co 228.616†	1656.4	1611.4	0.145848	mg/L	0.145848	mg/L	14:41:35
2	Cr 205.557†	5617.9	5214.3	0.310102	mg/L	0.310102	mg/L	14:41:35
2	Cu 327.397†	8492.3	9205.5	0.152532	mg/L	0.152532	mg/L	14:41:15
2	Mn 257.610†	1149621.8	1062612.2	5.55568	mg/L	5.55568	mg/L	14:41:10
2	Mo 202.031†	127.3	1.8	-0.0013561	mg/L	-0.0013561	mg/L	14:41:35

2	Ni 231.604†	3373.4	2615.5	0.141629 mg/L	0.141629 mg/L	14:41:35
2	Pb 220.353†	479.3	405.1	0.180643 mg/L	0.180643 mg/L	14:41:35
2	Sb 217.584†	-2988.4	-2697.8	-0.588146 mg/L	-0.588146 mg/L	14:41:35
2	Se 196.026†	-236.8	-154.5	-0.128852 mg/L	-0.128852 mg/L	14:41:35
2	Si 251.611†	218901.0	200854.1	12.3777 mg/L	12.3777 mg/L	14:41:15
2	Sn 189.927†	12.3	-5.1	-0.0012467 mg/L	-0.0012467 mg/L	14:41:35
2	Tl 190.801†	-179.9	-114.9	-0.0440066 mg/L	-0.0440066 mg/L	14:41:35
2	V 292.395†	46815.2	45005.2	0.647950 mg/L	0.647950 mg/L	14:41:15
2	Zn 206.200†	10987.3	10280.5	0.613202 mg/L	0.613202 mg/L	14:41:35

Mean Data: 0911250-06

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	286936.0	108.288	%	0.1919				0.18%
Y 360.076	238956.8	100.854	%	0.5300				0.53%
Ag 328.068†	-13201.9	-0.129503	mg/L	0.0010264	-0.129503	mg/L	0.0010264	0.79%
Al 396.153†	1186164.7	273.536	mg/L	0.0348	273.536	mg/L	0.0348	0.01%
As 188.979†	96.7	0.0548979	mg/L	0.00327383	0.0548979	mg/L	0.00327383	5.96%
B 249.677†	451.1	0.0058032	mg/L	0.00165209	0.0058032	mg/L	0.00165209	28.47%
Ba 455.398†	457291.2	0.988243	mg/L	0.0001497	0.988243	mg/L	0.0001497	0.02%
Be 234.861†	35735.2	0.0047753	mg/L	0.00083479	0.0047753	mg/L	0.00083479	17.48%
Ca 315.887†	27301.4	10.1644	mg/L	0.07574	10.1644	mg/L	0.07574	0.75%
Cd 214.437†	1889.5	0.0159614	mg/L	0.00013273	0.0159614	mg/L	0.00013273	0.83%
Ce 413.764†	19248.0	0.390351	mg/L	0.0008309	0.390351	mg/L	0.0008309	0.21%
Co 228.616†	1604.7	0.145136	mg/L	0.0010070	0.145136	mg/L	0.0010070	0.69%
Cr 205.557†	5208.6	0.309764	mg/L	0.0004776	0.309764	mg/L	0.0004776	0.15%
Cu 327.397†	9292.6	0.153870	mg/L	0.0018919	0.153870	mg/L	0.0018919	1.23%
Fe 238.204†	633681.3	319.293	mg/L	0.5336	319.293	mg/L	0.5336	0.17%
K 766.490	14029.7	16.5544	mg/L	0.06691	16.5544	mg/L	0.06691	0.40%
Li 670.784†	7960.6	0.174007	mg/L	0.0009162	0.174007	mg/L	0.0009162	0.53%
Mg 279.071†	13517.8	22.8745	mg/L	0.06313	22.8745	mg/L	0.06313	0.28%
Mn 257.610†	1057469.3	5.52884	mg/L	0.037956	5.52884	mg/L	0.037956	0.69%
Mo 202.031†	7.6	-0.0008439	mg/L	0.00072433	-0.0008439	mg/L	0.00072433	85.83%
Na 589.592†	3001.2	0.354343	mg/L	0.0072354	0.354343	mg/L	0.0072354	2.04%
Ni 231.604†	2616.0	0.141653	mg/L	0.0000333	0.141653	mg/L	0.0000333	0.02%
Pb 220.353†	395.3	0.177441	mg/L	0.0045292	0.177441	mg/L	0.0045292	2.55%
Sb 217.584†	-2688.9	-0.584169	mg/L	0.0056235	-0.584169	mg/L	0.0056235	0.96%
Se 196.026†	-158.3	-0.135629	mg/L	0.0095840	-0.135629	mg/L	0.0095840	7.07%
Si 251.611†	200339.6	12.3457	mg/L	0.04525	12.3457	mg/L	0.04525	0.37%
Sn 189.927†	-6.9	-0.0017907	mg/L	0.00076937	-0.0017907	mg/L	0.00076937	42.96%
Sr 407.771†	78306.7	0.0657126	mg/L	0.00019321	0.0657126	mg/L	0.00019321	0.29%
Ti 334.940†	176216.0	7.39172	mg/L	0.005233	7.39172	mg/L	0.005233	0.07%
Tl 190.801†	-115.0	-0.0441022	mg/L	0.00013529	-0.0441022	mg/L	0.00013529	0.31%
V 292.395†	44975.5	0.647551	mg/L	0.0005637	0.647551	mg/L	0.0005637	0.09%
Zn 206.200†	10257.6	0.611834	mg/L	0.0019344	0.611834	mg/L	0.0019344	0.32%

Sequence No.: 23
Sample ID: 0911250-07
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 29
Date Collected: 11/20/2009 2:44:49 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-07

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	244726.2	244726.2	103.289	%			14:45:59
1	Al 396.153†	881930.6	853331.8	196.788	mg/L	196.788	mg/L	14:45:54
1	Ba 455.398†	473729.3	458769.1	0.991454	mg/L	0.991454	mg/L	14:45:54
1	Ca 315.887†	31056.2	29609.3	10.9980	mg/L	10.9980	mg/L	14:45:59
1	Fe 238.204†	556030.4	538255.0	271.212	mg/L	271.212	mg/L	14:45:54
1	K 766.490	14050.3	13638.8	16.0928	mg/L	16.0928	mg/L	14:45:59
1	Li 670.784†	9784.1	9153.9	0.199769	mg/L	0.199769	mg/L	14:45:59
1	Mg 279.071†	15610.4	15087.3	25.5128	mg/L	25.5128	mg/L	14:45:59
1	Na 589.592†	3429.3	2081.9	0.251449	mg/L	0.251449	mg/L	14:45:59
1	Sr 407.771†	81804.4	78296.9	0.0656822	mg/L	0.0656822	mg/L	14:45:59
1	Ti 334.940†	157382.0	152294.2	6.38868	mg/L	6.38868	mg/L	14:45:59
1	Sc 357.234	285840.2	285840.2	107.875	%			14:46:16
1	Ag 328.068†	-11586.5	-11534.1	-0.113287	mg/L	-0.113287	mg/L	14:46:16

1	As 188.979†	56.8	85.3	0.0470475 mg/L	0.0470475 mg/L	14:46:36
1	B 249.677†	947.5	360.7	0.0031637 mg/L	0.0031637 mg/L	14:46:16
1	Be 234.861†	32747.1	31274.0	0.0075690 mg/L	0.0075690 mg/L	14:46:16
1	Cd 214.437†	2258.0	1551.9	0.0138785 mg/L	0.0138785 mg/L	14:46:36
1	Ce 413.764†	28005.6	24598.8	0.485430 mg/L	0.485430 mg/L	14:46:16
1	Co 228.616†	1313.4	1297.4	0.115664 mg/L	0.115664 mg/L	14:46:36
1	Cr 205.557†	4358.7	4060.4	0.241981 mg/L	0.241981 mg/L	14:46:36
1	Cu 327.397†	7269.2	8091.9	0.133986 mg/L	0.133986 mg/L	14:46:16
1	Mn 257.610†	1042918.8	966436.3	5.05193 mg/L	5.05193 mg/L	14:46:16
1	Mo 202.031†	110.3	-13.6	-0.0027321 mg/L	-0.0027321 mg/L	14:46:36
1	Ni 231.604†	3070.2	2342.5	0.126731 mg/L	0.126731 mg/L	14:46:36
1	Pb 220.353†	550.2	472.0	0.189145 mg/L	0.189145 mg/L	14:46:36
1	Sb 217.584†	-2527.8	-2277.9	-0.499525 mg/L	-0.499525 mg/L	14:46:36
1	Se 196.026†	-226.6	-145.7	-0.135105 mg/L	-0.135105 mg/L	14:46:36
1	Si 251.611†	206504.4	189883.9	11.7112 mg/L	11.7112 mg/L	14:46:16
1	Sn 189.927†	9.9	-7.3	-0.0018990 mg/L	-0.0018990 mg/L	14:46:36
1	Tl 190.801†	-167.3	-103.6	-0.0408122 mg/L	-0.0408122 mg/L	14:46:36
1	V 292.395†	39032.0	37901.7	0.545078 mg/L	0.545078 mg/L	14:46:16
1	Zn 206.200†	10220.6	9595.9	0.572192 mg/L	0.572192 mg/L	14:46:36
2	Y 360.076	244835.0	244835.0	103.335 %		14:46:09
2	Al 396.153†	886507.3	857381.3	197.722 mg/L	197.722 mg/L	14:46:04
2	Ba 455.398†	476457.3	461205.2	0.996709 mg/L	0.996709 mg/L	14:46:04
2	Ca 315.887†	31162.7	29698.9	11.0313 mg/L	11.0313 mg/L	14:46:09
2	Fe 238.204†	560697.4	542532.2	273.367 mg/L	273.367 mg/L	14:46:04
2	K 766.490	14076.8	13665.3	16.1241 mg/L	16.1241 mg/L	14:46:09
2	Li 670.784†	9858.2	9221.3	0.201225 mg/L	0.201225 mg/L	14:46:09
2	Mg 279.071†	15614.1	15084.2	25.5075 mg/L	25.5075 mg/L	14:46:09
2	Na 589.592†	3467.5	2117.3	0.255414 mg/L	0.255414 mg/L	14:46:09
2	Sr 407.771†	82091.3	78539.3	0.0658760 mg/L	0.0658760 mg/L	14:46:09
2	Ti 334.940†	158098.3	152919.7	6.41491 mg/L	6.41491 mg/L	14:46:09
2	Sc 357.234	284231.9	284231.9	107.268 %		14:46:42
2	Ag 328.068†	-11425.8	-11445.1	-0.112006 mg/L	-0.112006 mg/L	14:46:42
2	As 188.979†	60.1	88.7	0.0504686 mg/L	0.0504686 mg/L	14:47:02
2	B 249.677†	959.0	376.4	0.0037294 mg/L	0.0037294 mg/L	14:46:42
2	Be 234.861†	32331.6	31058.4	0.0059720 mg/L	0.0059720 mg/L	14:46:42
2	Cd 214.437†	2259.0	1564.7	0.0140495 mg/L	0.0140495 mg/L	14:47:02
2	Ce 413.764†	27785.6	24540.7	0.484557 mg/L	0.484557 mg/L	14:46:42
2	Co 228.616†	1330.3	1320.0	0.118005 mg/L	0.118005 mg/L	14:47:02
2	Cr 205.557†	4374.6	4098.1	0.244227 mg/L	0.244227 mg/L	14:47:02
2	Cu 327.397†	7268.9	8129.7	0.134604 mg/L	0.134604 mg/L	14:46:42
2	Mn 257.610†	1035849.9	965316.8	5.04619 mg/L	5.04619 mg/L	14:46:42
2	Mo 202.031†	124.2	-0.1	-0.0015245 mg/L	-0.0015245 mg/L	14:47:02
2	Ni 231.604†	3094.2	2381.0	0.128830 mg/L	0.128830 mg/L	14:47:02
2	Pb 220.353†	544.5	469.6	0.188518 mg/L	0.188518 mg/L	14:47:02
2	Sb 217.584†	-2544.5	-2306.8	-0.509656 mg/L	-0.509656 mg/L	14:47:02
2	Se 196.026†	-206.1	-127.8	-0.102805 mg/L	-0.102805 mg/L	14:47:02
2	Si 251.611†	205281.8	189827.2	11.7074 mg/L	11.7074 mg/L	14:46:42
2	Sn 189.927†	6.1	-10.8	-0.0029605 mg/L	-0.0029605 mg/L	14:47:02
2	Tl 190.801†	-163.7	-101.2	-0.0386175 mg/L	-0.0386175 mg/L	14:47:02
2	V 292.395†	38704.6	37801.2	0.543150 mg/L	0.543150 mg/L	14:46:42
2	Zn 206.200†	10316.2	9738.6	0.580736 mg/L	0.580736 mg/L	14:47:02

Mean Data: 0911250-07

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	285036.1	107.571	%	0.4292				0.40%
Y 360.076	244780.6	103.312	%	0.0325				0.03%
Ag 328.068†	-11489.6	-0.112647	mg/L	0.0009063	-0.112647	mg/L	0.0009063	0.80%
Al 396.153†	855356.5	197.255	mg/L	0.6603	197.255	mg/L	0.6603	0.33%
As 188.979†	87.0	0.0487581	mg/L	0.00241903	0.0487581	mg/L	0.00241903	4.96%
B 249.677†	368.6	0.0034466	mg/L	0.00040005	0.0034466	mg/L	0.00040005	11.61%
Ba 455.398†	459987.1	0.994081	mg/L	0.0037159	0.994081	mg/L	0.0037159	0.37%
Be 234.861†	31166.2	0.0067705	mg/L	0.00112922	0.0067705	mg/L	0.00112922	16.68%
Ca 315.887†	29654.1	11.0146	mg/L	0.02356	11.0146	mg/L	0.02356	0.21%
Cd 214.437†	1558.3	0.0139640	mg/L	0.00012095	0.0139640	mg/L	0.00012095	0.87%
Ce 413.764†	24569.7	0.484993	mg/L	0.0006174	0.484993	mg/L	0.0006174	0.13%
Co 228.616†	1308.7	0.116835	mg/L	0.0016550	0.116835	mg/L	0.0016550	1.42%
Cr 205.557†	4079.2	0.243104	mg/L	0.0015881	0.243104	mg/L	0.0015881	0.65%
Cu 327.397†	8110.8	0.134295	mg/L	0.0004374	0.134295	mg/L	0.0004374	0.33%
Fe 238.204†	540393.6	272.289	mg/L	1.5239	272.289	mg/L	1.5239	0.56%

K 766.490	13652.0	16.1084 mg/L	0.02213	16.1084 mg/L	0.02213	0.14%
Li 670.784†	9187.6	0.200497 mg/L	0.0010293	0.200497 mg/L	0.0010293	0.51%
Mg 279.071†	15085.7	25.5102 mg/L	0.00368	25.5102 mg/L	0.00368	0.01%
Mn 257.610†	965876.5	5.04906 mg/L	0.004061	5.04906 mg/L	0.004061	0.08%
Mo 202.031†	-6.9	-0.0021283 mg/L	0.00085391	-0.0021283 mg/L	0.00085391	40.12%
Na 589.592†	2099.6	0.253432 mg/L	0.0028031	0.253432 mg/L	0.0028031	1.11%
Ni 231.604†	2361.7	0.127780 mg/L	0.0014845	0.127780 mg/L	0.0014845	1.16%
Pb 220.353†	470.8	0.188832 mg/L	0.0004433	0.188832 mg/L	0.0004433	0.23%
Sb 217.584†	-2292.4	-0.504591 mg/L	0.0071641	-0.504591 mg/L	0.0071641	1.42%
Se 196.026†	-136.7	-0.118955 mg/L	0.0228393	-0.118955 mg/L	0.0228393	19.20%
Si 251.611†	189855.5	11.7093 mg/L	0.00266	11.7093 mg/L	0.00266	0.02%
Sn 189.927†	-9.0	-0.0024297 mg/L	0.00075063	-0.0024297 mg/L	0.00075063	30.89%
Sr 407.771†	78418.1	0.0657791 mg/L	0.00013708	0.0657791 mg/L	0.00013708	0.21%
Ti 334.940†	152607.0	6.40180 mg/L	0.018546	6.40180 mg/L	0.018546	0.29%
Tl 190.801†	-102.4	-0.0397148 mg/L	0.00155189	-0.0397148 mg/L	0.00155189	3.91%
V 292.395†	37851.4	0.544114 mg/L	0.0013634	0.544114 mg/L	0.0013634	0.25%
Zn 206.200†	9667.3	0.576464 mg/L	0.0060414	0.576464 mg/L	0.0060414	1.05%

Sequence No.: 24
Sample ID: 0911250-01
Analyst:
Initial Sample Wt:
Dilution: 500X

Autosampler Location: 30
Date Collected: 11/20/2009 2:50:20 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-01

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	229505.5	229505.5	96.8649	%			14:51:26
1	Al 396.153†	1998.2	1546.9	0.368363	mg/L	184.182	mg/L	14:51:46
1	Ba 455.398†	751.0	899.8	0.0035950	mg/L	1.79749	mg/L	14:51:26
1	Ca 315.887†	467.6	24.7	0.0726952	mg/L	36.3476	mg/L	14:51:46
1	Fe 238.204†	1053.4	1017.5	0.515651	mg/L	257.825	mg/L	14:51:46
1	K 766.490	422.5	10.9	-0.0001383	mg/L	-0.0691475	mg/L	14:51:26
1	Li 670.784†	322.8	14.5	0.0024498	mg/L	1.22488	mg/L	14:51:26
1	Mg 279.071†	52.3	28.0	0.0774068	mg/L	38.7034	mg/L	14:51:46
1	Na 589.592†	1237.7	39.5	0.0228734	mg/L	11.4367	mg/L	14:51:26
1	Sr 407.771†	1011.8	141.9	0.0033708	mg/L	1.68540	mg/L	14:51:26
1	Ti 334.940†	217.6	148.4	0.0087326	mg/L	4.36631	mg/L	14:51:46
1	Sc 357.234	258681.8	258681.8	97.6253	%			14:52:17
1	Ag 328.068†	745.6	-29.7	0.0008759	mg/L	0.437942	mg/L	14:52:17
1	As 188.979†	-26.4	5.5	0.0008383	mg/L	0.419171	mg/L	14:52:37
1	B 249.677†	499.3	-6.2	-0.0060131	mg/L	-3.00655	mg/L	14:52:37
1	Be 234.861†	-839.8	57.2	-0.0000957	mg/L	-0.0478656	mg/L	14:52:37
1	Cd 214.437†	535.4	7.2	-0.0021911	mg/L	-1.09556	mg/L	14:52:37
1	Ce 413.764†	1340.2	10.4	0.0002431	mg/L	0.121564	mg/L	14:52:17
1	Co 228.616†	-81.3	-3.4	-0.0013247	mg/L	-0.662342	mg/L	14:52:37
1	Cr 205.557†	-23.3	-4.0	-0.0017634	mg/L	-0.881676	mg/L	14:52:37
1	Cu 327.397†	-1493.8	-176.8	-0.0025815	mg/L	-1.29077	mg/L	14:52:17
1	Mn 257.610†	2854.0	2573.2	0.0129459	mg/L	6.47293	mg/L	14:52:37
1	Mo 202.031†	116.0	2.9	-0.0012578	mg/L	-0.628880	mg/L	14:52:37
1	Ni 231.604†	490.7	-0.9	-0.0009117	mg/L	-0.455862	mg/L	14:52:37
1	Pb 220.353†	37.1	-0.1	0.0010605	mg/L	0.530237	mg/L	14:52:37
1	Sb 217.584†	-76.7	-13.2	-0.0058852	mg/L	-2.94262	mg/L	14:52:37
1	Se 196.026†	-77.9	-15.4	-0.0336586	mg/L	-16.8293	mg/L	14:52:37
1	Si 251.611†	1275.9	-239.0	-0.0074658	mg/L	-3.73289	mg/L	14:52:37
1	Sn 189.927†	18.2	2.1	0.0008987	mg/L	0.449325	mg/L	14:52:37
1	Tl 190.801†	-49.1	1.2	-0.0010417	mg/L	-0.520839	mg/L	14:52:37
1	V 292.395†	-1618.1	61.5	0.0000622	mg/L	0.0310921	mg/L	14:52:37
1	Zn 206.200†	-103.4	15.5	-0.0007852	mg/L	-0.392575	mg/L	14:52:37
2	Y 360.076	230233.6	230233.6	97.1722	%			14:51:51
2	Al 396.153†	2042.4	1585.8	0.377315	mg/L	188.658	mg/L	14:52:11
2	Ba 455.398†	722.5	868.0	0.0035268	mg/L	1.76340	mg/L	14:51:51
2	Ca 315.887†	463.0	18.4	0.0704012	mg/L	35.2006	mg/L	14:52:11
2	Fe 238.204†	1058.0	1018.8	0.516320	mg/L	258.160	mg/L	14:52:11
2	K 766.490	434.5	22.9	0.0139891	mg/L	6.99453	mg/L	14:51:51
2	Li 670.784†	375.6	67.8	0.0036004	mg/L	1.80022	mg/L	14:51:51
2	Mg 279.071†	46.7	22.0	0.0674066	mg/L	33.7033	mg/L	14:52:11
2	Na 589.592†	1230.5	28.0	0.0215894	mg/L	10.7947	mg/L	14:51:51
2	Sr 407.771†	1060.6	188.8	0.0034078	mg/L	1.70389	mg/L	14:51:51

2	Ti 334.940†	221.1	151.2	0.0088514 mg/L	4.42568 mg/L	14:52:11
2	Sc 357.234	259221.6	259221.6	97.8290 %		14:52:42
2	Ag 328.068†	747.4	-29.4	0.0008853 mg/L	0.442631 mg/L	14:52:42
2	As 188.979†	-27.7	4.3	-0.0004334 mg/L	-0.216692 mg/L	14:53:02
2	B 249.677†	495.5	-11.2	-0.0062033 mg/L	-3.10166 mg/L	14:53:02
2	Be 234.861†	-875.9	22.1	-0.0002218 mg/L	-0.110890 mg/L	14:53:02
2	Cd 214.437†	546.5	17.4	-0.0019459 mg/L	-0.972943 mg/L	14:53:02
2	Ce 413.764†	1453.7	123.6	0.0023551 mg/L	1.17757 mg/L	14:52:42
2	Co 228.616†	-79.1	-0.9	-0.0010599 mg/L	-0.529957 mg/L	14:53:02
2	Cr 205.557†	-13.9	5.7	-0.0012045 mg/L	-0.602264 mg/L	14:53:02
2	Cu 327.397†	-1479.4	-158.9	-0.0023069 mg/L	-1.15344 mg/L	14:52:42
2	Mn 257.610†	2858.6	2571.8	0.0129387 mg/L	6.46937 mg/L	14:53:02
2	Mo 202.031†	121.4	8.2	-0.0007877 mg/L	-0.393848 mg/L	14:53:02
2	Ni 231.604†	498.3	5.8	-0.0005473 mg/L	-0.273635 mg/L	14:53:02
2	Pb 220.353†	24.2	-13.3	-0.0032445 mg/L	-1.62223 mg/L	14:53:02
2	Sb 217.584†	-73.5	-9.8	-0.0039681 mg/L	-1.98404 mg/L	14:53:02
2	Se 196.026†	-68.5	-5.7	-0.0167097 mg/L	-8.35485 mg/L	14:53:02
2	Si 251.611†	1252.0	-266.1	-0.0091581 mg/L	-4.57907 mg/L	14:53:02
2	Sn 189.927†	11.9	-4.3	-0.0010241 mg/L	-0.512048 mg/L	14:53:02
2	Tl 190.801†	-47.0	3.4	0.0007990 mg/L	0.399484 mg/L	14:53:02
2	V 292.395†	-1646.8	35.6	-0.0003410 mg/L	-0.170510 mg/L	14:53:02
2	Zn 206.200†	-111.3	7.6	-0.0012552 mg/L	-0.627581 mg/L	14:53:02

Mean Data: 0911250-01

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	258951.7	97.7271	%	0.14405				0.15%
Y 360.076	229869.5	97.0186	%	0.21729				0.22%
Ag 328.068†	-29.5	0.0008806	mg/L	0.00000663	0.440287	mg/L	0.0033160	0.75%
Al 396.153†	1566.3	0.372839	mg/L	0.0063298	186.420	mg/L	3.1649	1.70%
As 188.979†	4.9	0.0002025	mg/L	0.00089925	0.101240	mg/L	0.4496230	444.12%
B 249.677†	-8.7	-0.0061082	mg/L	0.00013451	-3.05411	mg/L	0.067253	2.20%
Ba 455.398†	883.9	0.0035609	mg/L	0.00004821	1.78045	mg/L	0.024107	1.35%
Be 234.861†	39.7	-0.0001588	mg/L	0.00008913	-0.0793780	mg/L	0.04456517	56.14%
Ca 315.887†	21.6	0.0715482	mg/L	0.00162212	35.7741	mg/L	0.81106	2.27%
Cd 214.437†	12.3	-0.0020685	mg/L	0.00017341	-1.03425	mg/L	0.086706	8.38%
Ce 413.764†	67.0	0.0012991	mg/L	0.00149341	0.649565	mg/L	0.7467066	114.95%
Co 228.616†	-2.1	-0.0011923	mg/L	0.00018722	-0.596149	mg/L	0.0936102	15.70%
Cr 205.557†	0.8	-0.0014839	mg/L	0.00039515	-0.741970	mg/L	0.1975740	26.63%
Cu 327.397†	-167.8	-0.0024442	mg/L	0.00019421	-1.22210	mg/L	0.097105	7.95%
Fe 238.204†	1018.2	0.515986	mg/L	0.0004736	257.993	mg/L	0.2368	0.09%
K 766.490	16.9	0.0069254	mg/L	0.00998954	3.46269	mg/L	4.994772	144.25%
Li 670.784†	41.2	0.0030251	mg/L	0.00081365	1.51255	mg/L	0.406825	26.90%
Mg 279.071†	25.0	0.0724067	mg/L	0.00707122	36.2034	mg/L	3.53561	9.77%
Mn 257.610†	2572.5	0.0129423	mg/L	0.00000504	6.47115	mg/L	0.002521	0.04%
Mo 202.031†	5.5	-0.0010227	mg/L	0.00033239	-0.511364	mg/L	0.1661933	32.50%
Na 589.592†	33.8	0.0222314	mg/L	0.00090790	11.1157	mg/L	0.45395	4.08%
Ni 231.604†	2.4	-0.0007295	mg/L	0.00025771	-0.364749	mg/L	0.1288543	35.33%
Pb 220.353†	-6.7	-0.0010920	mg/L	0.00304405	-0.545998	mg/L	1.5220263	278.76%
Sb 217.584†	-11.5	-0.0049267	mg/L	0.00135564	-2.46333	mg/L	0.677819	27.52%
Se 196.026†	-10.5	-0.0251842	mg/L	0.01198471	-12.5921	mg/L	5.99236	47.59%
Si 251.611†	-252.6	-0.0083120	mg/L	0.00119668	-4.15598	mg/L	0.598338	14.40%
Sn 189.927†	-1.1	-0.0000627	mg/L	0.00135959	-0.0313614	mg/L	0.67979379	>999.9%
Sr 407.771†	165.4	0.0033893	mg/L	0.00002614	1.69464	mg/L	0.013071	0.77%
Ti 334.940†	149.8	0.0087920	mg/L	0.00008397	4.39600	mg/L	0.041984	0.96%
Tl 190.801†	2.3	-0.0001214	mg/L	0.00130153	-0.0606772	mg/L	0.65076659	>999.9%
V 292.395†	48.6	-0.0001394	mg/L	0.00028511	-0.0697087	mg/L	0.14255391	204.50%
Zn 206.200†	11.5	-0.0010202	mg/L	0.00033235	-0.510078	mg/L	0.1661743	32.58%

Sequence No.: 25
Sample ID: 9K20033-srd2
Analyst:
Initial Sample Wt:
Dilution: 2500X

Autosampler Location: 31
Date Collected: 11/20/2009 2:54:17 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 9K20033-srd2

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time

02189

Zn 206.200†	4019.2	0.238525 mg/L	0.0030323	119.262 mg/L	1.5162	1.27%

Sequence No.: 27
Sample ID: 0911250-01
Analyst:
Initial Sample Wt:
Dilution: 100X

Autosampler Location: 33
Date Collected: 11/20/2009 3:02:21 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-01

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	230150.4	230150.4	97.1371	%			15:03:27
1	Al 396.153†	7593.4	7301.1	1.69527	mg/L	169.527	mg/L	15:03:27
1	Ba 455.398†	3961.8	4203.1	0.0107222	mg/L	1.07222	mg/L	15:03:27
1	Ca 315.887†	653.1	214.3	0.142820	mg/L	14.2820	mg/L	15:03:47
1	Fe 238.204†	4673.3	4741.1	2.39185	mg/L	239.185	mg/L	15:03:47
1	K 766.490	494.3	82.7	0.0846154	mg/L	8.46154	mg/L	15:03:27
1	Li 670.784†	381.2	73.8	0.0037287	mg/L	0.372867	mg/L	15:03:27
1	Mg 279.071†	137.1	115.1	0.224781	mg/L	22.4781	mg/L	15:03:47
1	Na 589.592†	1257.0	55.8	0.0246991	mg/L	2.46991	mg/L	15:03:27
1	Sr 407.771†	1681.5	828.4	0.0039179	mg/L	0.391790	mg/L	15:03:27
1	Ti 334.940†	778.1	724.8	0.0329029	mg/L	3.29029	mg/L	15:03:47
1	Sc 357.234	259501.5	259501.5	97.9346	%			15:04:18
1	Ag 328.068†	710.7	-67.7	0.0006005	mg/L	0.0600454	mg/L	15:04:18
1	As 188.979†	-22.5	9.6	0.0049257	mg/L	0.492569	mg/L	15:04:39
1	B 249.677†	551.6	45.5	-0.0040830	mg/L	-0.408295	mg/L	15:04:39
1	Be 234.861†	-591.6	313.3	0.0001000	mg/L	0.0100025	mg/L	15:04:18
1	Cd 214.437†	543.6	13.8	-0.0021781	mg/L	-0.217812	mg/L	15:04:39
1	Ce 413.764†	1606.6	278.1	0.0054206	mg/L	0.542060	mg/L	15:04:18
1	Co 228.616†	-75.2	3.1	-0.0007348	mg/L	-0.0734821	mg/L	15:04:39
1	Cr 205.557†	16.3	36.5	0.0006385	mg/L	0.0638530	mg/L	15:04:39
1	Cu 327.397†	-1378.5	-54.3	-0.0006559	mg/L	-0.0655893	mg/L	15:04:18
1	Mn 257.610†	12270.8	12179.3	0.0631293	mg/L	6.31293	mg/L	15:04:18
1	Mo 202.031†	119.3	5.9	-0.0009926	mg/L	-0.0992606	mg/L	15:04:39
1	Ni 231.604†	502.1	9.2	-0.0003623	mg/L	-0.0362338	mg/L	15:04:39
1	Pb 220.353†	48.3	11.3	0.0049671	mg/L	0.496707	mg/L	15:04:39
1	Sb 217.584†	-83.5	-19.9	-0.0042874	mg/L	-0.428744	mg/L	15:04:39
1	Se 196.026†	-73.2	-10.4	-0.0240673	mg/L	-2.40673	mg/L	15:04:39
1	Si 251.611†	2850.8	1365.0	0.0920909	mg/L	9.20909	mg/L	15:04:39
1	Sn 189.927†	26.2	10.2	0.0033195	mg/L	0.331949	mg/L	15:04:39
1	Tl 190.801†	-45.8	4.7	0.0021186	mg/L	0.211855	mg/L	15:04:39
1	V 292.395†	-1369.9	320.2	0.0038008	mg/L	0.380082	mg/L	15:04:39
1	Zn 206.200†	-46.5	73.9	0.0027104	mg/L	0.271039	mg/L	15:04:39
2	Y 360.076	230491.1	230491.1	97.2809	%			15:03:52
2	Al 396.153†	7665.4	7363.7	1.70969	mg/L	170.969	mg/L	15:03:52
2	Ba 455.398†	4022.4	4259.2	0.0108437	mg/L	1.08437	mg/L	15:03:52
2	Ca 315.887†	646.7	206.8	0.140059	mg/L	14.0059	mg/L	15:04:12
2	Fe 238.204†	4696.2	4757.5	2.40013	mg/L	240.013	mg/L	15:04:12
2	K 766.490	522.3	110.7	0.117668	mg/L	11.7668	mg/L	15:03:52
2	Li 670.784†	402.2	94.7	0.0041810	mg/L	0.418100	mg/L	15:03:52
2	Mg 279.071†	141.5	119.5	0.232135	mg/L	23.2135	mg/L	15:04:12
2	Na 589.592†	1283.0	80.6	0.0274681	mg/L	2.74681	mg/L	15:03:52
2	Sr 407.771†	1579.2	720.7	0.0038316	mg/L	0.383161	mg/L	15:03:52
2	Ti 334.940†	764.5	709.5	0.0322652	mg/L	3.22652	mg/L	15:04:12
2	Sc 357.234	258984.1	258984.1	97.7394	%			15:04:44
2	Ag 328.068†	668.7	-109.2	0.0000982	mg/L	0.0098243	mg/L	15:04:44
2	As 188.979†	-19.9	12.3	0.0077255	mg/L	0.772546	mg/L	15:05:04
2	B 249.677†	521.4	15.8	-0.0052027	mg/L	-0.520275	mg/L	15:05:04
2	Be 234.861†	-624.0	279.0	-0.0000263	mg/L	-0.0026304	mg/L	15:04:44
2	Cd 214.437†	546.6	18.1	-0.0020764	mg/L	-0.207636	mg/L	15:05:04
2	Ce 413.764†	1672.2	348.5	0.0067346	mg/L	0.673459	mg/L	15:04:44
2	Co 228.616†	-76.2	2.0	-0.0008568	mg/L	-0.0856777	mg/L	15:05:04
2	Cr 205.557†	13.8	34.0	0.0004918	mg/L	0.0491840	mg/L	15:05:04
2	Cu 327.397†	-1415.9	-95.3	-0.0012910	mg/L	-0.129097	mg/L	15:04:44
2	Mn 257.610†	12282.6	12216.4	0.0633231	mg/L	6.33231	mg/L	15:04:44
2	Mo 202.031†	117.6	4.4	-0.0011262	mg/L	-0.112621	mg/L	15:05:04
2	Ni 231.604†	510.1	18.4	0.0001389	mg/L	0.0138910	mg/L	15:05:04
2	Pb 220.353†	37.2	0.1	0.0013240	mg/L	0.132402	mg/L	15:05:04
2	Sb 217.584†	-80.2	-16.7	-0.0024761	mg/L	-0.247605	mg/L	15:05:04

2	Se 196.026†	-61.3	1.7	-0.0029622 mg/L	-0.296221 mg/L	15:05:04
2	Si 251.611†	2845.7	1365.6	0.0921477 mg/L	9.21477 mg/L	15:05:04
2	Sn 189.927†	24.5	8.6	0.0028216 mg/L	0.282161 mg/L	15:05:04
2	Tl 190.801†	-46.4	4.0	0.0015339 mg/L	0.153386 mg/L	15:05:04
2	V 292.395†	-1370.2	317.1	0.0037506 mg/L	0.375064 mg/L	15:05:04
2	Zn 206.200†	-52.2	68.0	0.0023550 mg/L	0.235502 mg/L	15:05:04

Mean Data: 0911250-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	259242.8	97.8370	%	0.13807				0.14%
Y 360.076	230320.7	97.2090	%	0.10166				0.10%
Ag 328.068†	-88.5	0.0003493	mg/L	0.00035512	0.0349349	mg/L	0.03551171	101.65%
Al 396.153†	7332.4	1.70248	mg/L	0.010196	170.248	mg/L	1.0196	0.60%
As 188.979†	10.9	0.0063256	mg/L	0.00197974	0.632557	mg/L	0.1979741	31.30%
B 249.677†	30.7	-0.0046428	mg/L	0.00079181	-0.464285	mg/L	0.0791814	17.05%
Ba 455.398†	4231.2	0.0107830	mg/L	0.00008590	1.07830	mg/L	0.008590	0.80%
Be 234.861†	296.2	0.0000369	mg/L	0.00008933	0.0036861	mg/L	0.00893284	242.34%
Ca 315.887†	210.5	0.141439	mg/L	0.0019529	14.1439	mg/L	0.19529	1.38%
Cd 214.437†	15.9	-0.0021272	mg/L	0.00007196	-0.212724	mg/L	0.0071957	3.38%
Ce 413.764†	313.3	0.0060776	mg/L	0.00092913	0.607759	mg/L	0.0929133	15.29%
Co 228.616†	2.5	-0.0007958	mg/L	0.00008624	-0.0795799	mg/L	0.00862360	10.84%
Cr 205.557†	35.2	0.0005652	mg/L	0.00010373	0.0565185	mg/L	0.01037255	18.35%
Cu 327.397†	-74.8	-0.0009734	mg/L	0.00044907	-0.0973431	mg/L	0.04490665	46.13%
Fe 238.204†	4749.3	2.39599	mg/L	0.005854	239.599	mg/L	0.5854	0.24%
K 766.490	96.7	0.101142	mg/L	0.0233719	10.1142	mg/L	2.33719	23.11%
Li 670.784†	84.2	0.0039548	mg/L	0.00031985	0.395484	mg/L	0.0319845	8.09%
Mg 279.071†	117.3	0.228458	mg/L	0.0052002	22.8458	mg/L	0.52002	2.28%
Mn 257.610†	12197.8	0.0632262	mg/L	0.00013703	6.32262	mg/L	0.013703	0.22%
Mo 202.031†	5.1	-0.0010594	mg/L	0.00009447	-0.105941	mg/L	0.0094475	8.92%
Na 589.592†	68.2	0.0260836	mg/L	0.00195801	2.60836	mg/L	0.195801	7.51%
Ni 231.604†	13.8	-0.0001117	mg/L	0.00035444	-0.0111714	mg/L	0.03544359	317.27%
Pb 220.353†	5.7	0.0031455	mg/L	0.00257602	0.314554	mg/L	0.2576022	81.89%
Sb 217.584†	-18.3	-0.0033817	mg/L	0.00128084	-0.338175	mg/L	0.1280843	37.88%
Se 196.026†	-4.3	-0.0135148	mg/L	0.01492358	-1.35148	mg/L	1.492358	110.42%
Si 251.611†	1365.3	0.0921193	mg/L	0.00004020	9.21193	mg/L	0.004020	0.04%
Sn 189.927†	9.4	0.0030706	mg/L	0.00035205	0.307055	mg/L	0.0352053	11.47%
Sr 407.771†	774.6	0.0038748	mg/L	0.00006101	0.387475	mg/L	0.0061012	1.57%
Ti 334.940†	717.2	0.0325841	mg/L	0.00045092	3.25841	mg/L	0.045092	1.38%
Tl 190.801†	4.4	0.0018262	mg/L	0.00041344	0.182621	mg/L	0.0413440	22.64%
V 292.395†	318.7	0.0037757	mg/L	0.00003548	0.377573	mg/L	0.0035484	0.94%
Zn 206.200†	70.9	0.0025327	mg/L	0.00025129	0.253270	mg/L	0.0251286	9.92%

Sequence No.: 28
Sample ID: 9K20033-srd3
Analyst:
Initial Sample Wt:
Dilution: 500X

Autosampler Location: 34
Date Collected: 11/20/2009 3:06:18 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 9K20033-srd3

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	223779.1	223779.1	94.4481	%			15:07:24
1	Al 396.153†	1857.4	1450.6	0.346113	mg/L	173.056	mg/L	15:07:44
1	Ba 455.398†	655.5	818.5	0.0034200	mg/L	1.71001	mg/L	15:07:24
1	Ca 315.887†	432.4	-0.2	0.0635477	mg/L	31.7739	mg/L	15:07:44
1	Fe 238.204†	969.2	956.2	0.484770	mg/L	242.385	mg/L	15:07:44
1	K 766.490	416.0	4.4	-0.0078112	mg/L	-3.90560	mg/L	15:07:24
1	Li 670.784†	262.7	-40.5	0.0012613	mg/L	0.630631	mg/L	15:07:24
1	Mg 279.071†	48.0	24.8	0.0720393	mg/L	36.0197	mg/L	15:07:44
1	Na 589.592†	1242.9	77.7	0.0271480	mg/L	13.5740	mg/L	15:07:24
1	Sr 407.771†	914.3	65.4	0.0033093	mg/L	1.65466	mg/L	15:07:24
1	Ti 334.940†	195.0	130.2	0.0079694	mg/L	3.98469	mg/L	15:07:44
1	Sc 357.234	259237.8	259237.8	97.8351	%			15:08:16
1	Ag 328.068†	719.9	-57.6	0.0005368	mg/L	0.268382	mg/L	15:08:16
1	As 188.979†	-28.4	3.5	-0.0012710	mg/L	-0.635510	mg/L	15:08:36
1	B 249.677†	516.0	9.7	-0.0054101	mg/L	-2.70506	mg/L	15:08:36
1	Be 234.861†	-886.5	11.3	-0.0002482	mg/L	-0.124079	mg/L	15:08:36

1	Cd 214.437†	525.6	-4.0	-0.0024595 mg/L	-1.22976 mg/L	15:08:36
1	Ce 413.764†	1427.6	96.8	0.0018533 mg/L	0.926660 mg/L	15:08:16
1	Co 228.616†	-89.5	-11.6	-0.0022217 mg/L	-1.11086 mg/L	15:08:36
1	Cr 205.557†	-6.2	13.5	-0.0007591 mg/L	-0.379571 mg/L	15:08:36
1	Cu 327.397†	-1481.1	-160.5	-0.0023325 mg/L	-1.16623 mg/L	15:08:16
1	Mn 257.610†	2775.9	2487.1	0.0124955 mg/L	6.24773 mg/L	15:08:36
1	Mo 202.031†	130.0	17.0	-0.0000003 mg/L	-0.0001626 mg/L	15:08:36
1	Ni 231.604†	502.2	9.7	-0.0003299 mg/L	-0.164962 mg/L	15:08:36
1	Pb 220.353†	30.8	-6.6	-0.0010580 mg/L	-0.528991 mg/L	15:08:36
1	Sb 217.584†	-79.1	-15.5	-0.0072719 mg/L	-3.63596 mg/L	15:08:36
1	Se 196.026†	-63.0	-0.1	-0.0069317 mg/L	-3.46583 mg/L	15:08:36
1	Si 251.611†	1157.1	-363.2	-0.0151881 mg/L	-7.59405 mg/L	15:08:36
1	Sn 189.927†	24.1	8.2	0.0027077 mg/L	1.35387 mg/L	15:08:36
1	Tl 190.801†	-57.6	-7.4	-0.0081829 mg/L	-4.09147 mg/L	15:08:36
1	V 292.395†	-1634.0	48.8	-0.0001221 mg/L	-0.0610738 mg/L	15:08:36
1	Zn 206.200†	-112.1	6.8	-0.0013023 mg/L	-0.651172 mg/L	15:08:36
2	Y 360.076	228969.6	228969.6	96.6388 %		15:07:49
2	Al 396.153†	1951.2	1503.0	0.358238 mg/L	179.119 mg/L	15:08:09
2	Ba 455.398†	684.1	832.3	0.0034498 mg/L	1.72492 mg/L	15:07:49
2	Ca 315.887†	439.6	-3.2	0.0624542 mg/L	31.2271 mg/L	15:08:09
2	Fe 238.204†	1001.5	966.4	0.489901 mg/L	244.951 mg/L	15:08:09
2	K 766.490	426.3	14.8	0.0043674 mg/L	2.18368 mg/L	15:07:49
2	Li 670.784†	321.7	14.2	0.0024417 mg/L	1.22084 mg/L	15:07:49
2	Mg 279.071†	51.2	26.9	0.0756570 mg/L	37.8285 mg/L	15:08:09
2	Na 589.592†	1193.8	-2.9	0.0181219 mg/L	9.06097 mg/L	15:07:49
2	Sr 407.771†	971.9	103.1	0.0033394 mg/L	1.66971 mg/L	15:07:49
2	Ti 334.940†	195.4	125.9	0.0077882 mg/L	3.89410 mg/L	15:08:09
2	Sc 357.234	261051.2	261051.2	98.5195 %		15:08:41
2	Ag 328.068†	759.6	-22.4	0.0009669 mg/L	0.483456 mg/L	15:08:41
2	As 188.979†	-32.2	-0.0	-0.0050193 mg/L	-2.50967 mg/L	15:09:01
2	B 249.677†	502.5	-7.6	-0.0060703 mg/L	-3.03516 mg/L	15:09:01
2	Be 234.861†	-884.1	20.0	-0.0002192 mg/L	-0.109589 mg/L	15:09:01
2	Cd 214.437†	539.9	6.8	-0.0021984 mg/L	-1.09922 mg/L	15:09:01
2	Ce 413.764†	1432.5	91.6	0.0017559 mg/L	0.877940 mg/L	15:08:41
2	Co 228.616†	-76.2	2.5	-0.0006782 mg/L	-0.339105 mg/L	15:09:01
2	Cr 205.557†	-11.6	8.1	-0.0010653 mg/L	-0.532648 mg/L	15:09:01
2	Cu 327.397†	-1474.3	-143.2	-0.0020655 mg/L	-1.03276 mg/L	15:08:41
2	Mn 257.610†	2759.6	2450.8	0.0123064 mg/L	6.15320 mg/L	15:09:01
2	Mo 202.031†	119.4	5.3	-0.0010421 mg/L	-0.521038 mg/L	15:09:01
2	Ni 231.604†	489.1	-7.1	-0.0012495 mg/L	-0.624759 mg/L	15:09:01
2	Pb 220.353†	29.9	-7.7	-0.0014147 mg/L	-0.707354 mg/L	15:09:01
2	Sb 217.584†	-70.3	-6.0	-0.0019285 mg/L	-0.964237 mg/L	15:09:01
2	Se 196.026†	-67.8	-4.5	-0.0146374 mg/L	-7.31871 mg/L	15:09:01
2	Si 251.611†	1182.7	-345.5	-0.0140696 mg/L	-7.03478 mg/L	15:09:01
2	Sn 189.927†	22.0	5.9	0.0020176 mg/L	1.00879 mg/L	15:09:01
2	Tl 190.801†	-47.4	3.3	0.0007493 mg/L	0.374641 mg/L	15:09:01
2	V 292.395†	-1666.2	27.8	-0.0004613 mg/L	-0.230635 mg/L	15:09:01
2	Zn 206.200†	-112.3	7.4	-0.0012702 mg/L	-0.635124 mg/L	15:09:01

Mean Data: 9K20033-srd3

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Sc 357.234	260144.5	98.1773	%	0.48391				0.49%
Y 360.076	226374.3	95.5434	%	1.54906				1.62%
Ag 328.068†	-40.0	0.0007518	mg/L	0.00030416	0.375919	mg/L	0.1520797	40.46%
Al 396.153†	1476.8	0.352176	mg/L	0.0085739	176.088	mg/L	4.2870	2.43%
As 188.979†	1.8	-0.0031452	mg/L	0.00265046	-1.57259	mg/L	1.325229	84.27%
B 249.677†	1.0	-0.0057402	mg/L	0.00046684	-2.87011	mg/L	0.233419	8.13%
Ba 455.398†	825.4	0.0034349	mg/L	0.00002108	1.71746	mg/L	0.010541	0.61%
Be 234.861†	15.7	-0.0002337	mg/L	0.00002049	-0.116834	mg/L	0.0102460	8.77%
Ca 315.887†	-1.7	0.0630010	mg/L	0.00077322	31.5005	mg/L	0.38661	1.23%
Cd 214.437†	1.4	-0.0023290	mg/L	0.00018462	-1.16449	mg/L	0.092309	7.93%
Ce 413.764†	94.2	0.0018046	mg/L	0.00006890	0.902300	mg/L	0.0344502	3.82%
Co 228.616†	-4.5	-0.0014500	mg/L	0.00109143	-0.724985	mg/L	0.5457161	75.27%
Cr 205.557†	10.8	-0.0009122	mg/L	0.00021648	-0.456110	mg/L	0.1082417	23.73%
Cu 327.397†	-151.8	-0.0021990	mg/L	0.00018876	-1.09950	mg/L	0.094380	8.58%
Fe 238.204†	961.3	0.487336	mg/L	0.0036280	243.668	mg/L	1.8140	0.74%
K 766.490	9.6	-0.0017219	mg/L	0.00861154	-0.860958	mg/L	4.3057718	500.11%
Li 670.784†	-13.2	0.0018515	mg/L	0.00083469	0.925737	mg/L	0.4173434	45.08%
Mg 279.071†	25.8	0.0738482	mg/L	0.00255808	36.9241	mg/L	1.27904	3.46%

Mn 257.610†	2468.9	0.0124009 mg/L	0.00013369	6.20047 mg/L	0.066847	1.08%
Mo 202.031†	11.2	-0.0005212 mg/L	0.00073663	-0.260600 mg/L	0.3683143	141.33%
Na 589.592†	37.4	0.0226350 mg/L	0.00638242	11.3175 mg/L	3.19121	28.20%
Ni 231.604†	1.3	-0.0007897 mg/L	0.00065025	-0.394861 mg/L	0.3251252	82.34%
Pb 220.353†	-7.1	-0.0012363 mg/L	0.00025224	-0.618172 mg/L	0.1261217	20.40%
Sb 217.584†	-10.8	-0.0046002 mg/L	0.00377838	-2.30010 mg/L	1.889191	82.14%
Se 196.026†	-2.3	-0.0107845 mg/L	0.00544879	-5.39227 mg/L	2.724396	50.52%
Si 251.611†	-354.3	-0.0146288 mg/L	0.00079093	-7.31441 mg/L	0.395467	5.41%
Sn 189.927†	7.0	0.0023627 mg/L	0.00048801	1.18133 mg/L	0.244005	20.66%
Sr 407.771†	84.2	0.0033244 mg/L	0.00002128	1.66218 mg/L	0.010641	0.64%
Ti 334.940†	128.0	0.0078788 mg/L	0.00012811	3.93939 mg/L	0.064057	1.63%
Tl 190.801†	-2.0	-0.0037168 mg/L	0.00631604	-1.85842 mg/L	3.158018	169.93%
V 292.395†	38.3	-0.0002917 mg/L	0.00023980	-0.145854 mg/L	0.1198978	82.20%
Zn 206.200†	7.1	-0.0012863 mg/L	0.00002270	-0.643148 mg/L	0.0113477	1.76%

Sequence No.: 29
Sample ID: 0913883-ps3
Analyst:
Initial Sample Wt:
Dilution: 100X

Autosampler Location: 35
Date Collected: 11/20/2009 3:10:20 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0913883-ps3

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Units	Sample Conc.	Units	Analysis Time
1	Y 360.076	234473.3	234473.3	98.9617	%			15:11:26
1	Al 396.153†	12607.7	12224.0	2.82843	mg/L	282.843	mg/L	15:11:31
1	Ba 455.398†	112809.6	114117.7	0.247840	mg/L	24.7840	mg/L	15:11:26
1	Ca 315.887†	32217.1	32097.0	11.8343	mg/L	1183.43	mg/L	15:11:31
1	Fe 238.204†	5165.7	5149.9	2.59770	mg/L	259.770	mg/L	15:11:31
1	K 766.490	10887.8	10476.2	12.3581	mg/L	1235.81	mg/L	15:11:31
1	Li 670.784†	11231.2	11030.3	0.240281	mg/L	24.0281	mg/L	15:11:31
1	Mg 279.071†	6957.0	7004.0	11.8390	mg/L	1183.90	mg/L	15:11:31
1	Na 589.592†	105551.5	105420.7	11.8169	mg/L	1181.69	mg/L	15:11:26
1	Sr 407.771†	296243.0	298448.6	0.241599	mg/L	24.1599	mg/L	15:11:26
1	Ti 334.940†	6297.9	6287.7	0.266423	mg/L	26.6423	mg/L	15:11:31
1	Sc 357.234	264243.0	264243.0	99.7241	%			15:11:48
1	Ag 328.068†	19908.8	19170.5	0.235512	mg/L	23.5512	mg/L	15:11:48
1	As 188.979†	1137.9	1173.6	1.22569	mg/L	122.569	mg/L	15:12:08
1	B 249.677†	6715.7	6216.6	0.227470	mg/L	22.7470	mg/L	15:11:48
1	Be 234.861†	6174.1	7108.6	0.0243548	mg/L	2.43548	mg/L	15:12:08
1	Cd 214.437†	10580.4	10068.5	0.240924	mg/L	24.0924	mg/L	15:12:08
1	Ce 413.764†	1657.6	299.8	0.0060956	mg/L	0.609564	mg/L	15:11:48
1	Co 228.616†	2141.1	2227.0	0.240931	mg/L	24.0931	mg/L	15:12:08
1	Cr 205.557†	4251.4	4283.0	0.244383	mg/L	24.4383	mg/L	15:12:08
1	Cu 327.397†	14019.3	15411.4	0.238980	mg/L	23.8980	mg/L	15:11:48
1	Mn 257.610†	58507.2	58318.8	0.303776	mg/L	30.3776	mg/L	15:11:48
1	Mo 202.031†	2885.2	2777.3	0.245844	mg/L	24.5844	mg/L	15:12:08
1	Ni 231.604†	4943.6	4453.7	0.242280	mg/L	24.2280	mg/L	15:12:08
1	Pb 220.353†	784.7	748.8	0.243882	mg/L	24.3882	mg/L	15:12:08
1	Sb 217.584†	2094.3	2165.4	1.22343	mg/L	122.343	mg/L	15:12:08
1	Se 196.026†	640.3	706.4	1.22790	mg/L	122.790	mg/L	15:12:08
1	Si 251.611†	21896.8	20411.4	1.26855	mg/L	126.855	mg/L	15:11:48
1	Sn 189.927†	3873.5	3867.7	1.15317	mg/L	115.317	mg/L	15:12:08
1	Tl 190.801†	1403.4	1458.8	1.21626	mg/L	121.626	mg/L	15:12:08
1	V 292.395†	13909.3	15666.7	0.246063	mg/L	24.6063	mg/L	15:11:48
1	Zn 206.200†	4001.3	4133.8	0.245384	mg/L	24.5384	mg/L	15:12:08
2	Y 360.076	235752.9	235752.9	99.5017	%			15:11:36
2	Al 396.153†	12867.1	12415.5	2.87258	mg/L	287.258	mg/L	15:11:41
2	Ba 455.398†	113553.2	114246.3	0.248117	mg/L	24.8117	mg/L	15:11:36
2	Ca 315.887†	32753.2	32459.2	11.9671	mg/L	1196.71	mg/L	15:11:41
2	Fe 238.204†	5282.8	5239.3	2.64276	mg/L	264.276	mg/L	15:11:41
2	K 766.490	11106.1	10694.5	12.6160	mg/L	1261.60	mg/L	15:11:41
2	Li 670.784†	11379.6	11117.9	0.242173	mg/L	24.2173	mg/L	15:11:41
2	Mg 279.071†	7070.3	7079.6	11.9665	mg/L	1196.65	mg/L	15:11:41
2	Na 589.592†	106383.7	105678.2	11.8457	mg/L	1184.57	mg/L	15:11:36
2	Sr 407.771†	298610.3	299203.1	0.242202	mg/L	24.2202	mg/L	15:11:36
2	Ti 334.940†	6457.2	6413.3	0.271692	mg/L	27.1692	mg/L	15:11:41
2	Sc 357.234	263505.7	263505.7	99.4458	%			15:12:13
2	Ag 328.068†	19961.8	19279.6	0.236847	mg/L	23.6847	mg/L	15:12:13

2	As 188.979†	1127.7	1166.6	1.21828 mg/L	121.828 mg/L	15:12:33
2	B 249.677†	6686.3	6205.9	0.227063 mg/L	22.7063 mg/L	15:12:13
2	Be 234.861†	6177.4	7129.2	0.0244111 mg/L	2.44111 mg/L	15:12:33
2	Cd 214.437†	10509.4	10026.7	0.239912 mg/L	23.9912 mg/L	15:12:33
2	Ce 413.764†	1631.1	277.8	0.0056924 mg/L	0.569244 mg/L	15:12:13
2	Co 228.616†	2135.4	2227.2	0.240938 mg/L	24.0938 mg/L	15:12:33
2	Cr 205.557†	4225.5	4268.9	0.243571 mg/L	24.3571 mg/L	15:12:33
2	Cu 327.397†	14076.2	15508.0	0.240485 mg/L	24.0485 mg/L	15:12:13
2	Mn 257.610†	58455.3	58430.8	0.304362 mg/L	30.4362 mg/L	15:12:13
2	Mo 202.031†	2907.8	2808.1	0.248582 mg/L	24.8582 mg/L	15:12:33
2	Ni 231.604†	4926.7	4450.6	0.242114 mg/L	24.2114 mg/L	15:12:33
2	Pb 220.353†	777.1	743.4	0.242124 mg/L	24.2124 mg/L	15:12:33
2	Sb 217.584†	2095.6	2172.7	1.22766 mg/L	122.766 mg/L	15:12:33
2	Se 196.026†	635.3	703.2	1.22228 mg/L	122.228 mg/L	15:12:33
2	Si 251.611†	21961.2	20537.6	1.27625 mg/L	127.625 mg/L	15:12:13
2	Sn 189.927†	3872.3	3877.4	1.15605 mg/L	115.605 mg/L	15:12:33
2	Tl 190.801†	1411.0	1470.3	1.22597 mg/L	122.597 mg/L	15:12:33
2	V 292.395†	13933.4	15730.0	0.247065 mg/L	24.7065 mg/L	15:12:13
2	Zn 206.200†	3982.1	4125.7	0.244898 mg/L	24.4898 mg/L	15:12:33

Mean Data: 0913883-ps3

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	263874.3	99.5849	%	0.19674				0.20%
Y 360.076	235113.1	99.2317	%	0.38187				0.38%
Ag 328.068†	19225.1	0.236179	mg/L	0.0009438	23.6179	mg/L	0.09438	0.40%
Al 396.153†	12319.8	2.85051	mg/L	0.031221	285.051	mg/L	3.1221	1.10%
As 188.979†	1170.1	1.22199	mg/L	0.005242	122.199	mg/L	0.5242	0.43%
B 249.677†	6211.3	0.227267	mg/L	0.0002880	22.7267	mg/L	0.02880	0.13%
Ba 455.398†	114182.0	0.247979	mg/L	0.0001961	24.7979	mg/L	0.01961	0.08%
Be 234.861†	7118.9	0.0243829	mg/L	0.00003980	2.43829	mg/L	0.003980	0.16%
Ca 315.887†	32278.1	11.9007	mg/L	0.09389	1190.07	mg/L	9.389	0.79%
Cd 214.437†	10047.6	0.240418	mg/L	0.0007156	24.0418	mg/L	0.07156	0.30%
Ce 413.764†	288.8	0.0058940	mg/L	0.00028511	0.589404	mg/L	0.0285106	4.84%
Co 228.616†	2227.1	0.240935	mg/L	0.0000051	24.0935	mg/L	0.00051	0.00%
Cr 205.557†	4275.9	0.243977	mg/L	0.0005744	24.3977	mg/L	0.05744	0.24%
Cu 327.397†	15459.7	0.239732	mg/L	0.0010643	23.9732	mg/L	0.10643	0.44%
Fe 238.204†	5194.6	2.62023	mg/L	0.031866	262.023	mg/L	3.1866	1.22%
K 766.490	10585.4	12.4871	mg/L	0.18230	1248.71	mg/L	18.230	1.46%
Li 670.784†	11074.1	0.241227	mg/L	0.0013377	24.1227	mg/L	0.13377	0.55%
Mg 279.071†	7041.8	11.9028	mg/L	0.09017	1190.28	mg/L	9.017	0.76%
Mn 257.610†	58374.8	0.304069	mg/L	0.0004146	30.4069	mg/L	0.04146	0.14%
Mo 202.031†	2792.7	0.247213	mg/L	0.0019359	24.7213	mg/L	0.19359	0.78%
Na 589.592†	105549.4	11.8313	mg/L	0.02038	1183.13	mg/L	2.038	0.17%
Ni 231.604†	4452.1	0.242197	mg/L	0.0001175	24.2197	mg/L	0.01175	0.05%
Pb 220.353†	746.1	0.243003	mg/L	0.0012429	24.3003	mg/L	0.12429	0.51%
Sb 217.584†	2169.0	1.22555	mg/L	0.002988	122.555	mg/L	0.2988	0.24%
Se 196.026†	704.8	1.22509	mg/L	0.003971	122.509	mg/L	0.3971	0.32%
Si 251.611†	20474.5	1.27240	mg/L	0.005443	127.240	mg/L	0.5443	0.43%
Sn 189.927†	3872.5	1.15461	mg/L	0.002037	115.461	mg/L	0.2037	0.18%
Sr 407.771†	298825.9	0.241901	mg/L	0.0004261	24.1901	mg/L	0.04261	0.18%
Ti 334.940†	6350.5	0.269058	mg/L	0.0037260	26.9058	mg/L	0.37260	1.38%
Tl 190.801†	1464.6	1.22111	mg/L	0.006864	122.111	mg/L	0.6864	0.56%
V 292.395†	15698.4	0.246564	mg/L	0.0007089	24.6564	mg/L	0.07089	0.29%
Zn 206.200†	4129.7	0.245141	mg/L	0.0003434	24.5141	mg/L	0.03434	0.14%

Sequence No.: 30
Sample ID: 0911250-01
Analyst:
Initial Sample Wt:
Dilution: 10X

Autosampler Location: 36
Date Collected: 11/20/2009 3:13:47 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 0911250-01

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	234486.0	234486.0	98.9670	%			15:14:53
1	Al 396.153†	72622.1	72864.1	16.8139	mg/L	168.139	mg/L	15:14:53
1	Ba 455.398†	41412.6	41969.3	0.0922063	mg/L	0.922063	mg/L	15:14:53

1	Ca 315.887†	2793.3	2364.4	0.937991 mg/L	9.37991 mg/L	15:15:13
1	Fe 238.204†	46552.5	46968.4	23.6688 mg/L	236.688 mg/L	15:14:53
1	K 766.490	1554.7	1143.1	1.33686 mg/L	13.3686 mg/L	15:15:13
1	Li 670.784†	1445.0	1141.4	0.0267789 mg/L	0.267789 mg/L	15:15:13
1	Mg 279.071†	1109.1	1094.6	1.88120 mg/L	18.8120 mg/L	15:15:13
1	Na 589.592†	1473.2	250.3	0.0464680 mg/L	0.464680 mg/L	15:15:13
1	Sr 407.771†	7787.7	6966.4	0.0088082 mg/L	0.0880816 mg/L	15:15:13
1	Ti 334.940†	7179.7	7178.4	0.303529 mg/L	3.03529 mg/L	15:15:13
1	Sc 357.234	267626.0	267626.0	101.001 %		15:15:45
1	Ag 328.068†	-207.1	-998.5	-0.0086369 mg/L	-0.0863688 mg/L	15:15:45
1	As 188.979†	-20.3	12.5	0.0059794 mg/L	0.0597944 mg/L	15:16:05
1	B 249.677†	595.1	71.6	-0.0033174 mg/L	-0.0331740 mg/L	15:15:45
1	Be 234.861†	1896.5	2795.1	0.0008050 mg/L	0.0080498 mg/L	15:15:45
1	Cd 214.437†	674.9	127.0	-0.0011092 mg/L	-0.0110919 mg/L	15:16:05
1	Ce 413.764†	4427.7	3021.4	0.0586750 mg/L	0.586750 mg/L	15:15:45
1	Co 228.616†	30.9	110.5	0.0096857 mg/L	0.0968574 mg/L	15:16:05
1	Cr 205.557†	386.9	403.0	0.0224964 mg/L	0.224964 mg/L	15:16:05
1	Cu 327.397†	-592.2	767.0	0.0124100 mg/L	0.124100 mg/L	15:15:45
1	Mn 257.610†	122183.7	120622.7	0.629654 mg/L	6.29654 mg/L	15:15:45
1	Mo 202.031†	114.6	-2.4	-0.0017304 mg/L	-0.0173037 mg/L	15:16:05
1	Ni 231.604†	712.5	201.9	0.0101312 mg/L	0.101312 mg/L	15:16:05
1	Pb 220.353†	102.6	63.6	0.0244674 mg/L	0.244674 mg/L	15:16:05
1	Sb 217.584†	-275.9	-207.8	-0.0487021 mg/L	-0.487021 mg/L	15:16:05
1	Se 196.026†	-77.6	-12.5	-0.0177201 mg/L	-0.177201 mg/L	15:16:05
1	Si 251.611†	22166.1	20400.6	1.27379 mg/L	12.7379 mg/L	15:15:45
1	Sn 189.927†	36.5	19.7	0.0061224 mg/L	0.0612240 mg/L	15:16:05
1	Tl 190.801†	-52.3	-0.3	0.0001718 mg/L	0.0017183 mg/L	15:16:05
1	V 292.395†	1415.0	3120.0	0.0440815 mg/L	0.440815 mg/L	15:15:45
1	Zn 206.200†	682.3	797.0	0.0459604 mg/L	0.459604 mg/L	15:16:05
2	Y 360.076	237507.8	237507.8	100.242 %		15:15:18
2	Al 396.153†	73682.2	72988.0	16.8424 mg/L	168.424 mg/L	15:15:18
2	Ba 455.398†	41894.2	41917.3	0.0920939 mg/L	0.920939 mg/L	15:15:18
2	Ca 315.887†	2827.6	2362.7	0.937413 mg/L	9.37413 mg/L	15:15:39
2	Fe 238.204†	47350.5	47166.0	23.7684 mg/L	237.684 mg/L	15:15:18
2	K 766.490	1576.9	1165.4	1.36311 mg/L	13.6311 mg/L	15:15:39
2	Li 670.784†	1446.8	1124.6	0.0264158 mg/L	0.264158 mg/L	15:15:39
2	Mg 279.071†	1105.3	1076.6	1.85090 mg/L	18.5090 mg/L	15:15:39
2	Na 589.592†	1418.4	176.7	0.0382290 mg/L	0.382290 mg/L	15:15:39
2	Sr 407.771†	7809.0	6887.5	0.0087455 mg/L	0.0874547 mg/L	15:15:39
2	Ti 334.940†	7258.5	7164.6	0.302953 mg/L	3.02953 mg/L	15:15:39
2	Sc 357.234	268300.6	268300.6	101.255 %		15:16:10
2	Ag 328.068†	-202.1	-993.0	-0.0085646 mg/L	-0.0856461 mg/L	15:16:10
2	As 188.979†	-22.6	10.3	0.0036654 mg/L	0.0366544 mg/L	15:16:30
2	B 249.677†	603.1	78.0	-0.0030742 mg/L	-0.0307424 mg/L	15:16:10
2	Be 234.861†	1927.5	2821.0	0.0008598 mg/L	0.0085981 mg/L	15:16:10
2	Cd 214.437†	686.1	136.3	-0.0008892 mg/L	-0.0088921 mg/L	15:16:30
2	Ce 413.764†	4358.0	2941.6	0.0571981 mg/L	0.571981 mg/L	15:16:10
2	Co 228.616†	29.2	108.7	0.0094931 mg/L	0.0949309 mg/L	15:16:30
2	Cr 205.557†	393.8	408.7	0.0228295 mg/L	0.228295 mg/L	15:16:30
2	Cu 327.397†	-610.0	750.8	0.0121616 mg/L	0.121616 mg/L	15:16:10
2	Mn 257.610†	123055.5	121179.5	0.632562 mg/L	6.32562 mg/L	15:16:10
2	Mo 202.031†	131.6	14.1	-0.0002651 mg/L	-0.0026512 mg/L	15:16:30
2	Ni 231.604†	735.9	223.2	0.0112943 mg/L	0.112943 mg/L	15:16:30
2	Pb 220.353†	79.8	40.7	0.0170785 mg/L	0.170785 mg/L	15:16:30
2	Sb 217.584†	-273.4	-204.7	-0.0466789 mg/L	-0.466789 mg/L	15:16:30
2	Se 196.026†	-80.2	-14.8	-0.0217525 mg/L	-0.217525 mg/L	15:16:30
2	Si 251.611†	22428.2	20604.2	1.28648 mg/L	12.8648 mg/L	15:16:10
2	Sn 189.927†	34.2	17.2	0.0054066 mg/L	0.0540656 mg/L	15:16:30
2	Tl 190.801†	-51.7	0.4	0.0007637 mg/L	0.0076368 mg/L	15:16:30
2	V 292.395†	1493.0	3193.5	0.0452308 mg/L	0.452308 mg/L	15:16:10
2	Zn 206.200†	666.1	779.2	0.0448990 mg/L	0.448990 mg/L	15:16:30

Mean Data: 0911250-01

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 357.234	267963.3	101.128	%	0.1800				0.18%
Y 360.076	235996.9	99.6047	%	0.90185				0.91%
Ag 328.068†	-995.7	-0.0086007	mg/L	0.00005110	-0.0860074	mg/L	0.00051105	0.59%
Al 396.153†	72926.1	16.8281	mg/L	0.02019	168.281	mg/L	0.2019	0.12%
As 188.979†	11.4	0.0048224	mg/L	0.00163625	0.0482244	mg/L	0.01636251	33.93%

B 249.677†	74.8	-0.0031958 mg/L	0.00017195	-0.0319582 mg/L	0.00171945	5.38%
Ba 455.398†	41943.3	0.0921501 mg/L	0.00007945	0.921501 mg/L	0.0007945	0.09%
Be 234.861†	2808.1	0.0008324 mg/L	0.00003877	0.0083240 mg/L	0.00038768	4.66%
Ca 315.887†	2363.5	0.937702 mg/L	0.0004087	9.37702 mg/L	0.004087	0.04%
Cd 214.437†	131.6	-0.0009992 mg/L	0.00015555	-0.0099920 mg/L	0.00155550	15.57%
Ce 413.764†	2981.5	0.0579366 mg/L	0.00104429	0.579366 mg/L	0.0104429	1.80%
Co 228.616†	109.6	0.0095894 mg/L	0.00013623	0.0958941 mg/L	0.00136227	1.42%
Cr 205.557†	405.9	0.0226629 mg/L	0.00023555	0.226629 mg/L	0.0023555	1.04%
Cu 327.397†	758.9	0.0122858 mg/L	0.00017569	0.122858 mg/L	0.0017569	1.43%
Fe 238.204†	47067.2	23.7186 mg/L	0.07041	237.186 mg/L	0.7041	0.30%
K 766.490	1154.3	1.34999 mg/L	0.018560	13.4999 mg/L	0.18560	1.37%
Li 670.784†	1133.0	0.0265973 mg/L	0.00025676	0.265973 mg/L	0.0025676	0.97%
Mg 279.071†	1085.6	1.86605 mg/L	0.021426	18.6605 mg/L	0.21426	1.15%
Mn 257.610†	120901.1	0.631108 mg/L	0.0020563	6.31108 mg/L	0.020563	0.33%
Mo 202.031†	5.8	-0.0009977 mg/L	0.00103609	-0.0099774 mg/L	0.01036087	103.84%
Na 589.592†	213.5	0.0423485 mg/L	0.00582580	0.423485 mg/L	0.0582580	13.76%
Ni 231.604†	212.5	0.0107128 mg/L	0.00082247	0.107128 mg/L	0.0082247	7.68%
Pb 220.353†	52.2	0.0207730 mg/L	0.00522475	0.207730 mg/L	0.0522475	25.15%
Sb 217.584†	-206.3	-0.0476905 mg/L	0.00143058	-0.476905 mg/L	0.0143058	3.00%
Se 196.026†	-13.6	-0.0197363 mg/L	0.00285131	-0.197363 mg/L	0.0285131	14.45%
Si 251.611†	20502.4	1.28013 mg/L	0.008972	12.8013 mg/L	0.08972	0.70%
Sn 189.927†	18.4	0.0057645 mg/L	0.00050618	0.0576448 mg/L	0.00506176	8.78%
Sr 407.771†	6926.9	0.0087768 mg/L	0.00004433	0.0877682 mg/L	0.00044328	0.51%
Ti 334.940†	7171.5	0.303241 mg/L	0.0004074	3.03241 mg/L	0.004074	0.13%
Tl 190.801†	0.0	0.0004678 mg/L	0.00041851	0.0046775 mg/L	0.00418506	89.47%
V 292.395†	3156.7	0.0446561 mg/L	0.00081266	0.446561 mg/L	0.0081266	1.82%
Zn 206.200†	788.1	0.0454297 mg/L	0.00075056	0.454297 mg/L	0.0075056	1.65%

Sequence No.: 31
Sample ID: 9K20033-CCV
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 4
Date Collected: 11/20/2009 3:19:51 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 9K20033-CCV

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	231468.0	231468.0	97.6932	%			15:20:57
1	Al 396.153†	10846.9	10587.0	2.43925	mg/L	2.43925	mg/L	15:20:57
1	Ba 455.398†	221803.3	227165.0	0.491714	mg/L	0.491714	mg/L	15:20:57
1	Ca 315.887†	13364.2	13221.7	4.91723	mg/L	4.91723	mg/L	15:21:17
1	Fe 238.204†	1036.6	991.1	0.502071	mg/L	0.502071	mg/L	15:21:17
1	K 766.490	4717.5	4306.0	5.07179	mg/L	5.07179	mg/L	15:20:57
1	Li 670.784†	22491.0	22703.4	0.492303	mg/L	0.492303	mg/L	15:20:57
1	Mg 279.071†	2880.0	2922.0	4.96699	mg/L	4.96699	mg/L	15:21:17
1	Na 589.592†	44109.4	43912.6	4.93304	mg/L	4.93304	mg/L	15:20:57
1	Sr 407.771†	600052.3	613318.2	0.493058	mg/L	0.493058	mg/L	15:20:57
1	Ti 334.940†	11497.0	11692.2	0.492783	mg/L	0.492783	mg/L	15:21:17
1	Sc 357.234	263004.3	263004.3	99.2566	%			15:21:48
1	Ag 328.068†	40929.2	40442.4	0.495020	mg/L	0.495020	mg/L	15:21:48
1	As 188.979†	2320.7	2370.7	2.48121	mg/L	2.48121	mg/L	15:22:08
1	B 249.677†	13543.7	13127.5	0.486861	mg/L	0.486861	mg/L	15:22:08
1	Be 234.861†	12964.6	13979.1	0.0497634	mg/L	0.0497634	mg/L	15:22:08
1	Cd 214.437†	21115.0	20731.9	0.498919	mg/L	0.498919	mg/L	15:22:08
1	Ce 413.764†	1340.8	-11.6	0.0003401	mg/L	0.0003401	mg/L	15:21:48
1	Co 228.616†	4440.3	4553.4	0.493856	mg/L	0.493856	mg/L	15:22:08
1	Cr 205.557†	8620.4	8704.8	0.498110	mg/L	0.498110	mg/L	15:22:08
1	Cu 327.397†	30640.7	32223.5	0.498425	mg/L	0.498425	mg/L	15:22:08
1	Mn 257.610†	95337.6	95701.3	0.498649	mg/L	0.498649	mg/L	15:21:48
1	Mo 202.031†	5657.6	5584.1	0.495825	mg/L	0.495825	mg/L	15:22:08
1	Ni 231.604†	9559.6	9127.7	0.497426	mg/L	0.497426	mg/L	15:22:08
1	Pb 220.353†	1576.7	1550.4	0.503300	mg/L	0.503300	mg/L	15:22:08
1	Sb 217.584†	4354.5	4452.5	2.49688	mg/L	2.49688	mg/L	15:22:08
1	Se 196.026†	1347.3	1421.8	2.47633	mg/L	2.47633	mg/L	15:22:08
1	Si 251.611†	40193.8	38948.9	2.41301	mg/L	2.41301	mg/L	15:21:48
1	Sn 189.927†	8032.6	8076.2	2.40767	mg/L	2.40767	mg/L	15:22:08
1	Tl 190.801†	2922.0	2995.3	2.49916	mg/L	2.49916	mg/L	15:22:08
1	V 292.395†	30022.5	31966.3	0.503657	mg/L	0.503657	mg/L	15:22:08
1	Zn 206.200†	8140.2	8322.6	0.496252	mg/L	0.496252	mg/L	15:22:08

2	Y 360.076	235501.7	235501.7	99.3957 %		15:21:22
2	Al 396.153†	11037.5	10588.6	2.43930 mg/L	2.43930 mg/L	15:21:22
2	Ba 455.398†	226498.3	227999.8	0.493515 mg/L	0.493515 mg/L	15:21:22
2	Ca 315.887†	13387.2	13010.5	4.83990 mg/L	4.83990 mg/L	15:21:42
2	Fe 238.204†	1039.4	975.8	0.494346 mg/L	0.494346 mg/L	15:21:42
2	K 766.490	4792.7	4381.1	5.16052 mg/L	5.16052 mg/L	15:21:22
2	Li 670.784†	22910.0	22730.6	0.492892 mg/L	0.492892 mg/L	15:21:22
2	Mg 279.071†	2888.1	2879.6	4.89573 mg/L	4.89573 mg/L	15:21:42
2	Na 589.592†	44823.3	43857.6	4.92688 mg/L	4.92688 mg/L	15:21:22
2	Sr 407.771†	612550.5	615372.0	0.494698 mg/L	0.494698 mg/L	15:21:22
2	Ti 334.940†	11518.8	11512.5	0.485244 mg/L	0.485244 mg/L	15:21:42
2	Sc 357.234	261024.2	261024.2	98.5093 %		15:22:13
2	Ag 328.068†	40707.0	40529.6	0.496085 mg/L	0.496085 mg/L	15:22:13
2	As 188.979†	2329.0	2396.9	2.50874 mg/L	2.50874 mg/L	15:22:34
2	B 249.677†	13654.1	13343.1	0.494963 mg/L	0.494963 mg/L	15:22:34
2	Be 234.861†	13028.6	14143.1	0.0503540 mg/L	0.0503540 mg/L	15:22:34
2	Cd 214.437†	21241.1	21021.3	0.505917 mg/L	0.505917 mg/L	15:22:34
2	Ce 413.764†	1313.7	-28.8	0.0000261 mg/L	0.0000261 mg/L	15:22:13
2	Co 228.616†	4479.5	4627.2	0.501914 mg/L	0.501914 mg/L	15:22:34
2	Cr 205.557†	8682.0	8833.2	0.505479 mg/L	0.505479 mg/L	15:22:34
2	Cu 327.397†	30719.5	32537.6	0.503259 mg/L	0.503259 mg/L	15:22:34
2	Mn 257.610†	94883.4	95968.9	0.500044 mg/L	0.500044 mg/L	15:22:13
2	Mo 202.031†	5706.7	5677.2	0.504114 mg/L	0.504114 mg/L	15:22:34
2	Ni 231.604†	9641.0	9283.3	0.505924 mg/L	0.505924 mg/L	15:22:34
2	Pb 220.353†	1573.7	1559.5	0.506214 mg/L	0.506214 mg/L	15:22:34
2	Sb 217.584†	4387.2	4519.0	2.53410 mg/L	2.53410 mg/L	15:22:34
2	Se 196.026†	1369.2	1454.3	2.53311 mg/L	2.53311 mg/L	15:22:34
2	Si 251.611†	39888.7	38946.4	2.41297 mg/L	2.41297 mg/L	15:22:13
2	Sn 189.927†	8081.5	8187.3	2.44078 mg/L	2.44078 mg/L	15:22:34
2	Tl 190.801†	2939.5	3035.4	2.53254 mg/L	2.53254 mg/L	15:22:34
2	V 292.395†	30172.6	32348.1	0.509714 mg/L	0.509714 mg/L	15:22:34
2	Zn 206.200†	8198.2	8443.7	0.503501 mg/L	0.503501 mg/L	15:22:34

Mean Data: 9K20033-CCV

Analyte	Mean Corrected Intensity	Conc.	Calib. Units	Std.Dev.	Sample Conc.	Sample Units	Std.Dev.	RSD
Sc 357.234	262014.2	98.8830	%	0.52843				0.53%
Y 360.076	233484.9	98.5445	%	1.20382				1.22%
Ag 328.068†	40486.0	0.495553	mg/L	0.0007530	0.495553	mg/L	0.0007530	0.15%
QC value within limits for Ag 328.068 Recovery = 99.11%								
Al 396.153†	10587.8	2.43927	mg/L	0.000037	2.43927	mg/L	0.000037	0.00%
QC value within limits for Al 396.153 Recovery = 97.57%								
As 188.979†	2383.8	2.49498	mg/L	0.019469	2.49498	mg/L	0.019469	0.78%
QC value within limits for As 188.979 Recovery = 99.80%								
B 249.677†	13235.3	0.490912	mg/L	0.0057287	0.490912	mg/L	0.0057287	1.17%
QC value within limits for B 249.677 Recovery = 98.18%								
Ba 455.398†	227582.4	0.492615	mg/L	0.0012734	0.492615	mg/L	0.0012734	0.26%
QC value within limits for Ba 455.398 Recovery = 98.52%								
Be 234.861†	14061.1	0.0500587	mg/L	0.00041765	0.0500587	mg/L	0.00041765	0.83%
QC value within limits for Be 234.861 Recovery = 100.12%								
Ca 315.887†	13116.1	4.87856	mg/L	0.054682	4.87856	mg/L	0.054682	1.12%
QC value within limits for Ca 315.887 Recovery = 97.57%								
Cd 214.437†	20876.6	0.502418	mg/L	0.0049485	0.502418	mg/L	0.0049485	0.98%
QC value within limits for Cd 214.437 Recovery = 100.48%								
Ce 413.764†	-20.2	0.0001831	mg/L	0.00022204	0.0001831	mg/L	0.00022204	121.24%
Co 228.616†	4590.3	0.497885	mg/L	0.0056975	0.497885	mg/L	0.0056975	1.14%
QC value within limits for Co 228.616 Recovery = 99.58%								
Cr 205.557†	8769.0	0.501795	mg/L	0.0052112	0.501795	mg/L	0.0052112	1.04%
QC value within limits for Cr 205.557 Recovery = 100.36%								
Cu 327.397†	32380.6	0.500842	mg/L	0.0034185	0.500842	mg/L	0.0034185	0.68%
QC value within limits for Cu 327.397 Recovery = 100.17%								
Fe 238.204†	983.4	0.498209	mg/L	0.0054625	0.498209	mg/L	0.0054625	1.10%
QC value within limits for Fe 238.204 Recovery = 99.64%								
K 766.490	4343.5	5.11615	mg/L	0.062742	5.11615	mg/L	0.062742	1.23%
QC value within limits for K 766.490 Recovery = 102.32%								
Li 670.784†	22717.0	0.492597	mg/L	0.0004163	0.492597	mg/L	0.0004163	0.08%
QC value within limits for Li 670.784 Recovery = 98.52%								
Mg 279.071†	2900.8	4.93136	mg/L	0.050391	4.93136	mg/L	0.050391	1.02%
QC value within limits for Mg 279.071 Recovery = 98.63%								
Mn 257.610†	95835.1	0.499347	mg/L	0.0009867	0.499347	mg/L	0.0009867	0.20%

QC value within limits for Mn 257.610 Recovery = 99.87%

Mo 202.031†	5630.6	0.499969 mg/L	0.0058617	0.499969 mg/L	0.0058617	1.17%

QC value within limits for Mo 202.031 Recovery = 99.99%

Na 589.592†	43885.1	4.92996 mg/L	0.004357	4.92996 mg/L	0.004357	0.09%

QC value within limits for Na 589.592 Recovery = 98.60%

Ni 231.604†	9205.5	0.501675 mg/L	0.0060089	0.501675 mg/L	0.0060089	1.20%

QC value within limits for Ni 231.604 Recovery = 100.34%

Pb 220.353†	1555.0	0.504757 mg/L	0.0020603	0.504757 mg/L	0.0020603	0.41%

QC value within limits for Pb 220.353 Recovery = 100.95%

Sb 217.584†	4485.7	2.51549 mg/L	0.026315	2.51549 mg/L	0.026315	1.05%

QC value within limits for Sb 217.584 Recovery = 100.62%

Se 196.026†	1438.0	2.50472 mg/L	0.040146	2.50472 mg/L	0.040146	1.60%

QC value within limits for Se 196.026 Recovery = 100.19%

Si 251.611†	38947.7	2.41299 mg/L	0.000030	2.41299 mg/L	0.000030	0.00%

QC value within limits for Si 251.611 Recovery = 96.52%

Sn 189.927†	8131.8	2.42422 mg/L	0.023408	2.42422 mg/L	0.023408	0.97%

QC value within limits for Sn 189.927 Recovery = 96.97%

Sr 407.771†	614345.1	0.493878 mg/L	0.0011598	0.493878 mg/L	0.0011598	0.23%

QC value within limits for Sr 407.771 Recovery = 98.78%

Ti 334.940†	11602.4	0.489013 mg/L	0.0053307	0.489013 mg/L	0.0053307	1.09%

QC value within limits for Ti 334.940 Recovery = 97.80%

Tl 190.801†	3015.4	2.51585 mg/L	0.023599	2.51585 mg/L	0.023599	0.94%

QC value within limits for Tl 190.801 Recovery = 100.63%

V 292.395†	32157.2	0.506686 mg/L	0.0042829	0.506686 mg/L	0.0042829	0.85%

QC value within limits for V 292.395 Recovery = 101.34%

Zn 206.200†	8383.1	0.499877 mg/L	0.0051253	0.499877 mg/L	0.0051253	1.03%

QC value within limits for Zn 206.200 Recovery = 99.98%

All analyte(s) passed QC.

Sequence No.: 32
Sample ID: 9K20033-CCB
Analyst:
Initial Sample Wt:
Dilution:

Autosampler Location: 1
Date Collected: 11/20/2009 3:23:53 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 9K20033-CCB

Repl#	Analyte	Net Intensity	Corrected Intensity	Calib. Conc.	Calib. Units	Sample Conc.	Sample Units	Analysis Time
1	Y 360.076	231790.6	231790.6	97.8294	%			15:24:58
1	Al 396.153†	510.3	5.6	0.0129455	mg/L	0.0129455	mg/L	15:24:58
1	Ba 455.398†	-58.7	64.5	0.0017929	mg/L	0.0017929	mg/L	15:24:58
1	Ca 315.887†	425.3	-23.3	0.0549196	mg/L	0.0549196	mg/L	15:25:18
1	Fe 238.204†	83.6	15.5	0.0107949	mg/L	0.0107949	mg/L	15:25:18
1	K 766.490	409.3	-2.3	-0.0157237	mg/L	-0.0157237	mg/L	15:24:58
1	Li 670.784†	289.1	-23.1	0.0016367	mg/L	0.0016367	mg/L	15:24:58
1	Mg 279.071†	23.3	-2.2	0.0264875	mg/L	0.0264875	mg/L	15:25:18
1	Na 589.592†	1185.1	-26.8	0.0154460	mg/L	0.0154460	mg/L	15:24:58
1	Sr 407.771†	1118.4	240.6	0.0034497	mg/L	0.0034497	mg/L	15:24:58
1	Ti 334.940†	64.3	-10.6	0.0020672	mg/L	0.0020672	mg/L	15:25:18
1	Sc 357.234	259893.3	259893.3	98.0825	%			15:25:49
1	Ag 328.068†	801.7	24.0	0.0014824	mg/L	0.0014824	mg/L	15:25:49
1	As 188.979†	-29.0	3.0	-0.0017457	mg/L	-0.0017457	mg/L	15:26:09
1	B 249.677†	610.9	105.2	-0.0018137	mg/L	-0.0018137	mg/L	15:26:09
1	Be 234.861†	-918.6	-19.2	-0.0001750	mg/L	-0.0001750	mg/L	15:26:09
1	Cd 214.437†	535.4	4.6	-0.0022141	mg/L	-0.0022141	mg/L	15:26:09
1	Ce 413.764†	1319.8	-16.8	-0.0003125	mg/L	-0.0003125	mg/L	15:25:49
1	Co 228.616†	-84.2	-5.9	-0.0015737	mg/L	-0.0015737	mg/L	15:26:09
1	Cr 205.557†	-14.4	5.1	-0.0012552	mg/L	-0.0012552	mg/L	15:26:09
1	Cu 327.397†	-1452.6	-127.7	-0.0018334	mg/L	-0.0018334	mg/L	15:25:49
1	Mn 257.610†	314.4	-29.7	-0.0006516	mg/L	-0.0006516	mg/L	15:26:09
1	Mo 202.031†	119.3	5.8	-0.0010032	mg/L	-0.0010032	mg/L	15:26:09
1	Ni 231.604†	490.1	-3.8	-0.0010701	mg/L	-0.0010701	mg/L	15:26:09
1	Pb 220.353†	38.0	0.7	0.0012560	mg/L	0.0012560	mg/L	15:26:09
1	Sb 217.584†	-67.6	-3.6	-0.0019573	mg/L	-0.0019573	mg/L	15:26:09
1	Se 196.026†	-52.3	11.1	0.0123145	mg/L	0.0123145	mg/L	15:26:09
1	Si 251.611†	880.7	-648.0	-0.0328432	mg/L	-0.0328432	mg/L	15:26:09
1	Sn 189.927†	43.6	27.9	0.0085924	mg/L	0.0085924	mg/L	15:26:09
1	Tl 190.801†	-52.9	-2.5	-0.0041399	mg/L	-0.0041399	mg/L	15:26:09
1	V 292.395†	-1707.2	-21.6	-0.0011544	mg/L	-0.0011544	mg/L	15:26:09

1	Zn 206.200†	-111.9	7.3	-0.0012718 mg/L	-0.0012718 mg/L	15:26:09
2	Y 360.076	228998.2	228998.2	96.6509 %		15:25:23
2	Al 396.153†	476.0	-23.5	0.0062210 mg/L	0.0062210 mg/L	15:25:23
2	Ba 455.398†	-89.6	31.7	0.0017224 mg/L	0.0017224 mg/L	15:25:23
2	Ca 315.887†	422.7	-20.7	0.0558727 mg/L	0.0558727 mg/L	15:25:43
2	Fe 238.204†	84.5	17.4	0.0117509 mg/L	0.0117509 mg/L	15:25:43
2	K 766.490	417.1	5.5	-0.0065402 mg/L	-0.0065402 mg/L	15:25:23
2	Li 670.784†	350.2	43.6	0.0030780 mg/L	0.0030780 mg/L	15:25:23
2	Mg 279.071†	19.2	-6.2	0.0197322 mg/L	0.0197322 mg/L	15:25:43
2	Na 589.592†	1229.2	33.5	0.0222012 mg/L	0.0222012 mg/L	15:25:23
2	Sr 407.771†	1032.3	165.4	0.0033894 mg/L	0.0033894 mg/L	15:25:23
2	Ti 334.940†	61.6	-12.6	0.0019842 mg/L	0.0019842 mg/L	15:25:43
2	Sc 357.234	260080.2	260080.2	98.1530 %		15:26:14
2	Ag 328.068†	823.1	45.2	0.0017456 mg/L	0.0017456 mg/L	15:26:14
2	As 188.979†	-30.0	2.1	-0.0027773 mg/L	-0.0027773 mg/L	15:26:34
2	B 249.677†	600.6	94.2	-0.0022266 mg/L	-0.0022266 mg/L	15:26:34
2	Be 234.861†	-892.9	7.7	-0.0000793 mg/L	-0.0000793 mg/L	15:26:34
2	Cd 214.437†	532.0	0.7	-0.0023072 mg/L	-0.0023072 mg/L	15:26:34
2	Ce 413.764†	1389.4	53.2	0.0009919 mg/L	0.0009919 mg/L	15:26:14
2	Co 228.616†	-79.0	-0.5	-0.0009873 mg/L	-0.0009873 mg/L	15:26:34
2	Cr 205.557†	-16.5	3.0	-0.0013761 mg/L	-0.0013761 mg/L	15:26:34
2	Cu 327.397†	-1519.8	-195.1	-0.0028748 mg/L	-0.0028748 mg/L	15:26:14
2	Mn 257.610†	317.6	-26.7	-0.0006359 mg/L	-0.0006359 mg/L	15:26:34
2	Mo 202.031†	119.8	6.2	-0.0009654 mg/L	-0.0009654 mg/L	15:26:34
2	Ni 231.604†	495.5	1.3	-0.0007922 mg/L	-0.0007922 mg/L	15:26:34
2	Pb 220.353†	23.7	-13.8	-0.0034720 mg/L	-0.0034720 mg/L	15:26:34
2	Sb 217.584†	-62.5	1.7	0.0010264 mg/L	0.0010264 mg/L	15:26:34
2	Se 196.026†	-55.1	8.2	0.0072765 mg/L	0.0072765 mg/L	15:26:34
2	Si 251.611†	863.1	-666.6	-0.0339967 mg/L	-0.0339967 mg/L	15:26:34
2	Sn 189.927†	39.9	24.2	0.0074800 mg/L	0.0074800 mg/L	15:26:34
2	Tl 190.801†	-40.3	10.4	0.0065873 mg/L	0.0065873 mg/L	15:26:34
2	V 292.395†	-1691.3	-4.2	-0.0008811 mg/L	-0.0008811 mg/L	15:26:34
2	Zn 206.200†	-120.4	-1.3	-0.0017881 mg/L	-0.0017881 mg/L	15:26:34

Mean Data: 9K20033-CCB

Analyte	Mean Corrected Intensity	Calib. Conc.	Calib. Units	Calib. Std.Dev.	Sample Conc.	Sample Units	Sample Std.Dev.	RSD
Sc 357.234	259986.7	98.1178	%	0.04986				0.05%
Y 360.076	230394.4	97.2401	%	0.83334				0.86%
Ag 328.068†	34.6	0.0016140	mg/L	0.00018615	0.0016140	mg/L	0.00018615	11.53%
QC value within limits for Ag 328.068 Recovery = Not calculated								
Al 396.153†	-9.0	0.0095832	mg/L	0.00475495	0.0095832	mg/L	0.00475495	49.62%
QC value within limits for Al 396.153 Recovery = Not calculated								
As 188.979†	2.5	-0.0022615	mg/L	0.00072946	-0.0022615	mg/L	0.00072946	32.26%
QC value within limits for As 188.979 Recovery = Not calculated								
B 249.677†	99.7	-0.0020202	mg/L	0.00029203	-0.0020202	mg/L	0.00029203	14.46%
QC value within limits for B 249.677 Recovery = Not calculated								
Ba 455.398†	48.1	0.0017577	mg/L	0.00004978	0.0017577	mg/L	0.00004978	2.83%
QC value within limits for Ba 455.398 Recovery = Not calculated								
Be 234.861†	-5.7	-0.0001272	mg/L	0.00006767	-0.0001272	mg/L	0.00006767	53.20%
QC value within limits for Be 234.861 Recovery = Not calculated								
Ca 315.887†	-22.0	0.0553962	mg/L	0.00067397	0.0553962	mg/L	0.00067397	1.22%
QC value within limits for Ca 315.887 Recovery = Not calculated								
Cd 214.437†	2.7	-0.0022607	mg/L	0.00006582	-0.0022607	mg/L	0.00006582	2.91%
QC value within limits for Cd 214.437 Recovery = Not calculated								
Ce 413.764†	18.2	0.0003397	mg/L	0.00092235	0.0003397	mg/L	0.00092235	271.55%
Co 228.616†	-3.2	-0.0012805	mg/L	0.00041464	-0.0012805	mg/L	0.00041464	32.38%
QC value within limits for Co 228.616 Recovery = Not calculated								
Cr 205.557†	4.1	-0.0013157	mg/L	0.00008549	-0.0013157	mg/L	0.00008549	6.50%
QC value within limits for Cr 205.557 Recovery = Not calculated								
Cu 327.397†	-161.4	-0.0023541	mg/L	0.00073643	-0.0023541	mg/L	0.00073643	31.28%
QC value within limits for Cu 327.397 Recovery = Not calculated								
Fe 238.204†	16.5	0.0112729	mg/L	0.00067598	0.0112729	mg/L	0.00067598	6.00%
QC value greater than the upper limit for Fe 238.204 Recovery = Not calculated								
K 766.490	1.6	-0.0111320	mg/L	0.00649373	-0.0111320	mg/L	0.00649373	58.33%
QC value within limits for K 766.490 Recovery = Not calculated								
Li 670.784†	10.2	0.0023573	mg/L	0.00101917	0.0023573	mg/L	0.00101917	43.23%
QC value within limits for Li 670.784 Recovery = Not calculated								
Mg 279.071†	-4.2	0.0231099	mg/L	0.00477678	0.0231099	mg/L	0.00477678	20.67%
QC value within limits for Mg 279.071 Recovery = Not calculated								

Mn 257.610†	-28.2	-0.0006438 mg/L	0.00001112	-0.0006438 mg/L	0.00001112	1.73%
QC value within limits for Mn 257.610 Recovery = Not calculated						
Mo 202.031†	6.0	-0.0009843 mg/L	0.00002674	-0.0009843 mg/L	0.00002674	2.72%
QC value within limits for Mo 202.031 Recovery = Not calculated						
Na 589.592†	3.3	0.0188236 mg/L	0.00477667	0.0188236 mg/L	0.00477667	25.38%
QC value within limits for Na 589.592 Recovery = Not calculated						
Ni 231.604†	-1.3	-0.0009312 mg/L	0.00019653	-0.0009312 mg/L	0.00019653	21.11%
QC value within limits for Ni 231.604 Recovery = Not calculated						
Pb 220.353†	-6.5	-0.0011080 mg/L	0.00334320	-0.0011080 mg/L	0.00334320	301.72%
QC value within limits for Pb 220.353 Recovery = Not calculated						
Sb 217.584†	-0.9	-0.0004654 mg/L	0.00210979	-0.0004654 mg/L	0.00210979	453.28%
QC value within limits for Sb 217.584 Recovery = Not calculated						
Se 196.026†	9.6	0.0097955 mg/L	0.00356245	0.0097955 mg/L	0.00356245	36.37%
QC value within limits for Se 196.026 Recovery = Not calculated						
Si 251.611†	-657.3	-0.0334199 mg/L	0.00081568	-0.0334199 mg/L	0.00081568	2.44%
QC value within limits for Si 251.611 Recovery = Not calculated						
Sn 189.927†	26.1	0.0080362 mg/L	0.00078656	0.0080362 mg/L	0.00078656	9.79%
QC value within limits for Sn 189.927 Recovery = Not calculated						
Sr 407.771†	203.0	0.0034195 mg/L	0.00004266	0.0034195 mg/L	0.00004266	1.25%
QC value within limits for Sr 407.771 Recovery = Not calculated						
Ti 334.940†	-11.6	0.0020257 mg/L	0.00005864	0.0020257 mg/L	0.00005864	2.89%
QC value within limits for Ti 334.940 Recovery = Not calculated						
Tl 190.801†	4.0	0.0012237 mg/L	0.00758531	0.0012237 mg/L	0.00758531	619.86%
QC value within limits for Tl 190.801 Recovery = Not calculated						
V 292.395†	-12.9	-0.0010178 mg/L	0.00019320	-0.0010178 mg/L	0.00019320	18.98%
QC value within limits for V 292.395 Recovery = Not calculated						
Zn 206.200†	3.0	-0.0015300 mg/L	0.00036504	-0.0015300 mg/L	0.00036504	23.86%
QC value within limits for Zn 206.200 Recovery = Not calculated						

QC Failed. Continue with analysis.

Sequence No.: 33
Sample ID: 9K20033-srd4
Analyst:
Initial Sample Wt:
Dilution: 50X

Autosampler Location: 37
Date Collected: 11/20/2009 3:27:53 PM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol:

Replicate Data: 9K20033-srd4

Repl#	Analyte	Net Intensity	Corrected Intensity	Conc.	Calib. Units	Conc.	Sample Units	Analysis Time
1	Y 360.076	234785.1	234785.1	99.0932	%			15:29:00
1	Al 396.153†	15079.4	14701.4	3.40173	mg/L	170.087	mg/L	15:29:00
1	Ba 455.398†	8225.8	8425.6	0.0198328	mg/L	0.991641	mg/L	15:29:00
1	Ca 315.887†	875.2	425.2	0.220912	mg/L	11.0456	mg/L	15:29:20
1	Fe 238.204†	9482.8	9499.6	4.78952	mg/L	239.476	mg/L	15:29:20
1	K 766.490	626.1	214.6	0.240302	mg/L	12.0151	mg/L	15:29:00
1	Li 670.784†	521.8	207.9	0.0066241	mg/L	0.331205	mg/L	15:29:00
1	Mg 279.071†	243.5	219.7	0.401664	mg/L	20.0832	mg/L	15:29:20
1	Na 589.592†	1261.6	34.9	0.0223563	mg/L	1.11782	mg/L	15:29:00
1	Sr 407.771†	2304.9	1423.3	0.0043915	mg/L	0.219576	mg/L	15:29:00
1	Ti 334.940†	1489.8	1427.1	0.0623542	mg/L	3.11771	mg/L	15:29:20
1	Sc 357.234	261907.5	261907.5	98.8427	%			15:29:51
1	Ag 328.068†	642.6	-143.2	-0.0000802	mg/L	-0.0040095	mg/L	15:29:51
1	As 188.979†	-33.7	-1.5	-0.0069300	mg/L	-0.346499	mg/L	15:30:11
1	B 249.677†	544.1	32.8	-0.0045882	mg/L	-0.229412	mg/L	15:30:11
1	Be 234.861†	-347.3	566.0	0.0000828	mg/L	0.0041405	mg/L	15:29:51
1	Cd 214.437†	564.4	29.8	-0.0019785	mg/L	-0.0989239	mg/L	15:30:11
1	Ce 413.764†	1967.3	627.9	0.0121805	mg/L	0.609026	mg/L	15:29:51
1	Co 228.616†	-61.3	17.9	0.0007362	mg/L	0.0368098	mg/L	15:30:11
1	Cr 205.557†	51.5	71.9	0.0027640	mg/L	0.138199	mg/L	15:30:11
1	Cu 327.397†	-1340.9	-3.3	0.0001722	mg/L	0.0086103	mg/L	15:29:51
1	Mn 257.610†	24528.7	24465.6	0.127314	mg/L	6.36572	mg/L	15:29:51
1	Mo 202.031†	119.2	4.7	-0.0011005	mg/L	-0.0550244	mg/L	15:30:11
1	Ni 231.604†	518.2	20.7	0.0002631	mg/L	0.0131548	mg/L	15:30:11
1	Pb 220.353†	48.7	11.2	0.0052355	mg/L	0.261776	mg/L	15:30:11
1	Sb 217.584†	-101.0	-36.9	-0.0069393	mg/L	-0.346966	mg/L	15:30:11
1	Se 196.026†	-68.4	-4.9	-0.0132850	mg/L	-0.664249	mg/L	15:30:11
1	Si 251.611†	5261.7	3777.4	0.241912	mg/L	12.0956	mg/L	15:30:11
1	Sn 189.927†	34.8	18.7	0.0058483	mg/L	0.292417	mg/L	15:30:11
1	Tl 190.801†	-39.1	11.9	0.0083462	mg/L	0.417310	mg/L	15:30:11

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K23049

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9K24002

Fe, Na

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time	
Cal Standard	9K23049-CAL1	9K23049-002	11/23/09 13:19	
Cal Standard	9K23049-CAL2	9K23049-003	11/23/09 13:22	
Cal Standard	9K23049-CAL3	9K23049-004	11/23/09 13:25	
Cal Standard	9K23049-CAL4	9K23049-005	11/23/09 13:29	
Cal Standard	9K23049-CAL5	9K23049-006	11/23/09 13:32	
Secondary Cal Check	9K23049-SCV1	9K23049-007	11/23/09 13:35	
Calibration Check	9K23049-CCV1	9K23049-007	11/23/09 13:35	
Calibration Blank	9K23049-CCB1	9K23049-008	11/23/09 13:39	
Interference Check A	9K23049-IFA1	9K23049-009	11/23/09 13:42	
Interference Check A	9K23049-IFA2	9K23049-010	11/23/09 13:45	
Interference Check B	9K23049-IFB1	9K23049-011	11/23/09 13:49	
Interference Check B	9K23049-IFB2	9K23049-012	11/23/09 13:52	
Calibration Check	9K23049-CCV2	9K23049-013	11/23/09 13:56	
Calibration Blank	9K23049-CCB2	9K23049-014	11/23/09 13:59	Na -0.0[illegible] mg/L
Blank	0913883-BLK2	9K23049-015	11/23/09 14:02	Fe 0.55 mg/kg
LCS	0913883-BS2	9K23049-016	11/23/09 14:05	
79554	0911250-01	9K23049-017	11/23/09 14:09	
79554	9K23049-SRD1	9K23049-018	11/23/09 14:12	
79554	0913883-PS2	9K23049-019	11/23/09 14:15	
79SB3B	0911250-02	9K23049-020	11/23/09 14:19	
79SB3B	0911250-02	9K23049-020	11/23/09 14:19	
79SS5	0911250-03	9K23049-021	11/23/09 14:22	
79SS5	0911250-03	9K23049-021	11/23/09 14:22	
DUP	0911250-04	9K23049-022	11/23/09 14:26	
DUP	0911250-04	9K23049-022	11/23/09 14:26	
79SB1B	0911250-05	9K23049-023	11/23/09 14:29	
79SB1B	0911250-05	9K23049-023	11/23/09 14:29	
72SB2B	0911250-06	9K23049-024	11/23/09 14:33	
72SB2B	0911250-06	9K23049-024	11/23/09 14:33	
Calibration Check	9K23049-CCV3	9K23049-025	11/23/09 14:36	
Calibration Blank	9K23049-CCB3	9K23049-026	11/23/09 14:39	Na -0.069 mg/L
72SB3B	0911250-07	9K23049-027	11/23/09 14:43	

ANALYSIS BATCH (SEQUENCE) SUMMARY
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K23049

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument: 101
Calibration: 9K24002

Sample Name	Lab Sample ID	Lab File ID	Analysis Date/Time
72SB3B	0911250-07	9K23049-027	11/23/09 14:43
79554	0911250-01	9K23049-028	11/23/09 14:46
79554	0913883-MS2	9K23049-029	11/23/09 14:50
79554	0913883-MSD2	9K23049-030	11/23/09 14:53
79554	9K23049-SRD2	9K23049-031	11/23/09 14:57
79554	0913883-PS5	9K23049-032	11/23/09 15:01
Calibration Check	9K23049-CCV4	9K23049-035	11/23/09 15:11
Calibration Blank	9K23049-CCB4	9K23049-036	11/23/09 15:14

Na -0.098 mg/L

METHOD BLANK DATA SHEET
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
SDG: SSP1109
Client: URS Corporation
Project: RFAAP SSP at Six Sites
Matrix: Soil
Laboratory ID: 0913883-BLK2
File ID: 9K23049-015
Prepared: 11/18/09 07:00
Preparation: 3050B Digestion
Initial/Final: 0.5 g / 50 mL
Analyzed: 11/23/09 14:02
Instrument: 101
QC Batch: 0913883
Sequence: 9K23049
Calibration: 9K24002

CAS No.	Analyte	MDL	MRL	Concentration	Unit	Q
7439-89-6	Iron, Total	0.47	10	0.55	mg/kg dry wt.	J
7440-23-5	Sodium, Total	5.4	100	100	mg/kg dry wt.	U

BLANKS
USEPA-6010B

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Sequence: 9K23049

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Instrument ID: 101
Calibration: 9K24002

Lab Sample ID	Analyte	Found	MRL	MDL	Units	C	Analyzed
9K23049-CCB1	Iron	0.00074	0.10	0.0047	mg/L	U	11/23/09 13:39
	Sodium	-0.029	1.0	0.054	mg/L	U	11/23/09 13:39
9K23049-CCB2	Iron	-0.00060	0.10	0.0047	mg/L	U	11/23/09 13:59
	Sodium	-0.055	1.0	0.054	mg/L	J	11/23/09 13:59
9K23049-CCB3	Iron	0.0034	0.10	0.0047	mg/L	U	11/23/09 14:39
	Sodium	-0.069	1.0	0.054	mg/L	J	11/23/09 14:39
9K23049-CCB4	Iron	0.0034	0.10	0.0047	mg/L	U	11/23/09 15:14
	Sodium	-0.058	1.0	0.054	mg/L	J	11/23/09 15:14

* Values outside of QC limits

2 B 249.773	353.3	344.1	0.0029429	mg/L
2 Ba 455.403	10317.5	10049.0	-0.0009888	mg/L
2 Be 234.861	17.3	16.9	-0.0001342	mg/L
2 Ca 315.887	-658.9	-641.8	0.0126869	mg/L
2 Cd 214.438	22.8	22.2	-0.0017864	mg/L
2 Ce 413.765	78.4	76.4	0.0160974	mg/L
2 Co 228.616	-10.4	-10.2	0.0036814	mg/L
2 Cr 205.560	41.1	40.1	0.0036836	mg/L
2 Cu 327.394	-97.8	-95.3	0.0002558	mg/L
2 Fe 238.204	178.7	174.0	-0.0013578	mg/L
2 K 766.514	2330.3	2269.6	-0.0663840	mg/L
2 Li 670.781	667.8	650.4	-0.0009952	mg/L
2 Mg 279.074	-21.4	-20.9	-0.0013675	mg/L
2 Mn 257.610	-142.9	-139.2	-0.0024728	mg/L
2 Mo 202.031	10.1	9.8	-0.0011951	mg/L
2 Na 589.594	2870.6	2795.9	-0.0533567	mg/L
2 Ni 231.603	16.2	15.8	-0.0020697	mg/L
2 Pb 220.353	38.6	37.6	-0.0164162	mg/L
2 Sb 206.831	6.3	6.1	-0.0334080	mg/L
2 Se 196.026	72.4	70.5	-0.0390434	mg/L
2 Si 251.611	1189.2	1158.2	-0.0167082	mg/L
2 Sn 189.933	-5.0	-4.9	-0.0287872	mg/L
2 Sr 407.771	1101.3	1072.7	0.0002606	mg/L
2 Ti 334.941	2212.8	2155.2	-0.0018624	mg/L
2 Tl 190.800	18.1	17.6	-0.0321625	mg/L
2 V 292.402	-319.7	-311.3	0.0019284	mg/L
2 Zn 206.200	5.9	5.8	-0.0048046	mg/L

Mean Data ----------

ID: 9K23049-CCB Seq. No.: 14 Sample No.: 9 A/S Pos: 1
Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 1:58:57 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	356175.2	103.4	1.07	mg/L				1.04%
Y 360.064	228457.1	103.9	1.21	mg/L				1.16%
Ag 328.068	144.5	-0.0040785	0.00085351	mg/L				20.93%
Al 396.140	590.3	0.0036105	0.00796391	mg/L				220.58%
As 188.979	11.8	0.0208746	0.04338896	mg/L				207.86%
B 249.773	329.4	0.0012408	0.00240702	mg/L				193.98%
Ba 455.403	9950.2	-0.0011875	0.00028108	mg/L				23.67%
Be 234.861	17.8	-0.0001211	0.00001849	mg/L				15.27%
Ca 315.887	-577.8	0.0198435	0.01012101	mg/L				51.00%
Cd 214.438	12.5	-0.0033229	0.00217286	mg/L				65.39%
Ce 413.765	10.6	0.0041906	0.01683886	mg/L				401.83%
Co 228.616	-12.1	0.0030515	0.00089081	mg/L				29.19%
Cr 205.560	36.1	-0.0001796	0.00546338	mg/L				>999.9%
Cu 327.394	-122.3	-0.0019587	0.00313188	mg/L				159.89%
Fe 238.204	180.0	-0.0006022	0.00106857	mg/L				177.45%
K 766.514	2246.7	-0.0739727	0.01073198	mg/L				14.51%
Li 670.781	600.5	-0.0013808	0.00054534	mg/L				39.49%
Mg 279.074	-48.1	-0.0253080	0.03385705	mg/L				133.78%
Mn 257.610	-145.3	-0.0025680	0.00013454	mg/L				5.24%
Mo 202.031	9.5	-0.0017066	0.00072333	mg/L				42.38%
Na 589.594	2771.2	-0.0552930	0.00273829	mg/L				4.95%
Ni 231.603	25.6	0.0036792	0.00813023	mg/L				220.98%
Pb 220.353	38.1	-0.0147221	0.00239585	mg/L				16.27%
Sb 206.831	5.2	-0.0386151	0.00736397	mg/L				19.07%
Se 196.026	63.5	-0.0962477	0.08089916	mg/L				84.05%
*QC exceeds lower limit for Se 196.026 Action = Continue								
Si 251.611	1161.4	-0.0159174	0.00111836	mg/L				7.03%
Sn 189.933	-5.4	-0.0344231	0.00797029	mg/L				23.15%
Sr 407.771	1118.3	0.0002978	0.00005262	mg/L				17.67%
Ti 334.941	2118.5	-0.0023696	0.00071737	mg/L				30.27%
Tl 190.800	23.4	0.0074252	0.05598548	mg/L				753.99%
V 292.402	-354.3	-0.0011967	0.00441963	mg/L				369.32%
Zn 206.200	3.9	-0.0056460	0.00118990	mg/L				21.08%

x5 = -0.274

Replicate Data ----------

ID: 0913883-BLK2 Date: 11/23/09 2:02:05 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	356387.7	356387.7	103.5	mg/L		
1	Y 360.064	228228.7	228228.7	103.8	mg/L		
1	Ag 328.068	251.4	242.9	0.0002854	mg/L	0.0002854	mg/L
1	Al 396.140	292.3	282.4	-0.0423614	mg/L	-0.0423614	mg/L
1	As 188.979	9.0	8.7	0.0014221	mg/L	0.0014221	mg/L
1	B 249.773	209.3	202.2	-0.0134813	mg/L	-0.0134813	mg/L
1	Ba 455.403	10334.9	9986.2	-0.0011151	mg/L	-0.0011151	mg/L
1	Be 234.861	21.5	20.7	-0.0000806	mg/L	-0.0000806	mg/L
1	Ca 315.887	-1354.4	-1308.7	-0.0618762	mg/L	-0.0618762	mg/L
1	Cd 214.438	13.7	13.3	-0.0031929	mg/L	-0.0031929	mg/L
1	Ce 413.765	40.1	38.8	0.0092894	mg/L	0.0092894	mg/L
1	Co 228.616	-30.5	-29.5	-0.0026053	mg/L	-0.0026053	mg/L
1	Cr 205.560	30.8	29.8	-0.0064046	mg/L	-0.0064046	mg/L
1	Cu 327.394	-122.6	-118.5	-0.0016456	mg/L	-0.0016456	mg/L
1	Fe 238.204	241.1	233.0	0.0060625	mg/L	0.0060625	mg/L
1	K 766.514	2399.1	2318.1	-0.0503883	mg/L	-0.0503883	mg/L
1	Li 670.781	636.8	615.3	-0.0012668	mg/L	-0.0012668	mg/L
1	Mg 279.074	-56.4	-54.5	-0.0309955	mg/L	-0.0309955	mg/L
1	Mn 257.610	-97.3	-94.1	-0.0017711	mg/L	-0.0017711	mg/L
1	Mo 202.031	2.2	2.1	-0.0138114	mg/L	-0.0138114	mg/L
1	Na 589.594	2883.7	2786.4	-0.0541005	mg/L	-0.0541005	mg/L
1	Ni 231.603	19.0	18.3	-0.0005729	mg/L	-0.0005729	mg/L
1	Pb 220.353	41.2	39.8	-0.0090183	mg/L	-0.0090183	mg/L
1	Sb 206.831	21.0	20.3	0.0454040	mg/L	0.0454040	mg/L
1	Se 196.026	68.0	65.7	-0.0785357	mg/L	-0.0785357	mg/L
1	Si 251.611	1258.7	1216.2	-0.0022120	mg/L	-0.0022120	mg/L
1	Sn 189.933	-4.4	-4.3	-0.0222602	mg/L	-0.0222602	mg/L
1	Sr 407.771	424.3	410.0	-0.0002794	mg/L	-0.0002794	mg/L
1	Ti 334.941	2169.2	2096.0	-0.0026799	mg/L	-0.0026799	mg/L
1	Tl 190.800	22.0	21.3	-0.0072285	mg/L	-0.0072285	mg/L
1	V 292.402	-326.3	-315.3	0.0016373	mg/L	0.0016373	mg/L
1	Zn 206.200	12.9	12.5	-0.0017883	mg/L	-0.0017883	mg/L
2	Sc 357.253	358295.9	358295.9	104.0	mg/L		
2	Y 360.064	229404.5	229404.5	104.3	mg/L		
2	Ag 328.068	203.1	195.2	-0.0018279	mg/L	-0.0018279	mg/L
2	Al 396.140	438.5	421.4	-0.0216046	mg/L	-0.0216046	mg/L
2	As 188.979	7.2	6.9	-0.0094629	mg/L	-0.0094629	mg/L
2	B 249.773	209.9	201.8	-0.0135347	mg/L	-0.0135347	mg/L
2	Ba 455.403	10644.0	10230.1	-0.0006246	mg/L	-0.0006246	mg/L
2	Be 234.861	31.6	30.4	0.0000541	mg/L	0.0000541	mg/L
2	Ca 315.887	-1477.4	-1419.9	-0.0743164	mg/L	-0.0743164	mg/L
2	Cd 214.438	21.1	20.3	-0.0020864	mg/L	-0.0020864	mg/L
2	Ce 413.765	-22.1	-21.2	-0.0015575	mg/L	-0.0015575	mg/L
2	Co 228.616	-28.3	-27.2	-0.0018517	mg/L	-0.0018517	mg/L
2	Cr 205.560	24.0	23.1	-0.0129662	mg/L	-0.0129662	mg/L
2	Cu 327.394	-186.0	-178.8	-0.0065857	mg/L	-0.0065857	mg/L
2	Fe 238.204	232.6	223.5	0.0048708	mg/L	0.0048708	mg/L
2	K 766.514	2264.9	2176.8	-0.0970279	mg/L	-0.0970279	mg/L
2	Li 670.781	770.5	740.5	-0.0002997	mg/L	-0.0002997	mg/L
2	Mg 279.074	-41.0	-39.4	-0.0176483	mg/L	-0.0176483	mg/L
2	Mn 257.610	-137.5	-132.2	-0.0023632	mg/L	-0.0023632	mg/L
2	Mo 202.031	16.9	16.2	0.0092016	mg/L	0.0092016	mg/L
2	Na 589.594	2873.8	2762.0	-0.0560083	mg/L	-0.0560083	mg/L
2	Ni 231.603	17.6	16.9	-0.0014113	mg/L	-0.0014113	mg/L
2	Pb 220.353	41.4	39.8	-0.0089404	mg/L	-0.0089404	mg/L
2	Sb 206.831	5.6	5.4	-0.0376219	mg/L	-0.0376219	mg/L
2	Se 196.026	73.2	70.3	-0.0402250	mg/L	-0.0402250	mg/L
2	Si 251.611	1266.8	1217.6	-0.0018823	mg/L	-0.0018823	mg/L
2	Sn 189.933	-2.6	-2.5	-0.0036966	mg/L	-0.0036966	mg/L
2	Sr 407.771	423.2	406.7	-0.0002820	mg/L	-0.0002820	mg/L
2	Ti 334.941	2212.8	2126.8	-0.0022551	mg/L	-0.0022551	mg/L
2	Tl 190.800	18.2	17.5	-0.0332083	mg/L	-0.0332083	mg/L
2	V 292.402	-383.8	-368.9	-0.0022600	mg/L	-0.0022600	mg/L
2	Zn 206.200	23.8	22.9	0.0028829	mg/L	0.0028829	mg/L

Mean Data

ID: 0913883-BLK2 Seq. No.: 15 Sample No.: 1 A/S Pos: 17

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 11/23/09 2:02:05 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	357341.8	103.8	0.39	mg/L				0.38%
Y 360.064	228816.6	104.1	0.38	mg/L				0.36%
Ag 328.068	219.0	-0.0007712	0.00149436	mg/L	-0.0007712	0.00149436	mg/L	193.76%
Al 396.140	351.9	-0.0319830	0.01467721	mg/L	-0.0319830	0.01467721	mg/L	45.89%
As 188.979	7.8	-0.0040204	0.00769684	mg/L	-0.0040204	0.00769684	mg/L	191.44%
B 249.773	202.0	-0.0135080	0.00003774	mg/L	-0.0135080	0.00003774	mg/L	0.28%
Ba 455.403	10108.1	-0.0008699	0.00034686	mg/L	-0.0008699	0.00034686	mg/L	39.88%
Be 234.861	25.6	-0.0000133	0.00009529	mg/L	-0.0000133	0.00009529	mg/L	718.28%
Ca 315.887	-1364.3	-0.0680963	0.00879657	mg/L	-0.0680963	0.00879657	mg/L	12.92%
Cd 214.438	16.8	-0.0026397	0.00078236	mg/L	-0.0026397	0.00078236	mg/L	29.64%
Ce 413.765	8.8	0.0038660	0.00766989	mg/L	0.0038660	0.00766989	mg/L	198.40%
Co 228.616	-28.3	-0.0022285	0.00053290	mg/L	-0.0022285	0.00053290	mg/L	23.91%
Cr 205.560	26.4	-0.0096854	0.00463972	mg/L	-0.0096854	0.00463972	mg/L	47.90%
Cu 327.394	-148.6	-0.0041156	0.00349317	mg/L	-0.0041156	0.00349317	mg/L	84.88%
Fe 238.204	228.2	0.0054666	0.00084261	mg/L	0.0054666	0.00084261	mg/L	15.41%
K 766.514	2247.5	-0.0737081	0.03297916	mg/L	-0.0737081	0.03297916	mg/L	44.74%
Li 670.781	677.9	-0.0007832	0.00068385	mg/L	-0.0007832	0.00068385	mg/L	87.31%
Mg 279.074	-47.0	-0.0243219	0.00943789	mg/L	-0.0243219	0.00943789	mg/L	38.80%
Mn 257.610	-113.1	-0.0020671	0.00041871	mg/L	-0.0020671	0.00041871	mg/L	20.26%
Mo 202.031	9.2	-0.0023049	0.01627263	mg/L	-0.0023049	0.01627263	mg/L	705.99%
Na 589.594	2774.2	-0.0550544	0.00134898	mg/L	-0.0550544	0.00134898	mg/L	2.45%
Ni 231.603	17.6	-0.0009921	0.00059282	mg/L	-0.0009921	0.00059282	mg/L	59.75%
Pb 220.353	39.8	-0.0089793	0.00005503	mg/L	-0.0089793	0.00005503	mg/L	0.61%
Sb 206.831	12.8	0.0038910	0.05870815	mg/L	0.0038910	0.05870815	mg/L	>999.9%
Se 196.026	68.0	-0.0593804	0.02708976	mg/L	-0.0593804	0.02708976	mg/L	45.62%
Si 251.611	1216.9	-0.0020471	0.00023312	mg/L	-0.0020471	0.00023312	mg/L	11.39%
Sn 189.933	-3.4	-0.0129784	0.01312643	mg/L	-0.0129784	0.01312643	mg/L	101.14%
Sr 407.771	408.4	-0.0002807	0.00000189	mg/L	-0.0002807	0.00000189	mg/L	0.67%
Ti 334.941	2111.4	-0.0024675	0.00030033	mg/L	-0.0024675	0.00030033	mg/L	12.17%
Tl 190.800	19.4	-0.0202184	0.01837055	mg/L	-0.0202184	0.01837055	mg/L	90.86%
V 292.402	-342.1	-0.0003114	0.00275579	mg/L	-0.0003114	0.00275579	mg/L	885.03%
Zn 206.200	17.7	0.0005473	0.00330306	mg/L	0.0005473	0.00330306	mg/L	603.50%

Replicate Data

ID: 0913883-BS2 Date: 11/23/09 2:05:20 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	361221.0	361221.0	104.9	mg/L		
1	Y 360.064	231959.6	231959.6	105.5	mg/L		
1	Ag 328.068	6048.5	5766.2	0.245169	mg/L	0.245169	mg/L
1	Al 396.140	9249.3	8817.6	1.23179	mg/L	1.23179	mg/L
1	As 188.979	223.8	213.4	1.28217	mg/L	1.28217	mg/L
1	B 249.773	2428.8	2315.4	0.231196	mg/L	0.231196	mg/L
1	Ba 455.403	140632.4	134069.1	0.248409	mg/L	0.248409	mg/L
1	Be 234.861	1903.3	1814.5	0.0249035	mg/L	0.0249035	mg/L
1	Ca 315.887	120892.8	115250.7	12.9705	mg/L	12.9705	mg/L
1	Cd 214.438	1701.9	1622.4	0.251601	mg/L	0.251601	mg/L
1	Ce 413.765	14.9	14.2	0.0048412	mg/L	0.0048412	mg/L
1	Co 228.616	770.2	734.2	0.246146	mg/L	0.246146	mg/L
1	Cr 205.560	299.4	285.4	0.243929	mg/L	0.243929	mg/L
1	Cu 327.394	3061.0	2918.2	0.247143	mg/L	0.247143	mg/L
1	Fe 238.204	2363.2	2252.9	0.260326	mg/L	0.260326	mg/L
1	K 766.514	42297.8	40323.8	12.4924	mg/L	12.4924	mg/L
1	Li 670.781	34742.3	33120.9	0.249799	mg/L	0.249799	mg/L
1	Mg 279.074	15032.1	14330.6	12.6201	mg/L	12.6201	mg/L
1	Mn 257.610	17039.3	16244.1	0.252104	mg/L	0.252104	mg/L
1	Mo 202.031	202.1	192.7	0.296483	mg/L	0.296483	mg/L
1	Na 589.594	170695.0	162728.6	12.4754	mg/L	12.4754	mg/L
1	Ni 231.603	474.1	452.0	0.254472	mg/L	0.254472	mg/L
1	Pb 220.353	121.1	115.5	0.248573	mg/L	0.248573	mg/L
1	Sb 206.831	282.8	269.6	1.43830	mg/L	1.43830	mg/L
1	Se 196.026	232.5	221.7	1.20303	mg/L	1.20303	mg/L
1	Si 251.611	5545.8	5287.0	1.01510	mg/L	1.01510	mg/L
1	Sn 189.933	147.1	140.2	1.49470	mg/L	1.49470	mg/L
1	Sr 407.771	324989.6	309822.4	0.251845	mg/L	0.251845	mg/L
1	Ti 334.941	25200.2	24024.1	0.300104	mg/L	0.300104	mg/L

1 Tl 190.800	224.1	213.7	1.31432 mg/L	1.31432 mg/L	
1 V 292.402	3271.8	3119.1	0.251605 mg/L	0.251605 mg/L	
1 Zn 206.200	633.9	604.3	0.264201 mg/L	0.264201 mg/L	
2 Sc 357.253	357695.8	357695.8	103.9 mg/L		
2 Y 360.064	229671.0	229671.0	104.4 mg/L		
2 Ag 328.068	6071.6	5845.2	0.248675 mg/L	0.248675 mg/L	
2 Al 396.140	9121.9	8781.8	1.22645 mg/L	1.22645 mg/L	
2 As 188.979	222.8	214.5	1.28903 mg/L	1.28903 mg/L	
2 B 249.773	2392.3	2303.1	0.229774 mg/L	0.229774 mg/L	
2 Ba 455.403	137955.7	132813.4	0.245884 mg/L	0.245884 mg/L	
2 Be 234.861	1877.8	1807.8	0.0248097 mg/L	0.0248097 mg/L	
2 Ca 315.887	117777.9	113387.8	12.7622 mg/L	12.7622 mg/L	
2 Cd 214.438	1656.9	1595.1	0.247280 mg/L	0.247280 mg/L	
2 Ce 413.765	-120.9	-116.4	-0.0187779 mg/L	-0.0187779 mg/L	
2 Co 228.616	776.7	747.8	0.250564 mg/L	0.250564 mg/L	
2 Cr 205.560	306.6	295.2	0.253533 mg/L	0.253533 mg/L	
2 Cu 327.394	3071.3	2956.8	0.250310 mg/L	0.250310 mg/L	
2 Fe 238.204	2318.9	2232.4	0.257746 mg/L	0.257746 mg/L	
2 K 766.514	41680.7	40127.0	12.4275 mg/L	12.4275 mg/L	
2 Li 670.781	33885.7	32622.6	0.245951 mg/L	0.245951 mg/L	
2 Mg 279.074	14809.0	14257.0	12.5554 mg/L	12.5554 mg/L	
2 Mn 257.610	16831.9	16204.5	0.251489 mg/L	0.251489 mg/L	
2 Mo 202.031	200.7	193.2	0.297265 mg/L	0.297265 mg/L	
2 Na 589.594	166934.7	160712.3	12.3174 mg/L	12.3174 mg/L	
2 Ni 231.603	463.2	446.0	0.250922 mg/L	0.250922 mg/L	
2 Pb 220.353	119.6	115.1	0.247403 mg/L	0.247403 mg/L	
2 Sb 206.831	282.5	271.9	1.45157 mg/L	1.45157 mg/L	
2 Se 196.026	234.4	225.7	1.23584 mg/L	1.23584 mg/L	
2 Si 251.611	5397.1	5196.0	0.992359 mg/L	0.992359 mg/L	
2 Sn 189.933	142.7	137.4	1.46523 mg/L	1.46523 mg/L	
2 Sr 407.771	317261.2	305435.4	0.248270 mg/L	0.248270 mg/L	
2 Ti 334.941	24830.5	23904.9	0.298458 mg/L	0.298458 mg/L	
2 Tl 190.800	212.8	204.8	1.25376 mg/L	1.25376 mg/L	
2 V 292.402	3223.1	3102.9	0.250426 mg/L	0.250426 mg/L	
2 Zn 206.200	616.6	593.6	0.259383 mg/L	0.259383 mg/L	

Mean Data ----------

ID: 0913883-BS2 Seq. No.: 16 Sample No.: 2 A/S Pos: 18

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 11/23/09 2:05:20 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Units	RSD
Sc 357.253	359458.4	104.4	0.72	mg/L				0.69%
Y 360.064	230815.3	105.0	0.74	mg/L				0.70%
Ag 328.068	5805.7	0.246922	0.0024787	mg/L	0.246922	0.0024787	mg/L	1.00%
Al 396.140	8799.7	1.22912	0.003777	mg/L	1.22912	0.003777	mg/L	0.31%
As 188.979	213.9	1.28560	0.004850	mg/L	1.28560	0.004850	mg/L	0.38%
B 249.773	2309.3	0.230485	0.0010055	mg/L	0.230485	0.0010055	mg/L	0.44%
Ba 455.403	133441.3	0.247147	0.0017855	mg/L	0.247147	0.0017855	mg/L	0.72%
Be 234.861	1811.1	0.0248566	0.00006632	mg/L	0.0248566	0.00006632	mg/L	0.27%
Ca 315.887	114319.3	12.8664	0.14730	mg/L	12.8664	0.14730	mg/L	1.14%
Cd 214.438	1608.8	0.249441	0.0030553	mg/L	0.249441	0.0030553	mg/L	1.22%
Ce 413.765	-51.1	-0.0069683	0.01670121	mg/L	-0.0069683	0.01670121	mg/L	239.67%
Co 228.616	741.0	0.248355	0.0031243	mg/L	0.248355	0.0031243	mg/L	1.26%
Cr 205.560	290.3	0.248731	0.0067908	mg/L	0.248731	0.0067908	mg/L	2.73%
Cu 327.394	2937.5	0.248727	0.0022392	mg/L	0.248727	0.0022392	mg/L	0.90%
Fe 238.204	2242.7	0.259036	0.0018241	mg/L	0.259036	0.0018241	mg/L	0.70%
K 766.514	40225.4	12.4599	0.04592	mg/L	12.4599	0.04592	mg/L	0.37%
Li 670.781	32871.7	0.247875	0.0027213	mg/L	0.247875	0.0027213	mg/L	1.10%
Mg 279.074	14293.8	12.5877	0.04578	mg/L	12.5877	0.04578	mg/L	0.36%
Mn 257.610	16224.3	0.251797	0.0004352	mg/L	0.251797	0.0004352	mg/L	0.17%
Mo 202.031	192.9	0.296874	0.0005525	mg/L	0.296874	0.0005525	mg/L	0.19%
Na 589.594	161720.5	12.3964	0.11169	mg/L	12.3964	0.11169	mg/L	0.90%
Ni 231.603	449.0	0.252697	0.0025100	mg/L	0.252697	0.0025100	mg/L	0.99%
Pb 220.353	115.3	0.247988	0.0008270	mg/L	0.247988	0.0008270	mg/L	0.33%
Sb 206.831	270.8	1.44494	0.009381	mg/L	1.44494	0.009381	mg/L	0.65%
Se 196.026	223.7	1.21943	0.023198	mg/L	1.21943	0.023198	mg/L	1.90%
Si 251.611	5241.5	1.00373	0.016083	mg/L	1.00373	0.016083	mg/L	1.60%
Sn 189.933	138.8	1.47996	0.020842	mg/L	1.47996	0.020842	mg/L	1.41%
Sr 407.771	307628.9	0.250058	0.0025277	mg/L	0.250058	0.0025277	mg/L	1.01%

Ti 334.941	23964.5	0.299281	0.0011637 mg/L	0.299281	0.0011637 mg/L	0.39%
Tl 190.800	209.2	1.28404	0.042820 mg/L	1.28404	0.042820 mg/L	3.33%
V 292.402	3111.0	0.251016	0.0008335 mg/L	0.251016	0.0008335 mg/L	0.33%
Zn 206.200	598.9	0.261792	0.0034067 mg/L	0.261792	0.0034067 mg/L	1.30%

Replicate Data ----------

ID: 0911250-01 Date: 11/23/09 2:08:34 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	349460.1	349460.1	101.5	mg/L		
1	Y 360.064	223765.1	223765.1	101.8	mg/L		
1	Ag 328.068	144.8	142.6	-0.0041588	mg/L	-2.07939	mg/L
1	Al 396.140	3010.5	2966.6	0.358336	mg/L	179.168	mg/L
1	As 188.979	13.8	13.6	0.0322975	mg/L	16.1488	mg/L
1	B 249.773	300.6	296.2	-0.0025975	mg/L	-1.29873	mg/L
1	Ba 455.403	11123.5	10961.3	0.0008458	mg/L	0.422881	mg/L
1	Be 234.861	15.9	15.6	-0.0001518	mg/L	-0.0759183	mg/L
1	Ca 315.887	-401.8	-395.9	0.0401755	mg/L	20.0877	mg/L
1	Cd 214.438	16.1	15.9	-0.0027799	mg/L	-1.38996	mg/L
1	Ce 413.765	-68.1	-67.1	-0.0098511	mg/L	-4.92555	mg/L
1	Co 228.616	-24.3	-24.0	-0.0008143	mg/L	-0.407139	mg/L
1	Cr 205.560	38.3	37.7	0.0013735	mg/L	0.686765	mg/L
1	Cu 327.394	-46.5	-45.8	0.0043088	mg/L	2.15439	mg/L
1	Fe 238.204	4309.7	4246.9	0.511319	mg/L	255.659	mg/L
1	K 766.514	2457.6	2421.8	-0.0160730	mg/L	-8.03651	mg/L
1	Li 670.781	940.1	926.4	0.0011365	mg/L	0.568241	mg/L
1	Mg 279.074	-12.9	-12.7	0.0057831	mg/L	2.89154	mg/L
1	Mn 257.610	664.0	654.3	0.0098571	mg/L	4.92853	mg/L
1	Mo 202.031	18.9	18.6	0.0130100	mg/L	6.50502	mg/L
1	Na 589.594	2975.5	2932.1	-0.0426868	mg/L	-21.3434	mg/L
1	Ni 231.603	5.8	5.8	-0.0079760	mg/L	-3.98802	mg/L
1	Pb 220.353	36.4	35.9	-0.0222161	mg/L	-11.1081	mg/L
1	Sb 206.831	12.4	12.2	0.0002891	mg/L	0.144541	mg/L
1	Se 196.026	72.4	71.4	-0.0317438	mg/L	-15.8719	mg/L
1	Si 251.611	1340.9	1321.3	0.0240412	mg/L	12.0206	mg/L
1	Sn 189.933	-7.0	-6.9	-0.0505616	mg/L	-25.2808	mg/L
1	Sr 407.771	1295.1	1276.2	0.0004265	mg/L	0.213227	mg/L
1	Ti 334.941	2723.1	2683.4	0.0054312	mg/L	2.71558	mg/L
1	Tl 190.800	22.9	22.6	0.0020355	mg/L	1.01775	mg/L
1	V 292.402	-486.8	-479.7	-0.0103250	mg/L	-5.16250	mg/L
1	Zn 206.200	13.6	13.4	-0.0013825	mg/L	-0.691248	mg/L
2	Sc 357.253	346163.6	346163.6	100.5	mg/L		
2	Y 360.064	221393.5	221393.5	100.7	mg/L		
2	Ag 328.068	255.6	254.2	0.0007883	mg/L	0.394160	mg/L
2	Al 396.140	3118.1	3101.9	0.378540	mg/L	189.270	mg/L
2	As 188.979	4.0	3.9	-0.0280029	mg/L	-14.0015	mg/L
2	B 249.773	316.2	314.5	-0.0004819	mg/L	-0.240942	mg/L
2	Ba 455.403	11188.9	11130.7	0.0011864	mg/L	0.593204	mg/L
2	Be 234.861	22.7	22.6	-0.0000543	mg/L	-0.0271586	mg/L
2	Ca 315.887	-439.2	-436.9	0.0355909	mg/L	17.7955	mg/L
2	Cd 214.438	11.8	11.7	-0.0034353	mg/L	-1.71767	mg/L
2	Ce 413.765	61.7	61.4	0.0133773	mg/L	6.68866	mg/L
2	Co 228.616	-7.9	-7.8	0.0044374	mg/L	2.21868	mg/L
2	Cr 205.560	33.2	33.1	-0.0031873	mg/L	-1.59366	mg/L
2	Cu 327.394	-57.7	-57.4	0.0033632	mg/L	1.68160	mg/L
2	Fe 238.204	4324.3	4301.8	0.518230	mg/L	259.115	mg/L
2	K 766.514	2414.7	2402.1	-0.0225490	mg/L	-11.2745	mg/L
2	Li 670.781	756.3	752.3	-0.0002083	mg/L	-0.104135	mg/L
2	Mg 279.074	-66.9	-66.6	-0.0415835	mg/L	-20.7918	mg/L
2	Mn 257.610	703.3	699.6	0.0105618	mg/L	5.28089	mg/L
2	Mo 202.031	12.4	12.3	0.0028232	mg/L	1.41161	mg/L
2	Na 589.594	2990.4	2974.8	-0.0393403	mg/L	-19.6702	mg/L
2	Ni 231.603	14.2	14.2	-0.0030382	mg/L	-1.51911	mg/L
2	Pb 220.353	51.3	51.0	0.0292446	mg/L	14.6223	mg/L
2	Sb 206.831	10.9	10.8	-0.0071700	mg/L	-3.58500	mg/L
2	Se 196.026	68.6	68.2	-0.0576576	mg/L	-28.8288	mg/L
2	Si 251.611	1409.3	1402.0	0.0442132	mg/L	22.1066	mg/L
2	Sn 189.933	-3.5	-3.5	-0.0146424	mg/L	-7.32122	mg/L
2	Sr 407.771	1217.6	1211.3	0.0003735	mg/L	0.186774	mg/L

2 Ti 334.941	2680.5	2666.5	0.0051980 mg/L	2.59899 mg/L	
2 Tl 190.800	20.5	20.4	-0.0132764 mg/L	-6.63819 mg/L	
2 V 292.402	-249.3	-248.0	0.0065359 mg/L	3.26797 mg/L	
2 Zn 206.200	11.3	11.2	-0.0023432 mg/L	-1.17162 mg/L	

Mean Data

ID: 0911250-01 Seq. No.: 17 Sample No.: 3 A/S Pos: 19
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 500.0
Data: Original Date: 11/23/09 2:08:34 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	347811.9	101.0	0.68	mg/L				0.67%
Y 360.064	222579.3	101.2	0.76	mg/L				0.75%
Ag 328.068	198.4	-0.0016852	0.00349812	mg/L	-0.842613	1.7490607	mg/L	207.58%
Al 396.140	3034.2	0.368438	0.0142862	mg/L	184.219	7.1431	mg/L	3.88%
As 188.979	8.8	0.0021473	0.04263883	mg/L	1.07365	21.319417	mg/L	>999.9%
B 249.773	305.4	-0.0015397	0.00149594	mg/L	-0.769836	0.7479679	mg/L	97.16%
Ba 455.403	11046.0	0.0010161	0.00024087	mg/L	0.508043	0.1204362	mg/L	23.71%
Be 234.861	19.1	-0.0001031	0.00006896	mg/L	-0.0515384	0.03447830	mg/L	66.90%
Ca 315.887	-416.4	0.0378832	0.00324174	mg/L	18.9416	1.62087	mg/L	8.56%
Cd 214.438	13.8	-0.0031076	0.00046345	mg/L	-1.55381	0.231726	mg/L	14.91%
Ce 413.765	-2.9	0.0017631	0.01642497	mg/L	0.881556	8.2124852	mg/L	931.59%
Co 228.616	-15.9	0.0018115	0.00371346	mg/L	0.905768	1.8567315	mg/L	204.99%
Cr 205.560	35.4	-0.0009069	0.00322500	mg/L	-0.453445	1.6125005	mg/L	355.61%
Cu 327.394	-51.6	0.0038360	0.00066862	mg/L	1.91800	0.334308	mg/L	17.43%
Fe 238.204	4274.3	0.514775	0.0048873	mg/L	257.387	2.4437	mg/L	0.95%
K 766.514	2412.0	-0.0193110	0.00457923	mg/L	-9.65551	2.289616	mg/L	23.71%
Li 670.781	839.4	0.0004641	0.00095088	mg/L	0.232053	0.4754414	mg/L	204.88%
Mg 279.074	-39.7	-0.0179002	0.03349324	mg/L	-8.95010	16.746618	mg/L	187.11%
Mn 257.610	676.9	0.0102094	0.00049831	mg/L	5.10471	0.249157	mg/L	4.88%
Mo 202.031	15.4	0.0079166	0.00720317	mg/L	3.95832	3.601584	mg/L	90.99%
Na 589.594	2953.5	-0.0410136	0.00236632	mg/L	-20.5068	1.18316	mg/L	5.77%
Ni 231.603	10.0	-0.0055071	0.00349157	mg/L	-2.75357	1.745783	mg/L	63.40%
Pb 220.353	43.5	0.0035142	0.03638820	mg/L	1.75712	18.194102	mg/L	>999.9%
Sb 206.831	11.5	-0.0034405	0.00527436	mg/L	-1.72023	2.637182	mg/L	153.30%
Se 196.026	69.8	-0.0447007	0.01832381	mg/L	-22.3503	9.16190	mg/L	40.99%
Si 251.611	1361.7	0.0341272	0.01426377	mg/L	17.0636	7.13189	mg/L	41.80%
Sn 189.933	-5.2	-0.0326020	0.02539869	mg/L	-16.3010	12.69935	mg/L	77.91%
Sr 407.771	1243.7	0.0004000	0.00003741	mg/L	0.200000	0.0187053	mg/L	9.35%
Ti 334.941	2675.0	0.0053146	0.00016489	mg/L	2.65729	0.082447	mg/L	3.10%
Tl 190.800	21.5	-0.0056204	0.01082714	mg/L	-2.81022	5.413568	mg/L	192.64%
V 292.402	-363.9	-0.0018945	0.01192249	mg/L	-0.947265	5.9612457	mg/L	629.31%
Zn 206.200	12.3	-0.0018629	0.00067935	mg/L	-0.931433	0.3396737	mg/L	36.47%

Replicate Data

ID: 9K23049-SRD1 Date: 11/23/09 2:11:41 PM

Repl# Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1 Sc 357.253	351121.2	351121.2	102.0	mg/L		
1 Y 360.064	225208.2	225208.2	102.4	mg/L		
1 Ag 328.068	200.5	196.6	-0.0017664	mg/L	-4.41591	mg/L
1 Al 396.140	1283.8	1259.1	0.103445	mg/L	258.612	mg/L
1 As 188.979	13.4	13.2	0.0297263	mg/L	74.3159	mg/L
1 B 249.773	275.2	269.9	-0.0056461	mg/L	-14.1154	mg/L
1 Ba 455.403	10350.6	10151.4	-0.0007828	mg/L	-1.95708	mg/L
1 Be 234.861	24.3	23.9	-0.0000371	mg/L	-0.0927441	mg/L
1 Ca 315.887	-594.1	-582.6	0.0192993	mg/L	48.2483	mg/L
1 Cd 214.438	14.8	14.5	-0.0030022	mg/L	-7.50556	mg/L
1 Ce 413.765	-86.8	-85.1	-0.0131177	mg/L	-32.7942	mg/L
1 Co 228.616	-15.0	-14.7	0.0022083	mg/L	5.52064	mg/L
1 Cr 205.560	21.6	21.2	-0.0148317	mg/L	-37.0793	mg/L
1 Cu 327.394	-184.7	-181.2	-0.0067808	mg/L	-16.9520	mg/L
1 Fe 238.204	991.1	972.1	0.0990958	mg/L	247.740	mg/L
1 K 766.514	2313.9	2269.4	-0.0664791	mg/L	-166.198	mg/L
1 Li 670.781	721.8	707.9	-0.0005516	mg/L	-1.37901	mg/L
1 Mg 279.074	-15.9	-15.6	0.0032299	mg/L	8.07478	mg/L
1 Mn 257.610	21.7	21.3	0.0000214	mg/L	0.0535992	mg/L
1 Mo 202.031	6.4	6.3	-0.0070356	mg/L	-17.5890	mg/L
1 Na 589.594	2972.7	2915.5	-0.0439897	mg/L	-109.974	mg/L

1	Ni 231.603	30.3	29.7	0.0060999	mg/L	15.2497 mg/L
1	Pb 220.353	39.0	38.2	-0.0143270	mg/L	-35.8174 mg/L
1	Sb 206.831	6.4	6.3	-0.0326588	mg/L	-81.6471 mg/L
1	Se 196.026	73.2	71.8	-0.0282109	mg/L	-70.5274 mg/L
1	Si 251.611	1167.3	1144.8	-0.0200668	mg/L	-50.1670 mg/L
1	Sn 189.933	-4.6	-4.5	-0.0252744	mg/L	-63.1859 mg/L
1	Sr 407.771	1266.2	1241.8	0.0003985	mg/L	0.996149 mg/L
1	Ti 334.941	2282.9	2238.9	-0.0007060	mg/L	-1.76510 mg/L
1	Tl 190.800	22.0	21.6	-0.0052049	mg/L	-13.0123 mg/L
1	V 292.402	-401.4	-393.7	-0.0040671	mg/L	-10.1677 mg/L
1	Zn 206.200	13.1	12.9	-0.0016062	mg/L	-4.01550 mg/L
2	Sc 357.253	349842.6	349842.6	101.6	mg/L	
2	Y 360.064	224333.0	224333.0	102.0	mg/L	
2	Ag 328.068	240.2	236.4	-0.0000023	mg/L	-0.0056681 mg/L
2	Al 396.140	1124.1	1106.5	0.0806623	mg/L	201.656 mg/L
2	As 188.979	6.7	6.6	-0.0115239	mg/L	-28.8098 mg/L
2	B 249.773	268.0	263.8	-0.0063489	mg/L	-15.8723 mg/L
2	Ba 455.403	10402.3	10239.3	-0.0006060	mg/L	-1.51502 mg/L
2	Be 234.861	-4.0	-4.0	-0.0004249	mg/L	-1.06223 mg/L
2	Ca 315.887	-461.0	-453.8	0.0337014	mg/L	84.2536 mg/L
2	Cd 214.438	8.3	8.2	-0.0040036	mg/L	-10.0089 mg/L
2	Ce 413.765	-48.6	-47.9	-0.0063773	mg/L	-15.9432 mg/L
2	Co 228.616	-25.4	-25.0	-0.0011487	mg/L	-2.87182 mg/L
2	Cr 205.560	28.8	28.3	-0.0078058	mg/L	-19.5144 mg/L
2	Cu 327.394	-88.4	-87.0	0.0009310	mg/L	2.32747 mg/L
2	Fe 238.204	991.4	975.9	0.0995794	mg/L	248.949 mg/L
2	K 766.514	2448.3	2409.9	-0.0201022	mg/L	-50.2555 mg/L
2	Li 670.781	781.3	769.1	-0.0000791	mg/L	-0.197654 mg/L
2	Mg 279.074	-73.0	-71.8	-0.0461985	mg/L	-115.496 mg/L
2	Mn 257.610	8.3	8.2	-0.0001825	mg/L	-0.456269 mg/L
2	Mo 202.031	13.8	13.6	0.0049512	mg/L	12.3779 mg/L
2	Na 589.594	3030.9	2983.4	-0.0386653	mg/L	-96.6633 mg/L
2	Ni 231.603	19.0	18.7	-0.0003464	mg/L	-0.866018 mg/L
2	Pb 220.353	29.0	28.6	-0.0471690	mg/L	-117.922 mg/L
2	Sb 206.831	1.2	1.2	-0.0612905	mg/L	-153.226 mg/L
2	Se 196.026	83.9	82.6	0.0606194	mg/L	151.549 mg/L
2	Si 251.611	1230.2	1211.0	-0.0035304	mg/L	-8.82611 mg/L
2	Sn 189.933	-3.5	-3.4	-0.0133769	mg/L	-33.4422 mg/L
2	Sr 407.771	1161.5	1143.3	0.0003182	mg/L	0.795518 mg/L
2	Ti 334.941	2135.3	2101.8	-0.0025994	mg/L	-6.49842 mg/L
2	Tl 190.800	18.2	17.9	-0.0303871	mg/L	-75.9676 mg/L
2	V 292.402	-329.4	-324.3	0.0009871	mg/L	2.46772 mg/L
2	Zn 206.200	20.6	20.3	0.0017164	mg/L	4.29097 mg/L

Mean Data

ID: 9K23049-SRD1 Seq. No.: 18 Sample No.: 4 A/S Pos: 20
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 2500.0
Data: Original Date: 11/23/09 2:11:41 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	350481.9	101.8	0.26	mg/L				0.26%
Y 360.064	224770.6	102.2	0.28	mg/L				0.28%
Ag 328.068	216.5	-0.0008843	0.00124740	mg/L	-2.21079	3.118511	mg/L	141.06%
Al 396.140	1182.8	0.0920536	0.01610970	mg/L	230.134	40.2743	mg/L	17.50%
As 188.979	9.9	0.0091012	0.02916834	mg/L	22.7530	72.92085	mg/L	320.49%
B 249.773	266.9	-0.0059975	0.00049694	mg/L	-14.9938	1.24236	mg/L	8.29%
Ba 455.403	10195.4	-0.0006944	0.00012503	mg/L	-1.73605	0.312584	mg/L	18.01%
Be 234.861	9.9	-0.0002310	0.00027421	mg/L	-0.577488	0.6855314	mg/L	118.71%
Ca 315.887	-518.2	0.0265004	0.01018385	mg/L	66.2510	25.45961	mg/L	38.43%
Cd 214.438	11.3	-0.0035029	0.00070806	mg/L	-8.75724	1.770140	mg/L	20.21%
Ce 413.765	-66.5	-0.0097475	0.00476619	mg/L	-24.3687	11.91548	mg/L	48.90%
Co 228.616	-19.8	0.0005298	0.00237374	mg/L	1.32441	5.934361	mg/L	448.08%
Cr 205.560	24.8	-0.0113187	0.00496812	mg/L	-28.2969	12.42029	mg/L	43.89%
Cu 327.394	-134.1	-0.0029249	0.00545305	mg/L	-7.31225	13.632629	mg/L	186.44%
Fe 238.204	974.0	0.0993376	0.00034196	mg/L	248.344	0.8549	mg/L	0.34%
K 766.514	2339.6	-0.0432906	0.03279339	mg/L	-108.227	81.9835	mg/L	75.75%
Li 670.781	738.5	-0.0003153	0.00033414	mg/L	-0.788333	0.8353470	mg/L	105.96%
Mg 279.074	-43.7	-0.0214843	0.03495117	mg/L	-53.7107	87.37794	mg/L	162.68%
Mn 257.610	14.7	-0.0000805	0.00014421	mg/L	-0.201335	0.3605316	mg/L	179.07%
Mo 202.031	9.9	-0.0010422	0.00847593	mg/L	-2.60556	21.189813	mg/L	813.25%

Na 589.594	2949.5	-0.0413275	0.00376488	mg/L	-103.319	9.4122 mg/L	9.11%
Ni 231.603	24.2	0.0028767	0.00455821	mg/L	7.19183	11.395521 mg/L	158.45%
Pb 220.353	33.4	-0.0307480	0.02322283	mg/L	-76.8699	58.05706 mg/L	75.53%
Sb 206.831	3.7	-0.0469747	0.02024568	mg/L	-117.437	50.6142 mg/L	43.10%
Se 196.026	77.2	0.0162042	0.06281255	mg/L	40.5106	157.03138 mg/L	387.63%
Si 251.611	1177.9	-0.0117986	0.01169297	mg/L	-29.4966	29.23243 mg/L	99.10%
Sn 189.933	-4.0	-0.0193256	0.00841281	mg/L	-48.3141	21.03201 mg/L	43.53%
Sr 407.771	1192.6	0.0003583	0.00005675	mg/L	0.895834	0.1418672 mg/L	15.84%
Ti 334.941	2170.4	-0.0016527	0.00133878	mg/L	-4.13176	3.346962 mg/L	81.01%
Tl 190.800	19.7	-0.0177960	0.01780647	mg/L	-44.4899	44.51617 mg/L	100.06%
V 292.402	-359.0	-0.0015400	0.00357383	mg/L	-3.84998	8.934587 mg/L	232.07%
Zn 206.200	16.6	0.0000551	0.00234942	mg/L	0.137735	5.8735568 mg/L	>999.9%

Replicate Data ----------

ID: 0913883-PS2 Date: 11/23/09 2:14:58 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	346699.8	346699.8	100.7	mg/L		
1	Y 360.064	222113.9	222113.9	101.0	mg/L		
1	Ag 328.068	5593.3	5555.6	0.235833	mg/L	117.917	mg/L
1	Al 396.140	11137.4	11062.3	1.56688	mg/L	783.440	mg/L
1	As 188.979	208.7	207.3	1.24407	mg/L	622.037	mg/L
1	B 249.773	2315.9	2300.3	0.229445	mg/L	114.722	mg/L
1	Ba 455.403	131338.2	130452.9	0.241137	mg/L	120.569	mg/L
1	Be 234.861	1780.6	1768.6	0.0242638	mg/L	12.1319	mg/L
1	Ca 315.887	108500.7	107769.3	12.1341	mg/L	6067.04	mg/L
1	Cd 214.438	1564.1	1553.5	0.240689	mg/L	120.344	mg/L
1	Ce 413.765	-236.3	-234.7	-0.0401731	mg/L	-20.0865	mg/L
1	Co 228.616	724.7	719.8	0.241443	mg/L	120.722	mg/L
1	Cr 205.560	285.0	283.1	0.241640	mg/L	120.820	mg/L
1	Cu 327.394	2836.9	2817.8	0.238920	mg/L	119.460	mg/L
1	Fe 238.204	6039.2	5998.5	0.731811	mg/L	365.905	mg/L
1	K 766.514	39851.3	39582.6	12.2479	mg/L	6123.97	mg/L
1	Li 670.781	32222.1	32004.9	0.241180	mg/L	120.590	mg/L
1	Mg 279.074	13882.0	13788.4	12.1432	mg/L	6071.59	mg/L
1	Mn 257.610	16436.7	16325.9	0.253376	mg/L	126.688	mg/L
1	Mo 202.031	168.5	167.3	0.255158	mg/L	127.579	mg/L
1	Na 589.594	157728.3	156665.0	12.0004	mg/L	6000.22	mg/L
1	Ni 231.603	433.4	430.5	0.241792	mg/L	120.896	mg/L
1	Pb 220.353	104.4	103.7	0.208453	mg/L	104.227	mg/L
1	Sb 206.831	238.6	237.0	1.25617	mg/L	628.084	mg/L
1	Se 196.026	224.9	223.4	1.21713	mg/L	608.565	mg/L
1	Si 251.611	6502.6	6458.8	1.30795	mg/L	653.977	mg/L
1	Sn 189.933	106.7	106.0	1.13515	mg/L	567.577	mg/L
1	Sr 407.771	299900.9	297879.3	0.242113	mg/L	121.057	mg/L
1	Ti 334.941	20626.7	20487.7	0.251272	mg/L	125.636	mg/L
1	Tl 190.800	197.2	195.9	1.19213	mg/L	596.063	mg/L
1	V 292.402	2926.8	2907.0	0.236168	mg/L	118.084	mg/L
1	Zn 206.200	547.7	544.0	0.237080	mg/L	118.540	mg/L
2	Sc 357.253	343251.6	343251.6	99.7	mg/L		
2	Y 360.064	219706.5	219706.5	99.9	mg/L		
2	Ag 328.068	5778.0	5796.7	0.246523	mg/L	123.261	mg/L
2	Al 396.140	11396.0	11432.9	1.62220	mg/L	811.102	mg/L
2	As 188.979	206.0	206.6	1.24015	mg/L	620.077	mg/L
2	B 249.773	2379.7	2387.4	0.239533	mg/L	119.767	mg/L
2	Ba 455.403	132216.8	132644.8	0.245545	mg/L	122.773	mg/L
2	Be 234.861	1797.8	1803.6	0.0247517	mg/L	12.3758	mg/L
2	Ca 315.887	108898.5	109251.1	12.2998	mg/L	6149.90	mg/L
2	Cd 214.438	1584.5	1589.6	0.246400	mg/L	123.200	mg/L
2	Ce 413.765	-149.1	-149.6	-0.0247814	mg/L	-12.3907	mg/L
2	Co 228.616	725.2	727.5	0.243963	mg/L	121.981	mg/L
2	Cr 205.560	293.2	294.1	0.252487	mg/L	126.243	mg/L
2	Cu 327.394	2945.9	2955.4	0.250192	mg/L	125.096	mg/L
2	Fe 238.204	6173.7	6193.7	0.756383	mg/L	378.192	mg/L
2	K 766.514	39899.3	40028.5	12.3951	mg/L	6197.54	mg/L
2	Li 670.781	32495.1	32600.3	0.245778	mg/L	122.889	mg/L
2	Mg 279.074	13989.6	14034.9	12.3600	mg/L	6179.98	mg/L
2	Mn 257.610	16814.0	16868.4	0.261806	mg/L	130.903	mg/L
2	Mo 202.031	162.9	163.4	0.248844	mg/L	124.422	mg/L

2 Na 589.594	158636.6	159150.2	12.1951 mg/L	6097.57 mg/L	
2 Ni 231.603	445.9	447.3	0.251728 mg/L	125.864 mg/L	
2 Pb 220.353	113.8	114.2	0.244214 mg/L	122.107 mg/L	
2 Sb 206.831	240.6	241.3	1.28052 mg/L	640.262 mg/L	
2 Se 196.026	226.5	227.2	1.24858 mg/L	624.290 mg/L	
2 Si 251.611	6595.5	6616.8	1.34745 mg/L	673.723 mg/L	
2 Sn 189.933	110.7	111.1	1.18881 mg/L	594.404 mg/L	
2 Sr 407.771	302051.2	303029.0	0.246309 mg/L	123.155 mg/L	
2 Ti 334.941	21027.2	21095.2	0.259661 mg/L	129.831 mg/L	
2 Tl 190.800	195.7	196.3	1.19533 mg/L	597.663 mg/L	
2 V 292.402	3046.2	3056.1	0.247016 mg/L	123.508 mg/L	
2 Zn 206.200	569.2	571.0	0.249235 mg/L	124.618 mg/L	

Mean Data

ID: 0913883-PS2 Seq. No.: 19 Sample No.: 5 A/S Pos: 21
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 500.0
Data: Original Date: 11/23/09 2:14:58 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	344975.7	100.2	0.71	mg/L				0.71%
Y 360.064	220910.2	100.5	0.77	mg/L				0.77%
Ag 328.068	5676.1	0.241178	0.0075586	mg/L	120.589	3.7793	mg/L	3.13%
Al 396.140	11247.6	1.59454	0.039121	mg/L	797.271	19.5604	mg/L	2.45%
As 188.979	207.0	1.24211	0.002772	mg/L	621.057	1.3858	mg/L	0.22%
B 249.773	2343.8	0.234489	0.0071336	mg/L	117.245	3.5668	mg/L	3.04%
Ba 455.403	131548.9	0.243341	0.0031168	mg/L	121.671	1.5584	mg/L	1.28%
Be 234.861	1786.1	0.0245077	0.00034502	mg/L	12.2539	0.17251	mg/L	1.41%
Ca 315.887	108510.2	12.2169	0.11717	mg/L	6108.47	58.586	mg/L	0.96%
Cd 214.438	1571.5	0.243544	0.0040385	mg/L	121.772	2.0192	mg/L	1.66%
Ce 413.765	-192.2	-0.0324773	0.01088356	mg/L	-16.2386	5.44178	mg/L	33.51%
Co 228.616	723.7	0.242703	0.0017815	mg/L	121.352	0.8907	mg/L	0.73%
Cr 205.560	288.6	0.247063	0.0076698	mg/L	123.532	3.8349	mg/L	3.10%
Cu 327.394	2886.6	0.244556	0.0079709	mg/L	122.278	3.9855	mg/L	3.26%
Fe 238.204	6096.1	0.744097	0.0173756	mg/L	372.048	8.6878	mg/L	2.34%
K 766.514	39805.6	12.3215	0.10405	mg/L	6160.75	52.025	mg/L	0.84%
Li 670.781	32302.6	0.243479	0.0032515	mg/L	121.740	1.6257	mg/L	1.34%
Mg 279.074	13911.6	12.2516	0.15328	mg/L	6125.78	76.640	mg/L	1.25%
Mn 257.610	16597.1	0.257591	0.0059610	mg/L	128.795	2.9805	mg/L	2.31%
Mo 202.031	165.4	0.252001	0.0044644	mg/L	126.001	2.2322	mg/L	1.77%
Na 589.594	157907.6	12.0978	0.13768	mg/L	6048.89	68.838	mg/L	1.14%
Ni 231.603	438.9	0.246760	0.0070258	mg/L	123.380	3.5129	mg/L	2.85%
Pb 220.353	108.9	0.226334	0.0252870	mg/L	113.167	12.6435	mg/L	11.17%
Sb 206.831	239.1	1.26835	0.017222	mg/L	634.173	8.6109	mg/L	1.36%
Se 196.026	225.3	1.23285	0.022239	mg/L	616.427	11.1197	mg/L	1.80%
Si 251.611	6537.8	1.32770	0.027924	mg/L	663.850	13.9622	mg/L	2.10%
Sn 189.933	108.5	1.16198	0.037940	mg/L	580.991	18.9699	mg/L	3.27%
Sr 407.771	300454.2	0.244211	0.0029672	mg/L	122.106	1.4836	mg/L	1.21%
Ti 334.941	20791.4	0.255467	0.0059321	mg/L	127.733	2.9661	mg/L	2.32%
Tl 190.800	196.1	1.19373	0.002263	mg/L	596.863	1.1314	mg/L	0.19%
V 292.402	2981.6	0.241592	0.0076706	mg/L	120.796	3.8353	mg/L	3.18%
Zn 206.200	557.5	0.243157	0.0085950	mg/L	121.579	4.2975	mg/L	3.53%

Replicate Data

ID: 0911250-02 Date: 11/23/09 2:18:25 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	363291.9	363291.9	105.5	mg/L		
1	Y 360.064	248017.2	248017.2	112.8	mg/L		
1	Ag 328.068	17.7	16.8	0.0009668	mg/L	0.0009668	mg/L
1	Al 396.140	1229926.6	1165841.8	173.954	mg/L	173.954	mg/L
1	As 188.979	36.3	34.4	0.162349	mg/L	0.162349	mg/L
1	B 249.773	13216.3	12527.6	0.256119	mg/L	0.256119	mg/L
1	Ba 455.403	419980.0	398097.1	0.779356	mg/L	0.779356	mg/L
1	Be 234.861	5001.9	4741.3	0.0113320	mg/L	0.0113320	mg/L
1	Ca 315.887	24128.5	22871.3	2.69920	mg/L	2.69920	mg/L
1	Cd 214.438	328.0	310.9	-0.0029123	mg/L	-0.0029123	mg/L
1	Ce 413.765	4540.1	4303.6	0.780655	mg/L	0.780655	mg/L
1	Co 228.616	616.0	583.9	0.0277584	mg/L	0.0277584	mg/L
1	Cr 205.560	555.8	526.8	0.421442	mg/L	0.421442	mg/L

1 Cu 327.394	5051.6	4788.4	0.400364 mg/L	0.400364 mg/L	
1 Fe 238.204	3588904.7	3401906.4	428.199 mg/L	428.199 mg/L	
1 K 766.514	48767.3	46226.3	14.5430 mg/L	14.5430 mg/L	
1 Li 670.781	20872.5	19784.9	0.146795 mg/L	0.146795 mg/L	
1 Mg 279.074	12422.1	11774.9	10.0682 mg/L	10.0682 mg/L	
1 Mn 257.610	561350.5	532101.6	8.26793 mg/L	8.26793 mg/L	
1 Mo 202.031	-15.2	-14.4	-0.0406487 mg/L	-0.0406487 mg/L	
1 Na 589.594	5048.8	4785.7	0.137611 mg/L	0.137611 mg/L	
1 Ni 231.603	491.4	465.8	0.233068 mg/L	0.233068 mg/L	
1 Pb 220.353	30.6	29.0	0.0415674 mg/L	0.0415674 mg/L	
1 Sb 206.831	-47.3	-44.9	0.0740561 mg/L	0.0740561 mg/L	
1 Se 196.026	55.2	52.3	-0.188096 mg/L	-0.188096 mg/L	
1 Si 251.611	91129.3	86381.0	21.2813 mg/L	21.2813 mg/L	
1 Sn 189.933	-6.2	-5.9	-0.0396131 mg/L	-0.0396131 mg/L	
1 Sr 407.771	70788.1	67099.7	0.0540627 mg/L	0.0540627 mg/L	
1 Ti 334.941	86460.8	81955.8	1.10002 mg/L	1.10002 mg/L	
1 Tl 190.800	2.3	2.1	0.0004341 mg/L	0.0004341 mg/L	
1 V 292.402	5809.1	5506.5	0.362541 mg/L	0.362541 mg/L	
1 Zn 206.200	890.7	844.3	0.372073 mg/L	0.372073 mg/L	
2 Sc 357.253	369073.0	369073.0	107.2 mg/L		
2 Y 360.064	252383.3	252383.3	114.8 mg/L		
2 Ag 328.068	-32.4	-30.2	-0.0011971 mg/L	-0.0011971 mg/L	
2 Al 396.140	1241666.8	1158534.6	172.863 mg/L	172.863 mg/L	
2 As 188.979	20.3	18.9	0.0657236 mg/L	0.0657236 mg/L	
2 B 249.773	13332.6	12439.9	0.254850 mg/L	0.254850 mg/L	
2 Ba 455.403	423675.2	395309.3	0.773750 mg/L	0.773750 mg/L	
2 Be 234.861	5151.9	4807.0	0.0126625 mg/L	0.0126625 mg/L	
2 Ca 315.887	23894.0	22294.2	2.63431 mg/L	2.63431 mg/L	
2 Cd 214.438	344.2	321.1	-0.0009630 mg/L	-0.0009630 mg/L	
2 Ce 413.765	4255.5	3970.6	0.720425 mg/L	0.720425 mg/L	
2 Co 228.616	613.1	572.1	0.0252144 mg/L	0.0252144 mg/L	
2 Cr 205.560	531.5	495.9	0.391655 mg/L	0.391655 mg/L	
2 Cu 327.394	5168.7	4822.6	0.403171 mg/L	0.403171 mg/L	
2 Fe 238.204	3618016.5	3375782.6	424.911 mg/L	424.911 mg/L	
2 K 766.514	49051.0	45767.0	14.3906 mg/L	14.3906 mg/L	
2 Li 670.781	21123.1	19708.9	0.146208 mg/L	0.146208 mg/L	
2 Mg 279.074	12391.2	11561.6	9.88256 mg/L	9.88256 mg/L	
2 Mn 257.610	565485.1	527624.7	8.19837 mg/L	8.19837 mg/L	
2 Mo 202.031	-15.4	-14.4	-0.0406389 mg/L	-0.0406389 mg/L	
2 Na 589.594	4937.4	4606.8	0.123325 mg/L	0.123325 mg/L	
2 Ni 231.603	507.9	473.9	0.238053 mg/L	0.238053 mg/L	
2 Pb 220.353	50.9	47.5	0.103960 mg/L	0.103960 mg/L	
2 Sb 206.831	-26.1	-24.3	0.185968 mg/L	0.185968 mg/L	
2 Se 196.026	46.9	43.7	-0.258742 mg/L	-0.258742 mg/L	
2 Si 251.611	91496.5	85370.6	21.0288 mg/L	21.0288 mg/L	
2 Sn 189.933	-11.1	-10.3	-0.0861294 mg/L	-0.0861294 mg/L	
2 Sr 407.771	71438.7	66655.8	0.0537009 mg/L	0.0537009 mg/L	
2 Ti 334.941	86746.8	80938.9	1.08598 mg/L	1.08598 mg/L	
2 Tl 190.800	6.9	6.5	0.0289620 mg/L	0.0289620 mg/L	
2 V 292.402	5821.2	5431.5	0.357566 mg/L	0.357566 mg/L	
2 Zn 206.200	867.2	809.1	0.356253 mg/L	0.356253 mg/L	

Mean Data

ID: 0911250-02 Seq. No.: 20 Sample No.: 6 A/S Pos: 22
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 2:18:25 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	366182.4	106.3	1.19	mg/L				1.12%
Y 360.064	250200.2	113.8	1.40	mg/L				1.23%
Ag 328.068	-6.7	-0.0001152	0.00153007	mg/L	-0.0001152	0.00153007	mg/L	>999.9%
Al 396.140	1162188.2	173.409	0.7713	mg/L	173.409	0.7713	mg/L	0.44%
As 188.979	26.7	0.114037	0.0683248	mg/L	0.114037	0.0683248	mg/L	59.91%
B 249.773	12483.8	0.255484	0.0008970	mg/L	0.255484	0.0008970	mg/L	0.35%
Ba 455.403	396703.2	0.776553	0.0039642	mg/L	0.776553	0.0039642	mg/L	0.51%
Be 234.861	4774.1	0.0119972	0.00094075	mg/L	0.0119972	0.00094075	mg/L	7.84%
Ca 315.887	22582.8	2.66676	0.045884	mg/L	2.66676	0.045884	mg/L	1.72%
Cd 214.438	316.0	-0.0019377	0.00137833	mg/L	-0.0019377	0.00137833	mg/L	71.13%
Ce 413.765	4137.1	0.750540	0.0425892	mg/L	0.750540	0.0425892	mg/L	5.67%
Co 228.616	578.0	0.0264864	0.00179885	mg/L	0.0264864	0.00179885	mg/L	6.79%

Cr 205.560	511.4	0.406549	0.0210625	mg/L	0.406549	0.0210625 mg/L	5.18%
Cu 327.394	4805.5	0.401768	0.0019849	mg/L	0.401768	0.0019849 mg/L	0.49%
Fe 238.204	3388844.5	426.555	2.3252	mg/L	426.555	2.3252 mg/L	0.55%
K 766.514	45996.6	14.4668	0.10778	mg/L	14.4668	0.10778 mg/L	0.75%
Li 670.781	19746.9	0.146502	0.0004154	mg/L	0.146502	0.0004154 mg/L	0.28%
Mg 279.074	11668.2	9.97536	0.131245	mg/L	9.97536	0.131245 mg/L	1.32%
Mn 257.610	529863.1	8.23315	0.049191	mg/L	8.23315	0.049191 mg/L	0.60%
Mo 202.031	-14.4	-0.0406438	0.00000694	mg/L	-0.0406438	0.00000694 mg/L	0.02%
Na 589.594	4696.2	0.130468	0.0101020	mg/L	0.130468	0.0101020 mg/L	7.74%
Ni 231.603	469.9	0.235560	0.0035250	mg/L	0.235560	0.0035250 mg/L	1.50%
Pb 220.353	38.2	0.0727637	0.04411828	mg/L	0.0727637	0.04411828 mg/L	60.63%
Sb 206.831	-34.6	0.130012	0.0791338	mg/L	0.130012	0.0791338 mg/L	60.87%
Se 196.026	48.0	-0.223419	0.0499544	mg/L	-0.223419	0.0499544 mg/L	22.36%
Si 251.611	85875.8	21.1551	0.17855	mg/L	21.1551	0.17855 mg/L	0.84%
Sn 189.933	-8.1	-0.0628712	0.03289198	mg/L	-0.0628712	0.03289198 mg/L	52.32%
Sr 407.771	66877.7	0.0538818	0.00025578	mg/L	0.0538818	0.00025578 mg/L	0.47%
Ti 334.941	81447.4	1.09300	0.009928	mg/L	1.09300	0.009928 mg/L	0.91%
Tl 190.800	4.3	0.0146980	0.02017229	mg/L	0.0146980	0.02017229 mg/L	137.24%
V 292.402	5469.0	0.360054	0.0035180	mg/L	0.360054	0.0035180 mg/L	0.98%
Zn 206.200	826.7	0.364163	0.0111859	mg/L	0.364163	0.0111859 mg/L	3.07%

Replicate Data ----------

ID: 0911250-03 Date: 11/23/09 2:21:55 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	351224.3	351224.3	102.0	mg/L		
1	Y 360.064	232655.5	232655.5	105.8	mg/L		
1	Ag 328.068	74.6	73.2	-0.0014298	mg/L	-0.0014298	mg/L
1	Al 396.140	1122947.4	1101009.4	164.276	mg/L	164.276	mg/L
1	As 188.979	28.6	28.1	0.122850	mg/L	0.122850	mg/L
1	B 249.773	6868.0	6733.8	0.114775	mg/L	0.114775	mg/L
1	Ba 455.403	646000.1	633379.8	1.25250	mg/L	1.25250	mg/L
1	Be 234.861	2751.6	2697.8	0.0071679	mg/L	0.0071679	mg/L
1	Ca 315.887	315173.9	309016.6	34.6774	mg/L	34.6774	mg/L
1	Cd 214.438	230.8	226.3	-0.0009072	mg/L	-0.0009072	mg/L
1	Ce 413.765	1955.8	1917.6	0.349104	mg/L	0.349104	mg/L
1	Co 228.616	473.8	464.6	0.0663897	mg/L	0.0663897	mg/L
1	Cr 205.560	325.8	319.4	0.245271	mg/L	0.245271	mg/L
1	Cu 327.394	1701.0	1667.7	0.144697	mg/L	0.144697	mg/L
1	Fe 238.204	1882583.7	1845805.4	232.322	mg/L	232.322	mg/L
1	K 766.514	46230.7	45327.6	14.2067	mg/L	14.2067	mg/L
1	Li 670.781	22675.0	22232.0	0.165696	mg/L	0.165696	mg/L
1	Mg 279.074	39606.3	38832.5	34.0000	mg/L	34.0000	mg/L
1	Mn 257.610	421189.9	412961.5	6.41663	mg/L	6.41663	mg/L
1	Mo 202.031	-4.6	-4.5	-0.0245418	mg/L	-0.0245418	mg/L
1	Na 589.594	6953.1	6817.3	0.288132	mg/L	0.288132	mg/L
1	Ni 231.603	288.9	283.3	0.139227	mg/L	0.139227	mg/L
1	Pb 220.353	169.6	166.3	0.421478	mg/L	0.421478	mg/L
1	Sb 206.831	-0.3	-0.3	0.143413	mg/L	0.143413	mg/L
1	Se 196.026	77.5	76.0	0.0060923	mg/L	0.0060923	mg/L
1	Si 251.611	35851.4	35151.0	8.12295	mg/L	8.12295	mg/L
1	Sn 189.933	-13.6	-13.3	-0.117740	mg/L	-0.117740	mg/L
1	Sr 407.771	131488.9	128920.1	0.104437	mg/L	0.104437	mg/L
1	Ti 334.941	360638.1	353592.7	4.85078	mg/L	4.85078	mg/L
1	Tl 190.800	4.7	4.6	-0.0139783	mg/L	-0.0139783	mg/L
1	V 292.402	5281.7	5178.5	0.367407	mg/L	0.367407	mg/L
1	Zn 206.200	3320.2	3255.3	1.45566	mg/L	1.45566	mg/L
2	Sc 357.253	354241.5	354241.5	102.9	mg/L		
2	Y 360.064	233961.4	233961.4	106.4	mg/L		
2	Ag 328.068	125.1	121.6	0.0006206	mg/L	0.0006206	mg/L
2	Al 396.140	1103069.3	1072307.8	159.991	mg/L	159.991	mg/L
2	As 188.979	20.7	20.1	0.0731002	mg/L	0.0731002	mg/L
2	B 249.773	6972.8	6778.4	0.130220	mg/L	0.130220	mg/L
2	Ba 455.403	634278.0	616589.8	1.21873	mg/L	1.21873	mg/L
2	Be 234.861	2601.6	2529.0	0.0053216	mg/L	0.0053216	mg/L
2	Ca 315.887	312923.3	304196.7	34.1377	mg/L	34.1377	mg/L
2	Cd 214.438	225.3	219.0	-0.0014018	mg/L	-0.0014018	mg/L
2	Ce 413.765	1921.5	1867.9	0.340122	mg/L	0.340122	mg/L
2	Co 228.616	460.8	447.9	0.0624738	mg/L	0.0624738	mg/L

2	Cr 205.560	338.6	329.1	0.255304 mg/L	0.255304 mg/L
2	Cu 327.394	1644.2	1598.4	0.139015 mg/L	0.139015 mg/L
2	Fe 238.204	1867654.4	1815570.9	228.516 mg/L	228.516 mg/L
2	K 766.514	45829.1	44551.0	13.9493 mg/L	13.9493 mg/L
2	Li 670.781	22324.0	21701.4	0.161598 mg/L	0.161598 mg/L
2	Mg 279.074	39754.8	38646.1	33.8389 mg/L	33.8389 mg/L
2	Mn 257.610	416713.1	405092.2	6.29435 mg/L	6.29435 mg/L
2	Mo 202.031	-4.5	-4.3	-0.0242973 mg/L	-0.0242973 mg/L
2	Na 589.594	7025.8	6829.9	0.288671 mg/L	0.288671 mg/L
2	Ni 231.603	307.1	298.6	0.148471 mg/L	0.148471 mg/L
2	Pb 220.353	172.3	167.5	0.425502 mg/L	0.425502 mg/L
2	Sb 206.831	-20.8	-20.2	0.0287830 mg/L	0.0287830 mg/L
2	Se 196.026	67.1	65.2	-0.0824632 mg/L	-0.0824632 mg/L
2	Si 251.611	35892.1	34891.2	8.06342 mg/L	8.06342 mg/L
2	Sn 189.933	-11.3	-11.0	-0.0931730 mg/L	-0.0931730 mg/L
2	Sr 407.771	128919.1	125323.9	0.101507 mg/L	0.101507 mg/L
2	Ti 334.941	356137.7	346206.0	4.74879 mg/L	4.74879 mg/L
2	Tl 190.800	15.2	14.8	0.0541907 mg/L	0.0541907 mg/L
2	V 292.402	5425.5	5274.2	0.374930 mg/L	0.374930 mg/L
2	Zn 206.200	3334.3	3241.3	1.44938 mg/L	1.44938 mg/L

Mean Data ----------

ID: 0911250-03 Seq. No.: 21 Sample No.: 7 A/S Pos: 23
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 2:21:55 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	352732.9	102.4	0.62	mg/L				0.60%
Y 360.064	233308.5	106.1	0.42	mg/L				0.40%
Ag 328.068	97.4	-0.0004046	0.00144985	mg/L	-0.0004046	0.00144985	mg/L	358.36%
Al 396.140	1086658.6	162.133	3.0297	mg/L	162.133	3.0297	mg/L	1.87%
As 188.979	24.1	0.0979753	0.03517873	mg/L	0.0979753	0.03517873	mg/L	35.91%
B 249.773	6756.1	0.122498	0.0109211	mg/L	0.122498	0.0109211	mg/L	8.92%
Ba 455.403	624984.8	1.23562	0.023875	mg/L	1.23562	0.023875	mg/L	1.93%
Be 234.861	2613.4	0.0062448	0.00130554	mg/L	0.0062448	0.00130554	mg/L	20.91%
Ca 315.887	306606.7	34.4076	0.38161	mg/L	34.4076	0.38161	mg/L	1.11%
Cd 214.438	222.6	-0.0011545	0.00034969	mg/L	-0.0011545	0.00034969	mg/L	30.29%
Ce 413.765	1892.7	0.344613	0.0063508	mg/L	0.344613	0.0063508	mg/L	1.84%
Co 228.616	456.2	0.0644318	0.00276898	mg/L	0.0644318	0.00276898	mg/L	4.30%
Cr 205.560	324.3	0.250288	0.0070941	mg/L	0.250288	0.0070941	mg/L	2.83%
Cu 327.394	1633.1	0.141856	0.0040179	mg/L	0.141856	0.0040179	mg/L	2.83%
Fe 238.204	1830688.1	230.419	2.6911	mg/L	230.419	2.6911	mg/L	1.17%
K 766.514	44939.3	14.0780	0.18199	mg/L	14.0780	0.18199	mg/L	1.29%
Li 670.781	21966.7	0.163647	0.0028976	mg/L	0.163647	0.0028976	mg/L	1.77%
Mg 279.074	38739.3	33.9194	0.11395	mg/L	33.9194	0.11395	mg/L	0.34%
Mn 257.610	409026.8	6.35549	0.086465	mg/L	6.35549	0.086465	mg/L	1.36%
Mo 202.031	-4.4	-0.0244196	0.00017287	mg/L	-0.0244196	0.00017287	mg/L	0.71%
Na 589.594	6823.6	0.288401	0.0003812	mg/L	0.288401	0.0003812	mg/L	0.13%
Ni 231.603	290.9	0.143849	0.0065365	mg/L	0.143849	0.0065365	mg/L	4.54%
Pb 220.353	166.9	0.423490	0.0028456	mg/L	0.423490	0.0028456	mg/L	0.67%
Sb 206.831	-10.3	0.0860978	0.08105543	mg/L	0.0860978	0.08105543	mg/L	94.14%
Se 196.026	70.6	-0.0381854	0.06261822	mg/L	-0.0381854	0.06261822	mg/L	163.98%
Si 251.611	35021.1	8.09318	0.042094	mg/L	8.09318	0.042094	mg/L	0.52%
Sn 189.933	-12.2	-0.105456	0.0173713	mg/L	-0.105456	0.0173713	mg/L	16.47%
Sr 407.771	127122.0	0.102972	0.0020721	mg/L	0.102972	0.0020721	mg/L	2.01%
Ti 334.941	349899.4	4.79979	0.072121	mg/L	4.79979	0.072121	mg/L	1.50%
Tl 190.800	9.7	0.0201062	0.04820277	mg/L	0.0201062	0.04820277	mg/L	239.74%
V 292.402	5226.4	0.371169	0.0053194	mg/L	0.371169	0.0053194	mg/L	1.43%
Zn 206.200	3248.3	1.45252	0.004444	mg/L	1.45252	0.004444	mg/L	0.31%

Replicate Data ----------

ID: 0911250-04 Date: 11/23/09 2:25:25 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	353792.1	353792.1	102.7	mg/L		
1	Y 360.064	231649.9	231649.9	105.3	mg/L		
1	Ag 328.068	86.1	83.8	-0.0013630	mg/L	-0.0013630	mg/L
1	Al 396.140	1093948.6	1064792.6	158.869	mg/L	158.869	mg/L
1	As 188.979	31.6	30.8	0.139939	mg/L	0.139939	mg/L

1	B 249.773	6552.2	6377.5	0.117240 mg/L	0.117240 mg/L
1	Ba 455.403	554819.5	540032.4	1.06478 mg/L	1.06478 mg/L
1	Be 234.861	2401.6	2337.5	0.0041930 mg/L	0.0041930 mg/L
1	Ca 315.887	348063.4	338786.7	38.0034 mg/L	38.0034 mg/L
1	Cd 214.438	230.1	223.9	0.0003931 mg/L	0.0003931 mg/L
1	Ce 413.765	2038.8	1984.4	0.361198 mg/L	0.361198 mg/L
1	Co 228.616	434.5	422.9	0.0592342 mg/L	0.0592342 mg/L
1	Cr 205.560	300.4	292.4	0.221062 mg/L	0.221062 mg/L
1	Cu 327.394	1443.2	1404.7	0.123148 mg/L	0.123148 mg/L
1	Fe 238.204	1764337.1	1717313.7	216.147 mg/L	216.147 mg/L
1	K 766.514	39756.7	38697.1	12.0148 mg/L	12.0148 mg/L
1	Li 670.781	22060.7	21472.8	0.159832 mg/L	0.159832 mg/L
1	Mg 279.074	40169.3	39098.7	34.2502 mg/L	34.2502 mg/L
1	Mn 257.610	338076.4	329065.9	5.11299 mg/L	5.11299 mg/L
1	Mo 202.031	-1.5	-1.5	-0.0195944 mg/L	-0.0195944 mg/L
1	Na 589.594	6370.7	6200.9	0.238230 mg/L	0.238230 mg/L
1	Ni 231.603	286.8	279.1	0.137905 mg/L	0.137905 mg/L
1	Pb 220.353	159.3	155.1	0.383365 mg/L	0.383365 mg/L
1	Sb 206.831	-8.4	-8.2	0.0847890 mg/L	0.0847890 mg/L
1	Se 196.026	56.7	55.2	-0.164981 mg/L	-0.164981 mg/L
1	Si 251.611	61239.7	59607.6	14.2601 mg/L	14.2601 mg/L
1	Sn 189.933	-17.2	-16.8	-0.153813 mg/L	-0.153813 mg/L
1	Sr 407.771	130504.9	127026.6	0.102894 mg/L	0.102894 mg/L
1	Ti 334.941	322080.9	313496.8	4.29714 mg/L	4.29714 mg/L
1	Tl 190.800	7.1	6.9	-0.106115 mg/L	-0.106115 mg/L
1	V 292.402	5195.0	5056.5	0.360900 mg/L	0.360900 mg/L
1	Zn 206.200	2727.1	2654.5	1.18562 mg/L	1.18562 mg/L
2	Sc 357.253	357412.0	357412.0	103.8 mg/L	
2	Y 360.064	234215.0	234215.0	106.5 mg/L	
2	Ag 328.068	71.7	69.0	-0.0020583 mg/L	-0.0020583 mg/L
2	Al 396.140	1094985.8	1055007.4	157.409 mg/L	157.409 mg/L
2	As 188.979	16.4	15.8	0.0459563 mg/L	0.0459563 mg/L
2	B 249.773	6545.6	6306.6	0.113437 mg/L	0.113437 mg/L
2	Ba 455.403	555490.4	535209.2	1.05508 mg/L	1.05508 mg/L
2	Be 234.861	2551.6	2458.4	0.0060896 mg/L	0.0060896 mg/L
2	Ca 315.887	348721.4	335989.5	37.6903 mg/L	37.6903 mg/L
2	Cd 214.438	240.7	231.9	0.0018964 mg/L	0.0018964 mg/L
2	Ce 413.765	1935.6	1864.9	0.339577 mg/L	0.339577 mg/L
2	Co 228.616	402.4	387.7	0.0483934 mg/L	0.0483934 mg/L
2	Cr 205.560	317.3	305.7	0.234335 mg/L	0.234335 mg/L
2	Cu 327.394	1461.9	1408.5	0.123456 mg/L	0.123456 mg/L
2	Fe 238.204	1768945.6	1704360.7	214.517 mg/L	214.517 mg/L
2	K 766.514	39627.5	38180.7	11.8439 mg/L	11.8439 mg/L
2	Li 670.781	22050.8	21245.7	0.158078 mg/L	0.158078 mg/L
2	Mg 279.074	40037.6	38575.8	33.7914 mg/L	33.7914 mg/L
2	Mn 257.610	338931.1	326556.6	5.07400 mg/L	5.07400 mg/L
2	Mo 202.031	-5.7	-5.5	-0.0262366 mg/L	-0.0262366 mg/L
2	Na 589.594	6527.2	6288.9	0.244915 mg/L	0.244915 mg/L
2	Ni 231.603	274.1	264.1	0.129171 mg/L	0.129171 mg/L
2	Pb 220.353	136.5	131.5	0.303085 mg/L	0.303085 mg/L
2	Sb 206.831	-10.7	-10.3	0.0714589 mg/L	0.0714589 mg/L
2	Se 196.026	61.5	59.2	-0.131650 mg/L	-0.131650 mg/L
2	Si 251.611	60907.5	58683.8	14.0324 mg/L	14.0324 mg/L
2	Sn 189.933	-18.5	-17.8	-0.165036 mg/L	-0.165036 mg/L
2	Sr 407.771	130740.4	125967.0	0.102031 mg/L	0.102031 mg/L
2	Ti 334.941	323035.3	311241.2	4.26600 mg/L	4.26600 mg/L
2	Tl 190.800	8.0	7.7	-0.100339 mg/L	-0.100339 mg/L
2	V 292.402	5257.6	5065.7	0.361808 mg/L	0.361808 mg/L
2	Zn 206.200	2746.6	2646.3	1.18195 mg/L	1.18195 mg/L

Mean Data ----------

ID: 0911250-04 Seq. No.: 22 Sample No.: 8 A/S Pos: 24

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 11/23/09 2:25:25 PM

Element	Mean Corr. Intensity	Mean Conc.	Calib Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	355602.0	103.3	0.74	mg/L				0.72%
Y 360.064	232932.4	105.9	0.82	mg/L				0.78%
Ag 328.068	76.4	-0.0017107	0.00049168	mg/L	-0.0017107	0.00049168	mg/L	28.74%
Al 396.140	1059900.0	158.139	1.0329	mg/L	158.139	1.0329	mg/L	0.65%

As 188.979	23.3	0.0929476	0.06645576	mg/L	0.0929476	0.06645576	mg/L	71.50%
B 249.773	6342.1	0.115339	0.0026888	mg/L	0.115339	0.0026888	mg/L	2.33%
Ba 455.403	537620.8	1.05993	0.006858	mg/L	1.05993	0.006858	mg/L	0.65%
Be 234.861	2398.0	0.0051413	0.00134109	mg/L	0.0051413	0.00134109	mg/L	26.08%
Ca 315.887	337388.1	37.8469	0.22140	mg/L	37.8469	0.22140	mg/L	0.58%
Cd 214.438	227.9	0.0011447	0.00106302	mg/L	0.0011447	0.00106302	mg/L	92.86%
Ce 413.765	1924.7	0.350387	0.0152886	mg/L	0.350387	0.0152886	mg/L	4.36%
Co 228.616	405.3	0.0538138	0.00766564	mg/L	0.0538138	0.00766564	mg/L	14.24%
Cr 205.560	299.1	0.227699	0.0093859	mg/L	0.227699	0.0093859	mg/L	4.12%
Cu 327.394	1406.6	0.123302	0.0002183	mg/L	0.123302	0.0002183	mg/L	0.18%
Fe 238.204	1710837.2	215.332	1.1529	mg/L	215.332	1.1529	mg/L	0.54%
K 766.514	38438.9	11.9294	0.12085	mg/L	11.9294	0.12085	mg/L	1.01%
Li 670.781	21359.2	0.158955	0.0012402	mg/L	0.158955	0.0012402	mg/L	0.78%
Mg 279.074	38837.2	34.0208	0.32439	mg/L	34.0208	0.32439	mg/L	0.95%
Mn 257.610	327811.3	5.09350	0.027571	mg/L	5.09350	0.027571	mg/L	0.54%
Mo 202.031	-3.5	-0.0229155	0.00469678	mg/L	-0.0229155	0.00469678	mg/L	20.50%
Na 589.594	6244.9	0.241573	0.0047273	mg/L	0.241573	0.0047273	mg/L	1.96%
Ni 231.603	271.6	0.133538	0.0061762	mg/L	0.133538	0.0061762	mg/L	4.63%
Pb 220.353	143.3	0.343225	0.0567666	mg/L	0.343225	0.0567666	mg/L	16.54%
Sb 206.831	-9.2	0.0781240	0.00942583	mg/L	0.0781240	0.00942583	mg/L	12.07%
Se 196.026	57.2	-0.148316	0.0235689	mg/L	-0.148316	0.0235689	mg/L	15.89%
Si 251.611	59145.7	14.1462	0.16100	mg/L	14.1462	0.16100	mg/L	1.14%
Sn 189.933	-17.3	-0.159424	0.0079361	mg/L	-0.159424	0.0079361	mg/L	4.98%
Sr 407.771	126496.8	0.102462	0.0006105	mg/L	0.102462	0.0006105	mg/L	0.60%
Ti 334.941	312369.0	4.28157	0.022023	mg/L	4.28157	0.022023	mg/L	0.51%
Tl 190.800	7.3	-0.103227	0.0040847	mg/L	-0.103227	0.0040847	mg/L	3.96%
V 292.402	5061.1	0.361354	0.0006421	mg/L	0.361354	0.0006421	mg/L	0.18%
Zn 206.200	2650.4	1.18379	0.002592	mg/L	1.18379	0.002592	mg/L	0.22%

Replicate Data

ID: 0911250-05 Date: 11/23/09 2:28:55 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	361332.2	361332.2	104.9	mg/L		
1	Y 360.064	244549.4	244549.4	111.2	mg/L		
1	Ag 328.068	10.8	10.3	-0.0038982	mg/L	-0.0038982	mg/L
1	Al 396.140	1184315.0	1128695.4	168.409	mg/L	168.409	mg/L
1	As 188.979	10.2	9.8	0.0083415	mg/L	0.0083415	mg/L
1	B 249.773	7560.4	7205.4	0.135010	mg/L	0.135010	mg/L
1	Ba 455.403	357899.9	341091.7	0.664721	mg/L	0.664721	mg/L
1	Be 234.861	3401.6	3241.9	0.0131410	mg/L	0.0131410	mg/L
1	Ca 315.887	48332.5	46062.6	5.27159	mg/L	5.27159	mg/L
1	Cd 214.438	235.7	224.6	-0.0024680	mg/L	-0.0024680	mg/L
1	Ce 413.765	4905.6	4675.3	0.847879	mg/L	0.847879	mg/L
1	Co 228.616	314.4	299.6	0.0076455	mg/L	0.0076455	mg/L
1	Cr 205.560	437.9	417.4	0.339462	mg/L	0.339462	mg/L
1	Cu 327.394	1489.6	1419.7	0.124372	mg/L	0.124372	mg/L
1	Fe 238.204	2042721.3	1946787.9	245.033	mg/L	245.033	mg/L
1	K 766.514	29504.2	28118.5	8.52769	mg/L	8.52769	mg/L
1	Li 670.781	25135.8	23955.4	0.179007	mg/L	0.179007	mg/L
1	Mg 279.074	16035.5	15282.4	13.3022	mg/L	13.3022	mg/L
1	Mn 257.610	43240.8	41210.0	0.640047	mg/L	0.640047	mg/L
1	Mo 202.031	-3.4	-3.2	-0.0224350	mg/L	-0.0224350	mg/L
1	Na 589.594	4684.0	4464.0	0.0977809	mg/L	0.0977809	mg/L
1	Ni 231.603	282.6	269.3	0.130114	mg/L	0.130114	mg/L
1	Pb 220.353	28.1	26.8	-0.0532323	mg/L	-0.0532323	mg/L
1	Sb 206.831	-3.8	-3.6	0.136709	mg/L	0.136709	mg/L
1	Se 196.026	61.3	58.4	-0.137895	mg/L	-0.137895	mg/L
1	Si 251.611	83154.1	79248.9	19.4989	mg/L	19.4989	mg/L
1	Sn 189.933	-6.6	-6.3	-0.0433018	mg/L	-0.0433018	mg/L
1	Sr 407.771	135478.3	129115.8	0.104596	mg/L	0.104596	mg/L
1	Ti 334.941	67869.3	64681.9	0.861506	mg/L	0.861506	mg/L
1	Tl 190.800	22.8	21.7	-0.0040521	mg/L	-0.0040521	mg/L
1	V 292.402	6754.6	6437.4	0.457169	mg/L	0.457169	mg/L
1	Zn 206.200	880.5	839.1	0.369732	mg/L	0.369732	mg/L
2	Sc 357.253	363694.9	363694.9	105.6	mg/L		
2	Y 360.064	245949.6	245949.6	111.8	mg/L		
2	Ag 328.068	-44.5	-42.2	-0.0062956	mg/L	-0.0062956	mg/L
2	Al 396.140	1175754.6	1113257.7	166.104	mg/L	166.104	mg/L

2 As 188.979	14.6	13.8	0.0335311 mg/L	0.0335311 mg/L	
2 B 249.773	7443.2	7047.6	0.124311 mg/L	0.124311 mg/L	
2 Ba 455.403	355395.2	336504.2	0.655496 mg/L	0.655496 mg/L	
2 Be 234.861	3251.6	3078.8	0.0112341 mg/L	0.0112341 mg/L	
2 Ca 315.887	47723.5	45186.8	5.17317 mg/L	5.17317 mg/L	
2 Cd 214.438	243.7	230.8	-0.0010870 mg/L	-0.0010870 mg/L	
2 Ce 413.765	5023.8	4756.8	0.862624 mg/L	0.862624 mg/L	
2 Co 228.616	338.4	320.4	0.0155216 mg/L	0.0155216 mg/L	
2 Cr 205.560	430.5	407.6	0.330283 mg/L	0.330283 mg/L	
2 Cu 327.394	1509.0	1428.8	0.125123 mg/L	0.125123 mg/L	
2 Fe 238.204	2032576.3	1924535.2	242.232 mg/L	242.232 mg/L	
2 K 766.514	29262.3	27706.9	8.39111 mg/L	8.39111 mg/L	
2 Li 670.781	25056.7	23724.8	0.177226 mg/L	0.177226 mg/L	
2 Mg 279.074	15866.2	15022.8	13.0757 mg/L	13.0757 mg/L	
2 Mn 257.610	42721.4	40450.6	0.628246 mg/L	0.628246 mg/L	
2 Mo 202.031	3.0	2.8	-0.0126074 mg/L	-0.0126074 mg/L	
2 Na 589.594	4885.6	4625.9	0.110219 mg/L	0.110219 mg/L	
2 Ni 231.603	292.0	276.5	0.134542 mg/L	0.134542 mg/L	
2 Pb 220.353	42.4	40.2	-0.0076013 mg/L	-0.0076013 mg/L	
2 Sb 206.831	-7.3	-6.9	0.115689 mg/L	0.115689 mg/L	
2 Se 196.026	69.1	65.5	-0.0802093 mg/L	-0.0802093 mg/L	
2 Si 251.611	81985.0	77627.1	19.0936 mg/L	19.0936 mg/L	
2 Sn 189.933	-7.8	-7.3	-0.0547336 mg/L	-0.0547336 mg/L	
2 Sr 407.771	134420.5	127275.4	0.103097 mg/L	0.103097 mg/L	
2 Ti 334.941	67015.9	63453.7	0.844547 mg/L	0.844547 mg/L	
2 Tl 190.800	23.1	21.9	-0.0028768 mg/L	-0.0028768 mg/L	
2 V 292.402	6703.3	6347.0	0.450999 mg/L	0.450999 mg/L	
2 Zn 206.200	883.4	836.4	0.368520 mg/L	0.368520 mg/L	

Mean Data ----------

ID: 0911250-05 Seq. No.: 23 Sample No.: 9 A/S Pos: 25

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 11/23/09 2:28:55 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	362513.5	105.3	0.49	mg/L				0.46%
Y 360.064	245249.5	111.5	0.45	mg/L				0.40%
Ag 328.068	-15.9	-0.0050969	0.00169522	mg/L	-0.0050969	0.00169522	mg/L	33.26%
Al 396.140	1120976.5	167.256	1.6296	mg/L	167.256	1.6296	mg/L	0.97%
As 188.979	11.8	0.0209363	0.01781173	mg/L	0.0209363	0.01781173	mg/L	85.08%
B 249.773	7126.5	0.129660	0.0075660	mg/L	0.129660	0.0075660	mg/L	5.84%
Ba 455.403	338797.9	0.660108	0.0065232	mg/L	0.660108	0.0065232	mg/L	0.99%
Be 234.861	3160.3	0.0121875	0.00134835	mg/L	0.0121875	0.00134835	mg/L	11.06%
Ca 315.887	45624.7	5.22238	0.069589	mg/L	5.22238	0.069589	mg/L	1.33%
Cd 214.438	227.7	-0.0017775	0.00097657	mg/L	-0.0017775	0.00097657	mg/L	54.94%
Ce 413.765	4716.0	0.855251	0.0104263	mg/L	0.855251	0.0104263	mg/L	1.22%
Co 228.616	310.0	0.0115836	0.00556929	mg/L	0.0115836	0.00556929	mg/L	48.08%
Cr 205.560	412.5	0.334873	0.0064904	mg/L	0.334873	0.0064904	mg/L	1.94%
Cu 327.394	1424.2	0.124747	0.0005307	mg/L	0.124747	0.0005307	mg/L	0.43%
Fe 238.204	1935661.6	243.632	1.9807	mg/L	243.632	1.9807	mg/L	0.81%
K 766.514	27912.7	8.45940	0.096576	mg/L	8.45940	0.096576	mg/L	1.14%
Li 670.781	23840.1	0.178117	0.0012593	mg/L	0.178117	0.0012593	mg/L	0.71%
Mg 279.074	15152.6	13.1889	0.16020	mg/L	13.1889	0.16020	mg/L	1.21%
Mn 257.610	40830.3	0.634146	0.0083447	mg/L	0.634146	0.0083447	mg/L	1.32%
Mo 202.031	-0.2	-0.0175212	0.00694917	mg/L	-0.0175212	0.00694917	mg/L	39.66%
Na 589.594	4545.0	0.104000	0.0087952	mg/L	0.104000	0.0087952	mg/L	8.46%
Ni 231.603	272.9	0.132328	0.0031313	mg/L	0.132328	0.0031313	mg/L	2.37%
Pb 220.353	33.5	-0.0304168	0.03226599	mg/L	-0.0304168	0.03226599	mg/L	106.08%
Sb 206.831	-5.3	0.126199	0.0148635	mg/L	0.126199	0.0148635	mg/L	11.78%
Se 196.026	62.0	-0.109052	0.0407900	mg/L	-0.109052	0.0407900	mg/L	37.40%
Si 251.611	78438.0	19.2963	0.28659	mg/L	19.2963	0.28659	mg/L	1.49%
Sn 189.933	-6.8	-0.0490177	0.00808350	mg/L	-0.0490177	0.00808350	mg/L	16.49%
Sr 407.771	128195.6	0.103847	0.0010604	mg/L	0.103847	0.0010604	mg/L	1.02%
Ti 334.941	64067.8	0.853027	0.0119920	mg/L	0.853027	0.0119920	mg/L	1.41%
Tl 190.800	21.8	-0.0034645	0.00083109	mg/L	-0.0034645	0.00083109	mg/L	23.99%
V 292.402	6392.2	0.454084	0.0043628	mg/L	0.454084	0.0043628	mg/L	0.96%
Zn 206.200	837.8	0.369126	0.0008567	mg/L	0.369126	0.0008567	mg/L	0.23%

Replicate Data ----------

ID: 0911250-06 Date: 11/23/09 2:32:26 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Calib Units	Sample Conc.	Sample Units
1	Sc 357.253	358317.1	358317.1	104.1	mg/L		
1	Y 360.064	226078.6	226078.6	102.8	mg/L		
1	Ag 328.068	-16.8	-16.2	-0.0026066	mg/L	-0.0026066	mg/L
1	Al 396.140	2006412.5	1928274.7	287.771	mg/L	287.771	mg/L
1	As 188.979	20.5	19.7	0.0705043	mg/L	0.0705043	mg/L
1	B 249.773	10407.0	10001.7	0.192074	mg/L	0.192074	mg/L
1	Ba 455.403	542609.1	521477.7	1.02747	mg/L	1.02747	mg/L
1	Be 234.861	3901.7	3749.8	0.0070617	mg/L	0.0070617	mg/L
1	Ca 315.887	100424.3	96513.3	10.9356	mg/L	10.9356	mg/L
1	Cd 214.438	366.0	351.7	0.0000322	mg/L	0.0000322	mg/L
1	Ce 413.765	2552.1	2452.8	0.445901	mg/L	0.445901	mg/L
1	Co 228.616	820.6	788.7	0.114877	mg/L	0.114877	mg/L
1	Cr 205.560	460.0	442.1	0.350124	mg/L	0.350124	mg/L
1	Cu 327.394	1831.2	1759.8	0.152242	mg/L	0.152242	mg/L
1	Fe 238.204	2841261.6	2730611.4	343.698	mg/L	343.698	mg/L
1	K 766.514	53239.1	51165.7	16.1634	mg/L	16.1634	mg/L
1	Li 670.781	24692.3	23730.7	0.177272	mg/L	0.177272	mg/L
1	Mg 279.074	29021.8	27891.6	24.3072	mg/L	24.3072	mg/L
1	Mn 257.610	416417.2	400200.2	6.21834	mg/L	6.21834	mg/L
1	Mo 202.031	-3.4	-3.2	-0.0224806	mg/L	-0.0224806	mg/L
1	Na 589.594	7200.0	6919.6	0.305420	mg/L	0.305420	mg/L
1	Ni 231.603	406.2	390.4	0.194529	mg/L	0.194529	mg/L
1	Pb 220.353	67.1	64.5	0.204148	mg/L	0.204148	mg/L
1	Sb 206.831	-29.0	-27.8	0.0918202	mg/L	0.0918202	mg/L
1	Se 196.026	59.9	57.6	-0.145232	mg/L	-0.145232	mg/L
1	Si 251.611	104249.9	100190.0	24.3404	mg/L	24.3404	mg/L
1	Sn 189.933	-12.4	-11.9	-0.102417	mg/L	-0.102417	mg/L
1	Sr 407.771	83452.3	80202.3	0.0647394	mg/L	0.0647394	mg/L
1	Ti 334.941	629344.5	604835.3	8.31994	mg/L	8.31994	mg/L
1	Tl 190.800	8.2	7.8	0.0051634	mg/L	0.0051634	mg/L
1	V 292.402	10766.5	10347.2	0.727253	mg/L	0.727253	mg/L
1	Zn 206.200	1599.9	1537.6	0.683663	mg/L	0.683663	mg/L
2	Sc 357.253	361384.1	361384.1	104.9	mg/L		
2	Y 360.064	228236.1	228236.1	103.8	mg/L		
2	Ag 328.068	1.5	1.4	-0.0018823	mg/L	-0.0018823	mg/L
2	Al 396.140	2009257.2	1914620.5	285.733	mg/L	285.733	mg/L
2	As 188.979	18.5	17.6	0.0574799	mg/L	0.0574799	mg/L
2	B 249.773	10226.1	9744.4	0.168268	mg/L	0.168268	mg/L
2	Ba 455.403	543289.7	517700.5	1.01987	mg/L	1.01987	mg/L
2	Be 234.861	3851.7	3670.3	0.0062448	mg/L	0.0062448	mg/L
2	Ca 315.887	98872.9	94215.9	10.6783	mg/L	10.6783	mg/L
2	Cd 214.438	376.3	358.6	0.0014639	mg/L	0.0014639	mg/L
2	Ce 413.765	2513.3	2394.9	0.435436	mg/L	0.435436	mg/L
2	Co 228.616	856.4	816.1	0.124771	mg/L	0.124771	mg/L
2	Cr 205.560	469.8	447.7	0.355890	mg/L	0.355890	mg/L
2	Cu 327.394	1670.8	1592.1	0.138502	mg/L	0.138502	mg/L
2	Fe 238.204	2847124.6	2713024.0	341.485	mg/L	341.485	mg/L
2	K 766.514	53537.1	51015.5	16.1132	mg/L	16.1132	mg/L
2	Li 670.781	24743.9	23578.5	0.176096	mg/L	0.176096	mg/L
2	Mg 279.074	28641.1	27292.0	23.7815	mg/L	23.7815	mg/L
2	Mn 257.610	417122.5	397475.9	6.17600	mg/L	6.17600	mg/L
2	Mo 202.031	-11.8	-11.3	-0.0355757	mg/L	-0.0355757	mg/L
2	Na 589.594	7023.0	6692.2	0.287333	mg/L	0.287333	mg/L
2	Ni 231.603	398.9	380.1	0.188651	mg/L	0.188651	mg/L
2	Pb 220.353	51.4	49.0	0.150470	mg/L	0.150470	mg/L
2	Sb 206.831	-24.4	-23.3	0.115243	mg/L	0.115243	mg/L
2	Se 196.026	46.7	44.5	-0.252590	mg/L	-0.252590	mg/L
2	Si 251.611	102990.4	98139.5	23.8304	mg/L	23.8304	mg/L
2	Sn 189.933	-7.2	-6.8	-0.0491930	mg/L	-0.0491930	mg/L
2	Sr 407.771	83853.9	79904.4	0.0644966	mg/L	0.0644966	mg/L
2	Ti 334.941	630698.3	600992.2	8.26688	mg/L	8.26688	mg/L
2	Tl 190.800	11.2	10.6	0.0237174	mg/L	0.0237174	mg/L
2	V 292.402	10560.3	10062.9	0.706888	mg/L	0.706888	mg/L
2	Zn 206.200	1611.4	1535.5	0.682725	mg/L	0.682725	mg/L

Mean Data ----------

ID: 0911250-06 Seq. No.: 24 Sample No.: 10 A/S Pos: 26

Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0

Data: Original Date: 11/23/09 2:32:26 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	359850.6	104.5	0.63	mg/L				0.60%
Y 360.064	227157.4	103.3	0.69	mg/L				0.67%
Ag 328.068	-7.4	-0.0022444	0.00051214	mg/L	-0.0022444	0.00051214	mg/L	22.82%
Al 396.140	1921447.6	286.752	1.4413	mg/L	286.752	1.4413	mg/L	0.50%
As 188.979	18.7	0.0639921	0.00920968	mg/L	0.0639921	0.00920968	mg/L	14.39%
B 249.773	9873.1	0.180171	0.0168334	mg/L	0.180171	0.0168334	mg/L	9.34%
Ba 455.403	519589.1	1.02367	0.005371	mg/L	1.02367	0.005371	mg/L	0.52%
Be 234.861	3710.0	0.0066532	0.00057764	mg/L	0.0066532	0.00057764	mg/L	8.68%
Ca 315.887	95364.6	10.8070	0.18197	mg/L	10.8070	0.18197	mg/L	1.68%
Cd 214.438	355.2	0.0007481	0.00101233	mg/L	0.0007481	0.00101233	mg/L	135.33%
Ce 413.765	2423.8	0.440669	0.0073996	mg/L	0.440669	0.0073996	mg/L	1.68%
Co 228.616	802.4	0.119824	0.0069960	mg/L	0.119824	0.0069960	mg/L	5.84%
Cr 205.560	444.9	0.353007	0.0040772	mg/L	0.353007	0.0040772	mg/L	1.15%
Cu 327.394	1676.0	0.145372	0.0097162	mg/L	0.145372	0.0097162	mg/L	6.68%
Fe 238.204	2721817.7	342.592	1.5654	mg/L	342.592	1.5654	mg/L	0.46%
K 766.514	51090.6	16.1383	0.03553	mg/L	16.1383	0.03553	mg/L	0.22%
Li 670.781	23654.6	0.176684	0.0008315	mg/L	0.176684	0.0008315	mg/L	0.47%
Mg 279.074	27591.8	24.0444	0.37176	mg/L	24.0444	0.37176	mg/L	1.55%
Mn 257.610	398838.1	6.19717	0.029934	mg/L	6.19717	0.029934	mg/L	0.48%
Mo 202.031	-7.2	-0.0290281	0.00925967	mg/L	-0.0290281	0.00925967	mg/L	31.90%
Na 589.594	6805.9	0.296376	0.0127890	mg/L	0.296376	0.0127890	mg/L	4.32%
Ni 231.603	385.3	0.191590	0.0041563	mg/L	0.191590	0.0041563	mg/L	2.17%
Pb 220.353	56.7	0.177309	0.0379560	mg/L	0.177309	0.0379560	mg/L	21.41%
Sb 206.831	-25.6	0.103532	0.0165624	mg/L	0.103532	0.0165624	mg/L	16.00%
Se 196.026	51.0	-0.198911	0.0759136	mg/L	-0.198911	0.0759136	mg/L	38.16%
Si 251.611	99164.7	24.0854	0.36058	mg/L	24.0854	0.36058	mg/L	1.50%
Sn 189.933	-9.4	-0.0758050	0.03763505	mg/L	-0.0758050	0.03763505	mg/L	49.65%
Sr 407.771	80053.4	0.0646180	0.00017169	mg/L	0.0646180	0.00017169	mg/L	0.27%
Ti 334.941	602913.7	8.29341	0.037523	mg/L	8.29341	0.037523	mg/L	0.45%
Tl 190.800	9.2	0.0144404	0.01311968	mg/L	0.0144404	0.01311968	mg/L	90.85%
V 292.402	10205.0	0.717071	0.0143997	mg/L	0.717071	0.0143997	mg/L	2.01%
Zn 206.200	1536.6	0.683194	0.0006633	mg/L	0.683194	0.0006633	mg/L	0.10%

Replicate Data

ID: 9K23049-CCV Date: 11/23/09 2:35:54 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	355104.1	355104.1	103.1	mg/L		
1	Y 360.064	226175.0	226175.0	102.9	mg/L		
1	Ag 328.068	11796.1	11439.3	0.496694	mg/L		
1	Al 396.140	17550.3	17019.4	2.45617	mg/L		
1	As 188.979	425.4	412.6	2.52862	mg/L		
1	B 249.773	4582.3	4443.7	0.477624	mg/L		
1	Ba 455.403	260840.9	252950.9	0.487474	mg/L		
1	Be 234.861	3676.1	3564.9	0.0492840	mg/L		
1	Ca 315.887	45251.8	43883.0	4.98873	mg/L		
1	Cd 214.438	3309.0	3208.9	0.502800	mg/L		
1	Ce 413.765	75.7	73.4	0.0155498	mg/L		
1	Co 228.616	1589.9	1541.8	0.509197	mg/L		
1	Cr 205.560	561.7	544.7	0.497833	mg/L		
1	Cu 327.394	6036.6	5854.0	0.487668	mg/L		
1	Fe 238.204	4359.6	4227.8	0.508916	mg/L		
1	K 766.514	17913.9	17372.1	4.91816	mg/L		
1	Li 670.781	66050.1	64052.2	0.488706	mg/L		
1	Mg 279.074	5830.7	5654.3	4.98916	mg/L		
1	Mn 257.610	33030.5	32031.4	0.497421	mg/L		
1	Mo 202.031	323.7	313.9	0.493817	mg/L		
1	Na 589.594	66940.6	64915.7	4.81153	mg/L		
1	Ni 231.603	905.4	878.1	0.505031	mg/L		
1	Pb 220.353	191.1	185.3	0.486077	mg/L		
1	Sb 206.831	470.2	456.0	2.47957	mg/L		
1	Se 196.026	390.9	379.1	2.49579	mg/L		
1	Si 251.611	11678.7	11325.4	2.52417	mg/L		
1	Sn 189.933	238.0	230.8	2.44565	mg/L		
1	Sr 407.771	621004.4	602220.0	0.490105	mg/L		
1	Ti 334.941	39464.5	38270.7	0.496821	mg/L		

1 Tl 190.800	393.0	381.1	2.46474	mg/L
1 V 292.402	6656.5	6455.2	0.494408	mg/L
1 Zn 206.200	1174.8	1139.3	0.504652	mg/L
2 Sc 357.253	351718.7	351718.7	102.1	mg/L
2 Y 360.064	223778.5	223778.5	101.8	mg/L
2 Ag 328.068	11697.1	11452.5	0.497282	mg/L
2 Al 396.140	17790.4	17418.3	2.51571	mg/L
2 As 188.979	412.9	404.3	2.47662	mg/L
2 B 249.773	4667.0	4569.4	0.492175	mg/L
2 Ba 455.403	261889.6	256412.4	0.494435	mg/L
2 Be 234.861	3692.7	3615.5	0.0499877	mg/L
2 Ca 315.887	45568.0	44615.0	5.07054	mg/L
2 Cd 214.438	3302.3	3233.3	0.506661	mg/L
2 Ce 413.765	-89.4	-87.5	-0.0135474	mg/L
2 Co 228.616	1574.4	1541.5	0.509094	mg/L
2 Cr 205.560	568.6	556.7	0.509612	mg/L
2 Cu 327.394	6016.0	5890.2	0.490633	mg/L
2 Fe 238.204	4328.2	4237.7	0.510162	mg/L
2 K 766.514	17728.1	17357.3	4.91331	mg/L
2 Li 670.781	66588.4	65195.8	0.497539	mg/L
2 Mg 279.074	5893.0	5769.8	5.09069	mg/L
2 Mn 257.610	33381.8	32683.7	0.507557	mg/L
2 Mo 202.031	328.5	321.7	0.506424	mg/L
2 Na 589.594	67058.5	65656.0	4.86949	mg/L
2 Ni 231.603	919.1	899.9	0.517879	mg/L
2 Pb 220.353	193.5	189.4	0.500143	mg/L
2 Sb 206.831	467.3	457.5	2.48843	mg/L
2 Se 196.026	386.2	378.1	2.48793	mg/L
2 Si 251.611	11707.6	11462.7	2.55848	mg/L
2 Sn 189.933	233.5	228.6	2.42270	mg/L
2 Sr 407.771	623735.6	610690.6	0.497007	mg/L
2 Ti 334.941	39896.3	39061.9	0.507745	mg/L
2 Tl 190.800	402.8	394.4	2.55577	mg/L
2 V 292.402	6739.1	6598.1	0.504813	mg/L
2 Zn 206.200	1186.9	1162.1	0.514902	mg/L

Mean Data

ID: 9K23049-CCV Seq. No.: 25 Sample No.: 8 A/S Pos: 4
Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 2:35:54 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Units	RSD
Sc 357.253	353411.4	102.6	0.70	mg/L				0.68%
Y 360.064	224976.8	102.3	0.77	mg/L				0.75%
Ag 328.068	11445.9	0.496988	0.0004154	mg/L				0.08%
Al 396.140	17218.9	2.48594	0.042100	mg/L				1.69%
As 188.979	408.4	2.50262	0.036763	mg/L				1.47%
B 249.773	4506.5	0.484899	0.0102895	mg/L				2.12%
Ba 455.403	254681.6	0.490955	0.0049221	mg/L				1.00%
Be 234.861	3590.2	0.0496358	0.00049760	mg/L				1.00%
Ca 315.887	44249.0	5.02963	0.057851	mg/L				1.15%
Cd 214.438	3221.1	0.504731	0.0027301	mg/L				0.54%
Ce 413.765	-7.1	0.0010012	0.02057484	mg/L				>999.9%
Co 228.616	1541.7	0.509146	0.0000729	mg/L				0.01%
Cr 205.560	550.7	0.503723	0.0083286	mg/L				1.65%
Cu 327.394	5872.1	0.489151	0.0020969	mg/L				0.43%
Fe 238.204	4232.7	0.509539	0.0008811	mg/L				0.17%
K 766.514	17364.7	4.91574	0.003428	mg/L				0.07%
Li 670.781	64624.0	0.493123	0.0062458	mg/L				1.27%
Mg 279.074	5712.0	5.03992	0.071792	mg/L				1.42%
Mn 257.610	32357.5	0.502489	0.0071669	mg/L				1.43%
Mo 202.031	317.8	0.500120	0.0089144	mg/L				1.78%
Na 589.594	65285.9	4.84051	0.040981	mg/L				0.85%
Ni 231.603	889.0	0.511455	0.0090851	mg/L				1.78%
Pb 220.353	187.3	0.493110	0.0099465	mg/L				2.02%
Sb 206.831	456.7	2.48400	0.006265	mg/L				0.25%
Se 196.026	378.6	2.49186	0.005557	mg/L				0.22%
Si 251.611	11394.1	2.54133	0.024264	mg/L				0.95%
Sn 189.933	229.7	2.43417	0.016228	mg/L				0.67%
Sr 407.771	606455.3	0.493556	0.0048807	mg/L				0.99%

Ti 334.941	38666.3	0.502283	0.0077245 mg/L	1.54%
Tl 190.800	387.8	2.51026	0.064369 mg/L	2.56%
V 292.402	6526.7	0.499610	0.0073576 mg/L	1.47%
Zn 206.200	1150.7	0.509777	0.0072479 mg/L	1.42%

Replicate Data ----------

ID: 9K23049-CCB Date: 11/23/09 2:39:11 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	347299.1	347299.1	100.9	mg/L		
1	Y 360.064	221419.5	221419.5	100.7	mg/L		
1	Ag 328.068	95.1	94.3	-0.0063019	mg/L		
1	Al 396.140	494.0	489.8	-0.0113950	mg/L		
1	As 188.979	8.5	8.4	-0.0002831	mg/L		
1	B 249.773	309.3	306.7	-0.0013885	mg/L		
1	Ba 455.403	10688.1	10597.7	0.0001146	mg/L		
1	Be 234.861	2.3	2.3	-0.0003373	mg/L		
1	Ca 315.887	-745.1	-738.8	0.0018434	mg/L		
1	Cd 214.438	15.3	15.2	-0.0028952	mg/L		
1	Ce 413.765	139.2	138.0	0.0272404	mg/L		
1	Co 228.616	-3.7	-3.7	0.0057967	mg/L		
1	Cr 205.560	33.5	33.2	-0.0030470	mg/L		
1	Cu 327.394	-134.7	-133.6	-0.0028834	mg/L		
1	Fe 238.204	221.3	219.4	0.0043559	mg/L		
1	K 766.514	2562.8	2541.1	0.0231956	mg/L		
1	Li 670.781	722.1	716.0	-0.0004889	mg/L		
1	Mg 279.074	31.1	30.8	0.0440897	mg/L		
1	Mn 257.610	-178.2	-176.7	-0.0030559	mg/L		
1	Mo 202.031	10.0	9.9	-0.0010595	mg/L		
1	Na 589.594	2665.8	2643.3	-0.0653092	mg/L		
1	Ni 231.603	22.6	22.4	0.0017954	mg/L		
1	Pb 220.353	46.0	45.6	0.0106946	mg/L		
1	Sb 206.831	6.6	6.6	-0.0310103	mg/L		
1	Se 196.026	79.5	78.8	0.0294200	mg/L		
1	Si 251.611	1232.3	1221.9	-0.0007980	mg/L		
1	Sn 189.933	-3.6	-3.6	-0.0153816	mg/L		
1	Sr 407.771	1154.9	1145.1	0.0003197	mg/L		
1	Ti 334.941	2174.0	2155.6	-0.0018567	mg/L		
1	Tl 190.800	27.0	26.8	0.0305612	mg/L		
1	V 292.402	-391.7	-388.4	-0.0036775	mg/L		
1	Zn 206.200	6.2	6.2	-0.0046332	mg/L		
2	Sc 357.253	349441.2	349441.2	101.5	mg/L		
2	Y 360.064	223174.3	223174.3	101.5	mg/L		
2	Ag 328.068	166.5	164.1	-0.0032088	mg/L		
2	Al 396.140	627.7	618.6	0.0078305	mg/L		
2	As 188.979	15.3	15.1	0.0416202	mg/L		
2	B 249.773	289.1	284.9	-0.0039105	mg/L		
2	Ba 455.403	10605.3	10451.2	-0.0001800	mg/L		
2	Be 234.861	4.9	4.8	-0.0003022	mg/L		
2	Ca 315.887	-741.4	-730.6	0.0027545	mg/L		
2	Cd 214.438	8.0	7.9	-0.0040429	mg/L		
2	Ce 413.765	28.8	28.4	0.0074183	mg/L		
2	Co 228.616	-17.8	-17.6	0.0012646	mg/L		
2	Cr 205.560	42.1	41.5	0.0050740	mg/L		
2	Cu 327.394	-138.2	-136.2	-0.0030969	mg/L		
2	Fe 238.204	206.6	203.6	0.0023704	mg/L		
2	K 766.514	2481.8	2445.7	-0.0082746	mg/L		
2	Li 670.781	671.4	661.6	-0.0009091	mg/L		
2	Mg 279.074	-92.0	-90.6	-0.0627242	mg/L		
2	Mn 257.610	-192.1	-189.3	-0.0032516	mg/L		
2	Mo 202.031	10.7	10.6	0.0000097	mg/L		
2	Na 589.594	2596.6	2558.9	-0.0719225	mg/L		
2	Ni 231.603	7.5	7.4	-0.0070280	mg/L		
2	Pb 220.353	42.1	41.5	-0.0031027	mg/L		
2	Sb 206.831	16.2	16.0	0.0213867	mg/L		
2	Se 196.026	60.8	59.9	-0.126161	mg/L		
2	Si 251.611	1220.2	1202.5	-0.0056436	mg/L		
2	Sn 189.933	-4.9	-4.8	-0.0278769	mg/L		
2	Sr 407.771	1038.3	1023.2	0.0002203	mg/L		

2	Ti 334.941	2186.6	2154.8	-0.0018679	mg/L
2	Tl 190.800	19.2	19.0	-0.0231111	mg/L
2	V 292.402	-446.3	-439.8	-0.0074209	mg/L
2	Zn 206.200	2.7	2.7	-0.0061960	mg/L

Mean Data

ID: 9K23049-CCB Seq. No.: 26 Sample No.: 9 A/S Pos: 1
Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 2:39:11 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Std.Dev.	Sample Units	RSD
Sc 357.253	348370.1	101.2	0.44	mg/L				0.43%
Y 360.064	222296.9	101.1	0.56	mg/L				0.56%
Ag 328.068	129.2	-0.0047553	0.00218715	mg/L				45.99%
Al 396.140	554.2	-0.0017823	0.01359446	mg/L				762.76%
As 188.979	11.7	0.0206685	0.02963013	mg/L				143.36%
B 249.773	295.8	-0.0026495	0.00178327	mg/L				67.31%
Ba 455.403	10524.5	-0.0000327	0.00020833	mg/L				637.79%
Be 234.861	3.6	-0.0003197	0.00002482	mg/L				7.76%
Ca 315.887	-734.7	0.0022989	0.00064421	mg/L				28.02%
Cd 214.438	11.5	-0.0034691	0.00081160	mg/L				23.40%
Ce 413.765	83.2	0.0173294	0.01401629	mg/L				80.88%
Co 228.616	-10.6	0.0035307	0.00320466	mg/L				90.77%
Cr 205.560	37.3	0.0010135	0.00574241	mg/L				566.57%
Cu 327.394	-134.9	-0.0029902	0.00015093	mg/L				5.05%
Fe 238.204	211.5	0.0033631	0.00140397	mg/L				41.75%
K 766.514	2493.4	0.0074605	0.02225281	mg/L				298.27%
Li 670.781	688.8	-0.0006990	0.00029709	mg/L				42.50%
Mg 279.074	-29.9	-0.0093172	0.07552883	mg/L				810.64%
Mn 257.610	-183.0	-0.0031537	0.00013839	mg/L				4.39%
Mo 202.031	10.3	-0.0005249	0.00075607	mg/L				144.04%
Na 589.594	2601.1	-0.0686158	0.00467630	mg/L				6.82%
Ni 231.603	14.9	-0.0026163	0.00623911	mg/L				238.47%
Pb 220.353	43.5	0.0037959	0.00975616	mg/L				257.02%
Sb 206.831	11.3	-0.0048118	0.03705022	mg/L				769.99%
Se 196.026	69.3	-0.0483705	0.11001247	mg/L				227.44%
Si 251.611	1212.2	-0.0032208	0.00342635	mg/L				106.38%
Sn 189.933	-4.2	-0.0216293	0.00883551	mg/L				40.85%
Sr 407.771	1084.2	0.0002700	0.00007025	mg/L				26.02%
Ti 334.941	2155.2	-0.0018623	0.00000795	mg/L				0.43%
Tl 190.800	22.9	0.0037250	0.03795205	mg/L				>999.9%
V 292.402	-414.1	-0.0055492	0.00264697	mg/L				47.70%
Zn 206.200	4.4	-0.0054146	0.00110508	mg/L				20.41%

$\bar{x}_5 = -0.34$ W

Replicate Data

ID: 0911250-07 Date: 11/23/09 2:42:32 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	354094.1	354094.1	102.8	mg/L		
1	Y 360.064	232200.4	232200.4	105.6	mg/L		
1	Ag 328.068	24.6	23.9	-0.0018395	mg/L	-0.0018395	mg/L
1	Al 396.140	1491246.2	1450263.3	216.413	mg/L	216.413	mg/L
1	As 188.979	25.9	25.2	0.104965	mg/L	0.104965	mg/L
1	B 249.773	9048.2	8799.6	0.162190	mg/L	0.162190	mg/L
1	Ba 455.403	561931.3	546488.1	1.07776	mg/L	1.07776	mg/L
1	Be 234.861	3551.7	3454.1	0.0085129	mg/L	0.0085129	mg/L
1	Ca 315.887	114121.4	110985.0	12.5447	mg/L	12.5447	mg/L
1	Cd 214.438	288.7	280.8	-0.0020496	mg/L	-0.0020496	mg/L
1	Ce 413.765	3123.5	3037.7	0.551693	mg/L	0.551693	mg/L
1	Co 228.616	705.6	686.2	0.0989594	mg/L	0.0989594	mg/L
1	Cr 205.560	368.7	358.5	0.273837	mg/L	0.273837	mg/L
1	Cu 327.394	1685.6	1639.2	0.142361	mg/L	0.142361	mg/L
1	Fe 238.204	2477462.5	2409376.1	303.262	mg/L	303.262	mg/L
1	K 766.514	53098.0	51638.7	16.3070	mg/L	16.3070	mg/L
1	Li 670.781	30282.1	29449.8	0.221445	mg/L	0.221445	mg/L
1	Mg 279.074	33682.1	32756.5	28.6106	mg/L	28.6106	mg/L
1	Mn 257.610	384025.0	373471.1	5.80300	mg/L	5.80300	mg/L
1	Mo 202.031	-2.3	-2.2	-0.0208862	mg/L	-0.0208862	mg/L
1	Na 589.594	5916.6	5754.0	0.209943	mg/L	0.209943	mg/L

1 Ni 231.603	362.2	352.2	0.174886 mg/L	0.174886 mg/L	
1 Pb 220.353	70.5	68.5	0.150696 mg/L	0.150696 mg/L	
1 Sb 206.831	-4.3	-4.2	0.186791 mg/L	0.186791 mg/L	
1 Se 196.026	56.1	54.6	-0.169690 mg/L	-0.169690 mg/L	
1 Si 251.611	97150.1	94480.2	22.8499 mg/L	22.8499 mg/L	
1 Sn 189.933	-12.1	-11.8	-0.101033 mg/L	-0.101033 mg/L	
1 Sr 407.771	87088.0	84694.6	0.0683999 mg/L	0.0683999 mg/L	
1 Ti 334.941	553080.3	537880.3	7.39543 mg/L	7.39543 mg/L	
1 Tl 190.800	15.8	15.4	-0.0474140 mg/L	-0.0474140 mg/L	
1 V 292.402	9041.3	8792.8	0.620056 mg/L	0.620056 mg/L	
1 Zn 206.200	1514.9	1473.3	0.654747 mg/L	0.654747 mg/L	
2 Sc 357.253	360780.8	360780.8	104.8 mg/L		
2 Y 360.064	237129.4	237129.4	107.8 mg/L		
2 Ag 328.068	28.4	27.1	-0.0017886 mg/L	-0.0017886 mg/L	
2 Al 396.140	1499308.8	1431079.7	213.549 mg/L	213.549 mg/L	
2 As 188.979	27.8	26.6	0.113440 mg/L	0.113440 mg/L	
2 B 249.773	8998.8	8589.3	0.147678 mg/L	0.147678 mg/L	
2 Ba 455.403	565107.8	539391.4	1.06349 mg/L	1.06349 mg/L	
2 Be 234.861	3551.7	3390.1	0.0080938 mg/L	0.0080938 mg/L	
2 Ca 315.887	114056.7	108866.3	12.3071 mg/L	12.3071 mg/L	
2 Cd 214.438	301.8	288.1	-0.0003687 mg/L	-0.0003687 mg/L	
2 Ce 413.765	3152.4	3008.9	0.546495 mg/L	0.546495 mg/L	
2 Co 228.616	703.9	671.8	0.0958493 mg/L	0.0958493 mg/L	
2 Cr 205.560	388.2	370.5	0.286075 mg/L	0.286075 mg/L	
2 Cu 327.394	1495.8	1427.7	0.125034 mg/L	0.125034 mg/L	
2 Fe 238.204	2493975.7	2380482.2	299.625 mg/L	299.625 mg/L	
2 K 766.514	53320.0	50893.6	16.0601 mg/L	16.0601 mg/L	
2 Li 670.781	30629.9	29236.1	0.219794 mg/L	0.219794 mg/L	
2 Mg 279.074	33571.3	32043.6	27.9862 mg/L	27.9862 mg/L	
2 Mn 257.610	386390.0	368806.5	5.73052 mg/L	5.73052 mg/L	
2 Mo 202.031	-12.0	-11.4	-0.0358336 mg/L	-0.0358336 mg/L	
2 Na 589.594	6315.5	6028.1	0.231008 mg/L	0.231008 mg/L	
2 Ni 231.603	365.5	348.9	0.173180 mg/L	0.173180 mg/L	
2 Pb 220.353	71.6	68.3	0.149291 mg/L	0.149291 mg/L	
2 Sb 206.831	-8.2	-7.8	0.163302 mg/L	0.163302 mg/L	
2 Se 196.026	42.7	40.7	-0.283571 mg/L	-0.283571 mg/L	
2 Si 251.611	97178.9	92756.5	22.4257 mg/L	22.4257 mg/L	
2 Sn 189.933	-12.2	-11.6	-0.0994507 mg/L	-0.0994507 mg/L	
2 Sr 407.771	87757.2	83763.6	0.0676413 mg/L	0.0676413 mg/L	
2 Ti 334.941	556649.6	531318.1	7.30482 mg/L	7.30482 mg/L	
2 Tl 190.800	17.7	16.9	-0.0373173 mg/L	-0.0373173 mg/L	
2 V 292.402	9035.8	8624.6	0.608347 mg/L	0.608347 mg/L	
2 Zn 206.200	1510.2	1441.5	0.640467 mg/L	0.640467 mg/L	

Mean Data ----------

ID: 0911250-07 Seq. No.: 27 Sample No.: 11 A/S Pos: 27
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 2:42:32 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	357437.5	103.8	1.37	mg/L				1.32%
Y 360.064	234664.9	106.7	1.58	mg/L				1.49%
Ag 328.068	25.5	-0.0018141	0.00003604	mg/L	-0.0018141	0.00003604	mg/L	1.99%
Al 396.140	1440671.5	214.981	2.0250	mg/L	214.981	2.0250	mg/L	0.94%
As 188.979	25.9	0.109203	0.0059925	mg/L	0.109203	0.0059925	mg/L	5.49%
B 249.773	8694.4	0.154934	0.0102615	mg/L	0.154934	0.0102615	mg/L	6.62%
Ba 455.403	542939.8	1.07063	0.010091	mg/L	1.07063	0.010091	mg/L	0.94%
Be 234.861	3422.1	0.0083033	0.00029632	mg/L	0.0083033	0.00029632	mg/L	3.57%
Ca 315.887	109925.7	12.4259	0.16798	mg/L	12.4259	0.16798	mg/L	1.35%
Cd 214.438	284.4	-0.0012091	0.00118853	mg/L	-0.0012091	0.00118853	mg/L	98.30%
Ce 413.765	3023.3	0.549094	0.0036756	mg/L	0.549094	0.0036756	mg/L	0.67%
Co 228.616	679.0	0.0974044	0.00219912	mg/L	0.0974044	0.00219912	mg/L	2.26%
Cr 205.560	364.5	0.279956	0.0086533	mg/L	0.279956	0.0086533	mg/L	3.09%
Cu 327.394	1533.5	0.133697	0.0122520	mg/L	0.133697	0.0122520	mg/L	9.16%
Fe 238.204	2394929.2	301.444	2.5718	mg/L	301.444	2.5718	mg/L	0.85%
K 766.514	51266.2	16.1835	0.17459	mg/L	16.1835	0.17459	mg/L	1.08%
Li 670.781	29342.9	0.220620	0.0011676	mg/L	0.220620	0.0011676	mg/L	0.53%
Mg 279.074	32400.0	28.2984	0.44149	mg/L	28.2984	0.44149	mg/L	1.56%
Mn 257.610	371138.8	5.76676	0.051253	mg/L	5.76676	0.051253	mg/L	0.89%
Mo 202.031	-6.8	-0.0283599	0.01056942	mg/L	-0.0283599	0.01056942	mg/L	37.27%

Na 589.594	5891.0	0.220475	0.0148955	mg/L	0.220475	0.0148955 mg/L	6.76%
Ni 231.603	350.6	0.174033	0.0012059	mg/L	0.174033	0.0012059 mg/L	0.69%
Pb 220.353	68.4	0.149993	0.0009938	mg/L	0.149993	0.0009938 mg/L	0.66%
Sb 206.831	-6.0	0.175047	0.0166095	mg/L	0.175047	0.0166095 mg/L	9.49%
Se 196.026	47.6	-0.226630	0.0805261	mg/L	-0.226630	0.0805261 mg/L	35.53%
Si 251.611	93618.4	22.6378	0.29993	mg/L	22.6378	0.29993 mg/L	1.32%
Sn 189.933	-11.7	-0.100242	0.0011191	mg/L	-0.100242	0.0011191 mg/L	1.12%
Sr 407.771	84229.1	0.0680206	0.00053642	mg/L	0.0680206	0.00053642 mg/L	0.79%
Ti 334.941	534599.2	7.35012	0.064072	mg/L	7.35012	0.064072 mg/L	0.87%
Tl 190.800	16.1	-0.0423657	0.00713946	mg/L	-0.0423657	0.00713946 mg/L	16.85%
V 292.402	8708.7	0.614201	0.0082798	mg/L	0.614201	0.0082798 mg/L	1.35%
Zn 206.200	1457.4	0.647607	0.0100977	mg/L	0.647607	0.0100977 mg/L	1.56%

Replicate Data ----------

ID: 0911250-01 Date: 11/23/09 2:46:05 PM

Repl#	Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1	Sc 357.253	353943.9	353943.9	102.8	mg/L		
1	Y 360.064	233297.9	233297.9	106.1	mg/L		
1	Ag 328.068	149.9	145.8	0.0023338	mg/L	0.0023338	mg/L
1	Al 396.140	1263302.9	1229105.7	183.398	mg/L	183.398	mg/L
1	As 188.979	28.4	27.7	0.120289	mg/L	0.120289	mg/L
1	B 249.773	7669.4	7461.8	0.140479	mg/L	0.140479	mg/L
1	Ba 455.403	502815.0	489203.9	0.962567	mg/L	0.962567	mg/L
1	Be 234.861	2851.6	2774.4	0.0054021	mg/L	0.0054021	mg/L
1	Ca 315.887	88805.2	86401.3	9.78712	mg/L	9.78712	mg/L
1	Cd 214.438	280.1	272.6	0.0031611	mg/L	0.0031611	mg/L
1	Ce 413.765	3492.6	3398.0	0.616870	mg/L	0.616870	mg/L
1	Co 228.616	543.5	528.8	0.0787492	mg/L	0.0787492	mg/L
1	Cr 205.560	353.3	343.8	0.266156	mg/L	0.266156	mg/L
1	Cu 327.394	1665.8	1620.7	0.140844	mg/L	0.140844	mg/L
1	Fe 238.204	2074123.2	2017977.4	253.994	mg/L	253.994	mg/L
1	K 766.514	44697.4	43487.4	13.6034	mg/L	13.6034	mg/L
1	Li 670.781	36419.8	35433.9	0.267665	mg/L	0.267665	mg/L
1	Mg 279.074	23407.9	22774.3	19.8607	mg/L	19.8607	mg/L
1	Mn 257.610	443735.4	431723.7	6.70818	mg/L	6.70818	mg/L
1	Mo 202.031	3.0	3.0	-0.0124253	mg/L	-0.0124253	mg/L
1	Na 589.594	4601.1	4476.5	0.103502	mg/L	0.103502	mg/L
1	Ni 231.603	318.6	309.9	0.153408	mg/L	0.153408	mg/L
1	Pb 220.353	81.8	79.5	0.178145	mg/L	0.178145	mg/L
1	Sb 206.831	-24.8	-24.1	0.0303888	mg/L	0.0303888	mg/L
1	Se 196.026	52.9	51.4	-0.195620	mg/L	-0.195620	mg/L
1	Si 251.611	103721.0	100913.3	24.7513	mg/L	24.7513	mg/L
1	Sn 189.933	-10.9	-10.7	-0.0894524	mg/L	-0.0894524	mg/L
1	Sr 407.771	73919.5	71918.6	0.0579893	mg/L	0.0579893	mg/L
1	Ti 334.941	258018.8	251034.3	3.43466	mg/L	3.43466	mg/L
1	Tl 190.800	9.5	9.3	0.0232603	mg/L	0.0232603	mg/L
1	V 292.402	6974.8	6786.0	0.481224	mg/L	0.481224	mg/L
1	Zn 206.200	1165.2	1133.6	0.502101	mg/L	0.502101	mg/L
2	Sc 357.253	356255.6	356255.6	103.5	mg/L		
2	Y 360.064	234759.2	234759.2	106.8	mg/L		
2	Ag 328.068	49.6	47.9	-0.0020979	mg/L	-0.0020979	mg/L
2	Al 396.140	1251816.4	1210027.1	180.550	mg/L	180.550	mg/L
2	As 188.979	29.5	28.5	0.125847	mg/L	0.125847	mg/L
2	B 249.773	7631.8	7377.0	0.140484	mg/L	0.140484	mg/L
2	Ba 455.403	498266.8	481633.3	0.947343	mg/L	0.947343	mg/L
2	Be 234.861	3001.6	2901.4	0.0076429	mg/L	0.0076429	mg/L
2	Ca 315.887	88239.7	85294.0	9.66274	mg/L	9.66274	mg/L
2	Cd 214.438	268.0	259.1	0.0015402	mg/L	0.0015402	mg/L
2	Ce 413.765	3359.6	3247.5	0.589643	mg/L	0.589643	mg/L
2	Co 228.616	531.5	513.7	0.0752668	mg/L	0.0752668	mg/L
2	Cr 205.560	346.3	334.7	0.257791	mg/L	0.257791	mg/L
2	Cu 327.394	1653.1	1598.0	0.138979	mg/L	0.138979	mg/L
2	Fe 238.204	2057808.8	1989113.2	250.361	mg/L	250.361	mg/L
2	K 766.514	44130.1	42656.9	13.3284	mg/L	13.3284	mg/L
2	Li 670.781	35942.9	34743.0	0.262329	mg/L	0.262329	mg/L
2	Mg 279.074	23393.0	22612.1	19.7208	mg/L	19.7208	mg/L
2	Mn 257.610	439809.3	425127.2	6.60567	mg/L	6.60567	mg/L
2	Mo 202.031	-1.8	-1.7	-0.0200216	mg/L	-0.0200216	mg/L

2 Na 589.594	4486.3	4336.5	0.0921773 mg/L	0.0921773 mg/L	
2 Ni 231.603	318.4	307.8	0.152407 mg/L	0.152407 mg/L	
2 Pb 220.353	79.3	76.7	0.167640 mg/L	0.167640 mg/L	
2 Sb 206.831	-10.7	-10.3	0.104164 mg/L	0.104164 mg/L	
2 Se 196.026	59.9	57.9	-0.142622 mg/L	-0.142622 mg/L	
2 Si 251.611	102991.6	99553.4	24.4138 mg/L	24.4138 mg/L	
2 Sn 189.933	-6.3	-6.1	-0.0414897 mg/L	-0.0414897 mg/L	
2 Sr 407.771	73369.6	70920.4	0.0571759 mg/L	0.0571759 mg/L	
2 Ti 334.941	255860.1	247318.8	3.38336 mg/L	3.38336 mg/L	
2 Tl 190.800	6.0	5.8	-0.0026320 mg/L	-0.0026320 mg/L	
2 V 292.402	6845.5	6617.0	0.469457 mg/L	0.469457 mg/L	
2 Zn 206.200	1145.6	1107.3	0.490287 mg/L	0.490287 mg/L	

Mean Data ----------

ID: 0911250-01 Seq. No.: 28 Sample No.: 12 A/S Pos: 28
Sample Qty: 1.0000 mL Prep. Vol.: 1.0 mL Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 2:46:05 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Sample Units	RSD
Sc 357.253	355099.7	103.1	0.47	mg/L				0.46%
Y 360.064	234028.5	106.4	0.47	mg/L				0.44%
Ag 328.068	96.9	0.0001180	0.00313371	mg/L	0.0001180	0.00313371	mg/L	>999.9%
Al 396.140	1219566.4	181.974	2.0139	mg/L	181.974	2.0139	mg/L	1.11%
As 188.979	28.1	0.123068	0.0039306	mg/L	0.123068	0.0039306	mg/L	3.19%
B 249.773	7419.4	0.140481	0.0000038	mg/L	0.140481	0.0000038	mg/L	0.00%
Ba 455.403	485418.6	0.954955	0.0107651	mg/L	0.954955	0.0107651	mg/L	1.13%
Be 234.861	2837.9	0.0065225	0.00158453	mg/L	0.0065225	0.00158453	mg/L	24.29%
Ca 315.887	85847.6	9.72493	0.087947	mg/L	9.72493	0.087947	mg/L	0.90%
Cd 214.438	265.8	0.0023507	0.00114616	mg/L	0.0023507	0.00114616	mg/L	48.76%
Ce 413.765	3322.8	0.603256	0.0192526	mg/L	0.603256	0.0192526	mg/L	3.19%
Co 228.616	521.3	0.0770080	0.00246241	mg/L	0.0770080	0.00246241	mg/L	3.20%
Cr 205.560	339.2	0.261973	0.0059146	mg/L	0.261973	0.0059146	mg/L	2.26%
Cu 327.394	1609.3	0.139912	0.0013185	mg/L	0.139912	0.0013185	mg/L	0.94%
Fe 238.204	2003545.3	252.177	2.5692	mg/L	252.177	2.5692	mg/L	1.02%
K 766.514	43072.1	13.4659	0.19450	mg/L	13.4659	0.19450	mg/L	1.44%
Li 670.781	35088.5	0.264997	0.0037734	mg/L	0.264997	0.0037734	mg/L	1.42%
Mg 279.074	22693.2	19.7907	0.09895	mg/L	19.7907	0.09895	mg/L	0.50%
Mn 257.610	428425.4	6.65692	0.072480	mg/L	6.65692	0.072480	mg/L	1.09%
Mo 202.031	0.6	-0.0162234	0.00537136	mg/L	-0.0162234	0.00537136	mg/L	33.11%
Na 589.594	4406.5	0.0978397	0.00800790	mg/L	0.0978397	0.00800790	mg/L	8.18%
Ni 231.603	308.9	0.152908	0.0007078	mg/L	0.152908	0.0007078	mg/L	0.46%
Pb 220.353	78.1	0.172893	0.0074283	mg/L	0.172893	0.0074283	mg/L	4.30%
Sb 206.831	-17.2	0.0672762	0.05216669	mg/L	0.0672762	0.05216669	mg/L	77.54%
Se 196.026	54.6	-0.169121	0.0374752	mg/L	-0.169121	0.0374752	mg/L	22.16%
Si 251.611	100233.4	24.5825	0.23860	mg/L	24.5825	0.23860	mg/L	0.97%
Sn 189.933	-8.4	-0.0654711	0.03391478	mg/L	-0.0654711	0.03391478	mg/L	51.80%
Sr 407.771	71419.5	0.0575826	0.00057515	mg/L	0.0575826	0.00057515	mg/L	1.00%
Ti 334.941	249176.6	3.40901	0.036278	mg/L	3.40901	0.036278	mg/L	1.06%
Tl 190.800	7.5	0.0103141	0.01830861	mg/L	0.0103141	0.01830861	mg/L	177.51%
V 292.402	6701.5	0.475341	0.0083206	mg/L	0.475341	0.0083206	mg/L	1.75%
Zn 206.200	1120.5	0.496194	0.0083536	mg/L	0.496194	0.0083536	mg/L	1.68%

Replicate Data ----------

ID: 0913883-MS2 Date: 11/23/09 2:49:39 PM

Repl# Element	Net Intensity	Corrected Intensity	Calib Conc.	Units	Sample Conc.	Units
1 Sc 357.253	355703.9	355703.9	103.3	mg/L		
1 Y 360.064	235619.5	235619.5	107.1	mg/L		
1 Ag 328.068	5873.9	5686.6	0.248828	mg/L	0.248828	mg/L
1 Al 396.140	1757145.0	1701121.0	253.861	mg/L	253.861	mg/L
1 As 188.979	220.1	213.1	1.28032	mg/L	1.28032	mg/L
1 B 249.773	10764.3	10421.1	0.392880	mg/L	0.392880	mg/L
1 Ba 455.403	803137.1	777530.2	1.54238	mg/L	1.54238	mg/L
1 Be 234.861	5351.9	5181.2	0.0342340	mg/L	0.0342340	mg/L
1 Ca 315.887	222148.7	215065.8	24.1838	mg/L	24.1838	mg/L
1 Cd 214.438	1990.2	1926.8	0.256537	mg/L	0.256537	mg/L
1 Ce 413.765	3988.3	3861.2	0.700641	mg/L	0.700641	mg/L
1 Co 228.616	1472.1	1425.2	0.357499	mg/L	0.357499	mg/L
1 Cr 205.560	673.1	651.6	0.563026	mg/L	0.563026	mg/L

2 Mg 279.074	-58.4	-57.0	-0.0331649	mg/L
2 Mn 257.610	-181.8	-177.4	-0.0030659	mg/L
2 Mo 202.031	4.5	4.4	-0.0100916	mg/L
2 Na 589.594	2760.8	2693.7	-0.0613630	mg/L
2 Ni 231.603	9.5	9.3	-0.0058995	mg/L
2 Pb 220.353	46.3	45.2	0.0093949	mg/L
2 Sb 206.831	5.5	5.4	-0.0375363	mg/L
2 Se 196.026	69.6	67.9	-0.0604942	mg/L
2 Si 251.611	1194.7	1165.7	-0.0148532	mg/L
2 Sn 189.933	-4.7	-4.6	-0.0256226	mg/L
2 Sr 407.771	1145.7	1117.8	0.0002974	mg/L
2 Ti 334.941	2106.1	2054.9	-0.0032476	mg/L
2 Tl 190.800	28.7	28.0	0.0389900	mg/L
2 V 292.402	-364.0	-355.2	-0.0012611	mg/L
2 Zn 206.200	6.9	6.7	-0.0043736	mg/L

Mean Data

ID: 9K23049-CCB Seq. No.: 5 Sample No.: 9 A/S Pos: 1
Sample Qty: 1.0000 g Prep. Vol.: 1.0 L Dilution: 1.0: 1.0
Data: Original Date: 11/23/09 3:14:26 PM

Element	Mean Corr. Intensity	Mean Conc.	Std.Dev.	Calib Units	Mean Conc.	Sample Std.Dev.	Units	RSD
Sc 357.253	348172.9	101.1	1.96	mg/L				1.94%
Y 360.064	223046.2	101.4	2.11	mg/L				2.08%
Ag 328.068	198.3	-0.0016926	0.00001062	mg/L				0.63%
Al 396.140	619.2	0.0079138	0.00050927	mg/L				6.44%
As 188.979	9.4	0.0063156	0.00400120	mg/L				63.35%
B 249.773	288.8	-0.0034640	0.00192116	mg/L				55.46%
Ba 455.403	9594.6	-0.0019025	0.00022274	mg/L				11.71%
Be 234.861	15.1	-0.0001586	0.00011113	mg/L				70.07%
Ca 315.887	-714.3	0.0045788	0.00017002	mg/L				3.71%
Cd 214.438	6.3	-0.0042959	0.00190346	mg/L				44.31%
Ce 413.765	-180.2	-0.0303060	0.00839484	mg/L				27.70%
Co 228.616	-12.0	0.0030996	0.00113452	mg/L				36.60%
Cr 205.560	31.7	-0.0045203	0.00315451	mg/L				69.78%
Cu 327.394	-119.1	-0.0016974	0.00417348	mg/L				245.88%
Fe 238.204	211.5	0.0033609	0.00155169	mg/L				46.17%
K 766.514	2213.1	-0.0850477	0.01852335	mg/L				21.78%
Li 670.781	754.9	-0.0001886	0.00040302	mg/L				213.68%
Mg 279.074	-24.5	-0.0045446	0.04047525	mg/L				890.62%
Mn 257.610	-172.1	-0.0029833	0.00011678	mg/L				3.91%
Mo 202.031	7.9	-0.0043087	0.00817814	mg/L				189.80%
Na 589.594	2736.8	-0.0579852	0.00477689	mg/L				8.24%
Ni 231.603	21.0	0.0009879	0.00974026	mg/L				985.93%
Pb 220.353	46.8	0.0150328	0.00797316	mg/L				53.04%
Sb 206.831	7.3	-0.0271369	0.01470697	mg/L				54.20%
Se 196.026	66.8	-0.0690376	0.01208224	mg/L				17.50%
Si 251.611	1183.1	-0.0104870	0.00617475	mg/L				58.88%
Sn 189.933	-5.4	-0.0346327	0.01274220	mg/L				36.79%
Sr 407.771	1121.3	0.0003002	0.00000399	mg/L				1.33%
Ti 334.941	2063.4	-0.0031304	0.00016573	mg/L				5.29%
Tl 190.800	25.3	0.0207032	0.02586144	mg/L				124.92%
V 292.402	-358.8	-0.0015240	0.00037183	mg/L				24.40%
Zn 206.200	11.2	-0.0023786	0.00282134	mg/L				118.61%

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

79554

12/21/07

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5409 g / 50 mL

Laboratory ID: 0913883-MS1

QC Batch: 0913883

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Aluminum, Total	116	17000	20200 ☆	2830 *	80 - 120	mg/kg dry wt.
Barium, Total	23.1	87.2	126	166 *	80 - 120	mg/kg dry wt.
Beryllium, Total	2.31	0.718	3.04	101	80 - 120	mg/kg dry wt.
Cadmium, Total	23.1	1.08	21.9	90	80 - 120	mg/kg dry wt.
Calcium, Total	1160	860	1890	89	80 - 120	mg/kg dry wt.
Chromium, Total	23.1	22.6	44.6	95	80 - 120	mg/kg dry wt.
Cobalt, Total	23.1	8.94	31.1	96	80 - 120	mg/kg dry wt.
Magnesium, Total	1160	1760	2810	90	80 - 120	mg/kg dry wt.
Manganese, Total	23.1	629	804 ☆	757 *	80 - 120	mg/kg dry wt.
Potassium, Total	1160	1310	2540	106	80 - 120	mg/kg dry wt.
Zinc, Total	23.1	43.1	67.7	107	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

☆ [Spike] ≯ 1/4 [parent] ∴ no action

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

79554 CS

AS 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5222 g / 50 mL

Laboratory ID: 0913883-MSD1

QC Batch: 0913883

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Aluminum, Total	120	19600 ✱	2190 *	3	20	80 - 120	mg/kg dry wt.
Barium, Total	23.9	111	99	12	20	80 - 120	mg/kg dry wt.
Beryllium, Total	2.39	3.08	99	1	20	80 - 120	mg/kg dry wt.
Cadmium, Total	23.9	22.2	88	1	20	80 - 120	mg/kg dry wt.
Calcium, Total	1200	1890	86	0.2	20	80 - 120	mg/kg dry wt.
Chromium, Total	23.9	42.6	84	4	20	80 - 120	mg/kg dry wt.
Cobalt, Total	23.9	30.3	89	3	20	80 - 120	mg/kg dry wt.
Magnesium, Total	1200	2850	91	2	20	80 - 120	mg/kg dry wt.
Manganese, Total	23.9	671 ✱	176 *	18	20	80 - 120	mg/kg dry wt.
Potassium, Total	1200	2610	108	3	20	80 - 120	mg/kg dry wt.
Zinc, Total	23.9	67.3	101	0.7	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

✱ [spike] > 1/4 [parent] ∴ no action

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

79554 CS

AS 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5409 g / 50 mL

QC Batch: 0913883

Laboratory ID: 0913883-MS2

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Iron, Total	23.1	25700	26300 ☆	2910 *	80 - 120	mg/kg dry wt.
Sodium, Total	1160	9.75	1380	119	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

☆ [spike] ≯ 1/4 [parent] ∴ no action

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-6010B

79554

12/21/07

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.5222 g / 50 mL

Laboratory ID: 0913883-MSD2

QC Batch: 0913883

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Iron, Total	23.9	25200	-1950 *	4	20	80 - 120	mg/kg dry wt.
Sodium, Total	1200	1280	106	8	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

* [spike] ≠ 1/4 [parent] ∴ no action

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

79554

12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0913883-PS1

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.04012 g / 4 mL

QC Batch: 0913883

Sequence: 9K20033

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Barium, Total	75 - 125	1.07	0.874	0.250	80	mg/L
Beryllium, Total	75 - 125	0.0305	0.00720	0.0250	93	mg/L
Cadmium, Total	75 - 125	0.231	0.0108	0.250	88	mg/L
Calcium, Total	75 - 125	19.2	8.63	12.5	85	mg/L
Chromium, Total	75 - 125	0.442	0.226	0.250	86	mg/L
Cobalt, Total	75 - 125	0.308	0.0897	0.250	87	mg/L
Magnesium, Total	75 - 125	28.0	17.7	12.5	83	mg/L
Potassium, Total	75 - 125	25.1	13.2	12.5	95	mg/L
Zinc, Total	75 - 125	0.648	0.432	0.250	86	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

79554 SS

AB 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0913883-PS2

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.0002006 g / 0.02 mL

QC Batch: 0913883

Sequence: 9K23049

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Iron, Total	75 - 125	372	257	125	92	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

79584

AB 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0913883-PS3

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.001003 g / 0.1 mL

QC Batch: 0913883

Sequence: 9K20033

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Aluminum, Total	75 - 125	285	170	125	92	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

79554

4/12/21 09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0913883-PS4

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.01003 g / 1 mL

QC Batch: 0913883

Sequence: 9K20033

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Manganese, Total	75 - 125	8.77	6.31	2.50	99	mg/L

* Values outside of QC limits

POST DIGEST SPIKE SAMPLE RECOVERY

USEPA-6010B

79554 SS

AR 12/21/09

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

% Solids: 78.26

Laboratory ID: 0913883-PS5

Lab Source ID: 0911250-01

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 3050B Digestion

Initial/Final: 0.04012 g / 4 mL

QC Batch: 0913883

Sequence: 9K23049

Analyte	Control Limit %R	Spike Sample Result (SSR)	Sample Result (SR)	Spike Added (SA)	%R	Units
Sodium, Total	75 - 125	13.2	0.0978	12.5	105	mg/L

* Values outside of QC limits

SERIAL DILUTION
USEPA-6010B

79554 SP
SP 12/21/07

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 78.26
Laboratory ID: 9K20033-SRD1
Lab Source ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
QC Batch: 9K20033
Sequence: 9K20033

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Barium, Total	0.874		0.876		0.0		mg/L	10
Beryllium, Total	0.00720	J	0.00967	J	34.0 #		mg/L	10
Cadmium, Total	0.0108	J	0.000717	U	93.0 #		mg/L	10
Calcium, Total	8.63		8.78		2.0		mg/L	10
Chromium, Total	0.226		0.225	J	0.0 #		mg/L	10
Cobalt, Total	0.0897		0.0891	J	1.0 #		mg/L	10
Magnesium, Total	17.7		17.9		1.0		mg/L	10
Potassium, Total	13.2		13.0		2.0		mg/L	10
Zinc, Total	0.432		0.438		1.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

79554

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 78.26
Laboratory ID: 9K20033-SRD3
Lab Source ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
QC Batch: 9K20033
Sequence: 9K20033

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Aluminum, Total	1.70		1.76		4.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

79554 GS

12/21/07

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 78.26
Laboratory ID: 9K20033-SRD4
Lab Source ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
QC Batch: 9K20033
Sequence: 9K20033

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Manganese, Total	0.631		0.638		1.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

79584

12/21/07

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 78.26
Laboratory ID: 9K23049-SRD1
Lab Source ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
QC Batch: 9K23049
Sequence: 9K23049

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Iron, Total	0.515		0.497	J	3.0		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

SERIAL DILUTION
USEPA-6010B

79554

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
% Solids: 78.26
Laboratory ID: 9K23049-SRD2
Lab Source ID: 0911250-01

SDG: SSP1109
Project: RFAAP SSP at Six Sites
QC Batch: 9K23049
Sequence: 9K23049

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Units	QC Limits % Difference
Sodium, Total	0.0978	J	-0.146	U	249.0 #		mg/L	10

* Values outside of QC limits

Initial Sample Result (I) was less than 50xMDL (for 6010) or 100xMDL (for 6020), therefore serial dilution is not required.

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

79554

USEPA-7471A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 7471A Mercury Digestion

Initial/Final: 0.3016 g / 50 mL

Laboratory ID: 0913798-MS1

QC Batch: 0913798

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Mercury, Total	0.332	0.0442	0.402	108	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

79554

USEPA-7471A

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 7471A Mercury Digestion

Initial/Final: 0.3023 g / 50 mL

Laboratory ID: 0913798-MSD1

QC Batch: 0913798

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Mercury, Total	0.331	0.366	97	9	20	80 - 120	mg/kg dry wt.

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9014

79554

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.46 g / 250 mL

Laboratory ID: 0913853-MS1

QC Batch: 0913853

Analyte	Spike Added	Sample Conc.	MS Conc.	MS % Rec. #	QC Limits Rec.	Units
Cyanide, Total	1.25	ND	1.36	108	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

USEPA-9014

79554

Laboratory: TriMatrix Laboratories, Inc.

Client: URS Corporation

Matrix: Soil

SDG: SSP1109

Project: RFAAP SSP at Six Sites

Preparation: 9010B Cyanide Distillation

Initial/Final: 25.36 g / 250 mL

Laboratory ID: 0913853-MSD1

QC Batch: 0913853

Analyte	Spike Added	MSD Conc.	MSD % Rec. #	% RPD #	QC Limits RPD	QC Limits Rec.	Units
Cyanide, Total	1.26	1.38	109	1	20	80 - 120	mg/kg dry

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

DUPLICATES
USEPA-3550B

79554

Laboratory: TriMatrix Laboratories, Inc.
Client: URS Corporation
Matrix: Soil
QC Batch: 0913731
Preparation: General Inorganic Prep
Source Sample Name: 79554

SDG: SSP1109
Project: RFAAP SSP at Six Sites
Laboratory ID: 0913731-DUP1
Lab Source ID: 0911250-01
Initial/Final: 10 g / 10 mL
% Solids: 78.26

Analyte	Control Limit	Sample Conc.	C	Dup. Conc.	C	RPD %	Q	Method	Units
Percent Solids	20	78		79		1		USEPA-3550B	%

* Values outside of QC limits

SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	
0911250-01 79554	Arsenic
0911250-01 79554	Selenium
0911250-01 79554	Silver
0911250-01 79554	Vanadium

Qualification: The RPD between the MS and MSD results exceeded the control limit. The non-spiked sample concentration for the same analyte was less than 4 times the spiked amount; the non-spiked sample result is considered estimated.

Analysis: USEPA-6020A

Sample/Analyte:	
0911250-01 79554	Silver

Qualification: The MS or MSD recovery, but not both, was outside the control limit. The RPD is within the control limit. The unspiked sample result is considered estimated.

Analysis: USEPA-6010B

Sample/Analyte:	
0911250-01 79554	Barium

Analysis: USEPA-6020A

Sample/Analyte:	
0911250-01 79554	Copper

Qualification: This analyte was not present in this sample at a concentration greater than 50 times the MDL, therefore serial dilution is not required.

Analysis: USEPA-6010B

Sample/Analyte:	
0911250-01 79554	Beryllium

Qualification: The MS and/or MSD recovery was outside the control limit. The non-spiked sample concentration for the same analyte was greater than or equal to 4 times the spiked amount; the non-spiked sample result is not qualified.

Analysis: USEPA-6010B

Sample/Analyte:	
0911250-01 79554	Aluminum
0911250-01 79554	Iron

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SDG CASE NARRATIVE

Attachment 2
Statement of Data Qualifications

Total Metals by EPA 6000/7000 Series Methods

Sample/Analyte: 0911250-01 79554 Manganese

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TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court
Grand Rapids, MI 49512 (616) 975-4500

TRANSMITTAL FORM

Date: December 15, 2009

Attention: Ms. Andrea Sansom
To: URS Group, Inc.
849 International Drive
Suite 320
Linthicum, MD 21090

SDG: SSP1109
Client: URS Group, Inc.
WO: 0911250
Project/Site Name: RFAAP 6-Sites
Location: Radford, VA

WE ARE SENDING YOU:

BY: _____ U.S. Mail _____ UPS __X__ Federal Express _____ Other: _____

ENCLOSED WITH THIS TRANSMITTAL: *X* *UNDER SEPARATE COVER:* _____

_____ Work Plan(s)	_____ Report(s) (FINAL)	_____ Contract Documents
_____ Specifications	_____ For your Signature	_____ Change Order No.
_____ Shop Drawings	_____ Proposal(s)	__X__ Data Package

QUANTITY	*DESCRIPTION / DOCUMENT NAME*
1	Data Validation Package

THESE ARE TRANSMITTED AS CHECKED BELOW:

_____ For Approval	_____ For Your Information	_____ For Your Use
_____ Report For File	__X__ Furnished As Requested	_____ As Corrected
_____ For Review and Comment	_____ Revise and Resubmit	_____ For Field Use
_____ Rejected	_____ _____	_____ For Submittal To: _____

This report relates only to the sample(s), as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC); any qualifications of results, including sample acceptance requirements, are explained in the Statement of Data Qualifications and SDG narrative.

cc:

BY: _____
Lisa Harvey
Project Chemist

SDG CASE NARRATIVE

URS Corporation
RFAAP SSP at Six Sites

SDG Executive Summary

This case narrative applies to samples received on November 12, 2009. All samples were scheduled for analysis in accordance with parameters outlined on the field chain of custody record, the TriMatrix bid form, and/or oral and written correspondence between URS Corporation and TriMatrix Laboratories, Inc..

Each sample receipt event was assigned a unique TriMatrix work order number. Sample receipt documentation is included in section A of this data package.

Project Technical Issues/Problems

Project-related data qualification designations and reporting conventions are included in Attachment 1 - *Project Technical Narrative.*

QA/QC Data Qualifications/Narrations

Quality assurance issues and/or quality control data qualifications and narrations related to the analysis and reporting of this SDG are presented in Attachment 2 - *Statement of Data Qualifications.* The absence of a statement page for a particular analyte group (*e.g.* Percent Solids) implies that no qualifying statements were generated for that analyte.

Data Review and Approval

All data was peer-reviewed by a second analyst, and then by appropriate data management staff against laboratory quality control requirements and project specifications. It was then reviewed and approved by the group supervisor/manager prior to further review by the project chemist.

Data Deliverables

The data deliverables, both hardcopy and/or electronic (EDD), that comprise this data package are intended to comply with the documents referenced in the introductory section of this narrative. The EDD, if requested, will be issued separately from this hardcopy report. Hold time reports for each test procedure are presented following the CLP-like forms section of this report.

This report relates only to the sample(s) as received. Test results are in compliance with the requirements of the National Environmental Laboratory Accreditation Conference (NELAC). Estimates of analytical uncertainties for the test results contained within the report are available upon request.

Lisa M. Harvey

Lisa M. Harvey, Project Chemist

12.15.2009
Date

SDG: SSP1109

SDG CASE NARRATIVE

Sample Receipt and Login -- Work Order: 0911250

TriMatrix Laboratories received the cooler(s) for this work order on November 12, 2009, at 09:30am. Receiving documents include field chain-of-custody (COC) record(s), sample receipt form(s), and FedEx shipping document(s). The condition of the custody seals, the type and location of the coolant, and the temperatures recorded for each cooler are presented on the TriMatrix *Sample Receiving / Log-In Checklist* provided in section A of this package. The receipt temperature of the samples was determined by using an infrared thermometer to record the temperature of three random samples of varying container types and the accompanying temperature blank, if present.

Samples were scheduled for the analyses listed on the corresponding COC form. Field IDs and assigned laboratory identifiers are presented in the table below.

Field Sample Name	Laboratory Sample ID	Matrix	Date Sampled
79554	0911250-01	Soil	11/11/2009
79SB3B	0911250-02	Soil	11/11/2009
79SS5	0911250-03	Soil	11/11/2009
DUP	0911250-04	Soil	11/11/2009
79SB1B	0911250-05	Soil	11/11/2009
72SB2B	0911250-06	Soil	11/11/2009
72SB3B	0911250-07	Soil	11/11/2009

No administrative issues were encountered during the receipt and analysis of this work order.

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SDG CASE NARRATIVE

Attachment 1
Project Technical Narrative

Sample Result Reporting Convention

Sample results are reported as RL 'U' (e.g., 0.001 U) if the target analyte was not detected above the MDL. If a sample for an organic parameter is reanalyzed and also reported, the second analysis includes the suffix 'REn' where n = the first, second, etc. reanalysis. If a sample is reanalyzed for confirmation purposes, is confirmed and also reported, the second analysis includes the suffix 'RE1'. If the confirmation was not performed simultaneously, the second set of sample results is reported on a second Form 1 since that confirmation analysis did not occur at the same time and/or date.

Method Detection Limits, Target Analytes, and Reporting Limits

All method detection limits (MDL) for analytes in this report are compliant with the DoD QSM specification that each reporting limit (RL) employed is to be at least three times the MDL. In addition, no RL is less than the equivalent concentration of the lowest instrument calibration standard.

Quality Control Limits

Quality control limits specified in the DoD QSM were employed. For cases in which the analyte is not listed in the QSM, internal laboratory control limits were used.

Data Qualifier Designation

If applicable, a sample result is qualified with:

- a "U" flag if the analyte was not detected at a concentration greater than the MDL,
- a "B", "J", and/or an "E" flag as defined in the Variance section,
- a LIMS-generated statement of qualification. Qualifying statements, if any, will be found in Attachment 2 to this narrative.

QC Batch and Analytical Batch Designation

A Quality Control (QC) Batch is a seven digit number that associates all samples that have been prepared together (or analyzed together if there is no preparation). Quality Control batches are limited to no more than twenty samples, excluding batch QC (method blanks, control spikes, etc.). Some batches may contain multiple sets of method blanks (BLK) and laboratory control samples (BS), where a set of method quality control analyses were prepared in concert with each set of samples on a given day.

An Analytical Batch (or Sequence) is a seven digit number that associates all samples analyzed as a set under one analytical sequence.

TriMatrix Laboratories, Inc.

SAMPLE RECEIVING / LOG-IN CHECKLIST

Client URS - Richmond

Project-Submittal No. New / Add To 0911250

Receipt Record Page/Line No. 21·2

Project Chemist WH

Sample Nos. 01 - 07

Coolers Received

Recorded by (initials/date) WC 11·12·09

☒ Cooler
☐ Box
☐ Other____

Qty Received 1

Thermometer Used ☒ IR Gun (#202) ☐ Digital Thermometer (#54) ☐ Other (#______)

☐ See Additional Cooler Information Form

Cooler No. Tm 1376 Time 1009

Custody Seals:
☐ None
☒ Present / Intact
☐ Present / Not Intact

Coolant Location:
[✓ Dispersed] / Top / Middle / Bottom

Coolant/Temperature Taken Via:
☒ Loose Ice / Avg 2-3 containers
☐ Bagged Ice / Avg 2-3 containers
☐ Blue Ice / Avg 2-3 containers
☐ None / Avg 2-3 containers

Alternate Temperature Taken Via:
☒ Temperature Blank (TB)
☐ 1 Container

Recorded °C	Correction Factor °C	Actual °C
Temp Blank:	-	2.8
TB location: [✓ Representative] / Not Representative		
1 3.1	-	3.1
2 3.3	-	3.3
3 2.6	-	2.6
	Average °C	3.0

☐ Cooler ID on COC?
☐ VOC Trip Blank received?

Cooler No. ____ Time ____

Custody Seals:
☐ None
☐ Present / Intact
☐ Present / Not Intact

Coolant Location:
Dispersed / Top / Middle / Bottom

Coolant/Temperature Taken Via:
☐ Loose Ice / Avg 2-3 containers
☐ Bagged Ice / Avg 2-3 containers
☐ Blue Ice / Avg 2-3 containers
☐ None / Avg 2-3 containers

Alternate Temperature Taken Via:
☐ Temperature Blank (TB)
☐ 1 Container

Recorded °C	Correction Factor °C	Actual °C
Temp Blank:		
TB location: Representative / Not Representative		
1		
2		
3		
	Average °C	

☐ Cooler ID on COC?
☐ VOC Trip Blank received?

Cooler No. ____ Time ____

Custody Seals:
☐ None
☐ Present / Intact
☐ Present / Not Intact

Coolant Location:
Dispersed / Top / Middle / Bottom

Coolant/Temperature Taken Via:
☐ Loose Ice / Avg 2-3 containers
☐ Bagged Ice / Avg 2-3 containers
☐ Blue Ice / Avg 2-3 containers
☐ None / Avg 2-3 containers

Alternate Temperature Taken Via:
☐ Temperature Blank (TB)
☐ 1 Container

Recorded °C	Correction Factor °C	Actual °C
Temp Blank:		
TB location: Representative / Not Representative		
1		
2		
3		
	Average °C	

☐ Cooler ID on COC?
☐ VOC Trip Blank received?

Cooler No. ____ Time ____

Custody Seals:
☐ None
☐ Present / Intact
☐ Present / Not Intact

Coolant Location:
Dispersed / Top / Middle / Bottom

Coolant/Temperature Taken Via:
☐ Loose Ice / Avg 2-3 containers
☐ Bagged Ice / Avg 2-3 containers
☐ Blue Ice / Avg 2-3 containers
☐ None / Avg 2-3 containers

Alternate Temperature Taken Via:
☐ Temperature Blank (TB)
☐ 1 Container

Recorded °C	Correction Factor °C	Actual °C
Temp Blank:		
TB location: Representative / Not Representative		
1		
2		
3		
	Average °C	

☐ Cooler ID on COC?
☐ VOC Trip Blank received?

If any shaded areas checked, complete Sample Receiving Non-Conformance Form

Paperwork Received

☐ No COC Received

N/A	Yes	No	
	☒	☐	**Chain of Custody record(s)?**
	☐		If **No**, COC Initiated By ______
	☒		Rec'd for Lab Signed/Date/Time?
☐	☒		Shipping document?
☒	☐		Other ______

COC ID Nos.

☒ TriMatrix 130169

☐ Other (Name or ID#) ______

Check COC for Accuracy

☐ No analysis requested

Yes	No	
☒	☐	Sample ID matches COC?
☒	☐	Sample Date and Time matches COC?
☒		Container type completed on COC?
☒	☐	All container types indicated are received?

Sample Condition Summary

☐ **Non-TriMatrix containers, see Notes**

N/A	Yes	No	
	☐	☒	Broken containers/lids?
	☐	☒	Missing or incomplete labels?
	☐	☒	Illegible information on labels?
	☐	☒	Low volume received?
	☐	☒	Inappropriate containers received?
☒	☐	☐	VOC vials / TOX containers have headspace?
☐	☐	☒	Extra sample locations / containers not listed on COC?

Check Sample Preservation

N/A	Yes	No	
	☒	☐	Average sample temperature ≤6° C?
☒	☐		Completed Sample Preservation Verification Form?
☒	☐	☐	Samples preserved correctly?
☒	☐		If "No", added orange tag?
☒	☒		Received pre-preserved VOC soils?

☐ MeOH ☐ Na_2SO_4

Check for Short Hold-Time Prep/Analyses

☐ Bacteriological
☐ Air Bags
☒ [✓ EnCores] / Methanol Pre-Preserved
☐ Formaldehyde/Aldehyde
☐ Green-tagged containers
☐ Yellow/White-tagged 1L ambers (SV Prep-Lab)

AFTER HOURS ONLY:
COPIES OF COC TO LAB AREA(S)
☐ NONE RECEIVED
☒ RECEIVED, COCs TO LAB(S)

Notes

☐ Trip Blank received ☐ Trip Blank not listed on COC
☐ No COC received, Proj. Chemist reviewed (Init/Date) ______
☐ No analysis requested, Proj. Chemist completed (Init/Date) ______

Cooler Received (Date/Time)	Paperwork Delivered (Date/Time)	≤1 Hour Goal Met?
11·12·09 0930	11·12·09 1015	[✓ Yes] / No

FedEx. PRIORITY OVERNIGHT THU

Emp# 438031 23:17 11NOV09

Deliver By:
12NOV09

TRK# 8624 5854 3687 FOR 02

GRR

49512 -MI-US XX GRRA

Official Sample Seal

TriMatrix Laboratories, Inc.

(616) 975-4500

USTODY Signature

EAL Site REAL Date 11/9

GR

09112SD

00015

TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No. 130169

SSP1109

Page ____ of ____

For Lab Use Only

Cart: Inorganics
VOA Rack/Tray:
Receipt Log No.: 212
Project Chemist: MH
Laboratory Project No.: 0911250

Client Name: URS Corporation
Address: 5540 Falmouth St. Suite 201
Richmond, VA 23230
Phone (804) 965-9000
Fax (804) 965-9764

Project Name: RFAAP SSP 6 Sites
Client Project No./P.O. No.: 11657490
Invoice No. ☐ Client ☐ Other (comments)
Contact/Report To: Tina MacGillivray

Analyses Requested

Test Group	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	COMP	GRAB	Matrix	VOC's 8260B	% Solids	Asbestos CARB 435	TAL metals 6010B/7471A	Pest/PCB's 8081B/8082	SVOC's 8270C	Expl./NG/PETN 8330m/8332	CN	Total	Sample Comments
			Container Type (corresponds to Container Packing List)							21	20	20	17						
			Number of Containers Submitted																
B	SO	01	1 79554 MS/MSD		11/6/09	1120		X	S	8	1	1	2					12	
A		02	2 795B3B			1145		X	S	3	1	1	1					6	
A		03	3 79555			1200		X	S	3	1	1	1					6	
A	SO FD	04	4 DUP			—		X	S	3	1	1	1					6	
A	SO	05	5 795B1B			1330		X	S	3	1	1	1					6	
A		06	6 795B2B			1440		X	S	3	1	X	1					5	
A		07	7 795B3B			1500		X	S	3	1		1					5	
			8																
			9																
			10																

Page ____ of ____

⇦ PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

Sampled By (print): MARK FISHER
Sampler's Signature:
Company: URS Corp.

How Shipped? Hand Carrier FedEx
Tracking No.

Comments: TAL metals, Pest/PCB, SVOC's, Expl./NG/PETN
All taken from 250 ml glass jar

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
	11/11/09	1600						
1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
							11/12/09	0930

TriMatrixCOC -- COC

WHITE COPY - REPORT YELLOW COPY - LABORATORY PINK COPY - FIELD

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Region III Modifications to the National Functional Guidelines for Data Review (September 1994).

Data Validation Flags

Flag	Interpretation
R	Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.
U	Not detected. The associated number indicates the approximate sample concentration is necessary to be detected.
B	Not detected substantially above the level reported in laboratory or field blanks.
N	Tentative Identification. Consider present. Special methods may be needed to confirm its presence or absence in future sampling efforts.
J	Analyte present. Reported value may not be accurate or precise.
K	Analyte present. Reported value may be biased high. Actual value is expected to be lower.
L	Analyte present. Reported value may be biased low. Actual value is expected to be higher.
UJ	Not detected, quantitation limit may be inaccurate or imprecise.
UL	Not detected, quantitation limit is probably higher.
NT	Not tested, no analytical result provided.

The other type of code used by URS is a “Reason Code”. The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

GC/MS Organics		GC and HPLC Organics		Inorganics and Conventionals	
Code	Interpretation	Code	Interpretation	Code	Interpretation
a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence	a	Incorrect or incomplete analytical sequence
b	Bubble found in vial >6mm	b	Instrument performance failure	b	Laboratory duplicate imprecision
c	Calibration failure; poor or unstable response	c	Calibration failure; poor or unstable response	c	Calibration failure
d	MS/MSD imprecision	d	MS/MSD imprecision	d	MS/MSD imprecision
e	LCSD imprecision	e	LCSD imprecision	e	LCSD imprecision
f	Field duplicate imprecision	f	Field duplicate imprecision	f	Field duplicate imprecision
g	Tuning failure or poor mass spec performance	g	Dual column confirmation imprecision	g	Duel isotope imprecision
h	Holding time violation	h	Holding time violation	h	Holding time violation
i	Internal standard failure	i	Internal standard failure	j	Vial Headspace
k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits	k	Cooler receipt temperature exceeds limits
l	LCS recovery failure	l	LCS recovery failure	l	LCS recovery failure
m	MS/MSD recovery failure	m	MS/MSD recovery failure	m	MS/MSD recovery failure
p	Poor chromatography	p	Poor chromatography	n	ICS failure
q	Concentration exceeded the linear range	q	Concentration exceeded the linear range	o	Calibration blank contamination
r	Linearity failure in initial calibration	r	Linearity failure in initial calibration	p	Preparation blank contamination
s	Surrogate failure	s	Surrogate failure	q	Concentration exceeded the linear range
t	TIC	u	No confirmation column	r	Linearity failure in calibration or MSA
w	Identification criteria failure	w	Retention time failure	s	Serial dilution failure
x	Field blank contamination	x	Field blank contamination	u	BOD minimum depletion did not exceed 2mg/L
y	Trip blank contamination	z	Method blank contamination	v	Post-digestion spike failure
z	Method blank contamination			w	CRDL Standard Failure
				x	Field blank contamination

EMSL Analytical, Inc.
107 Haddon Ave., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4960 Email: westmontasblab@EMSL.com

Attn: **Lisa Harvey**
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court
Grand Rapids, MI 49512

Fax: (616) 940-4470 Phone: (616) 975-4500
Project: **LMH111209/RFAAP SSP 6 SITES**

Customer ID: TRIM50
Customer PO: LMH111209
Received: 11/13/09 10:30 AM
EMSL Order: 040927744

EMSL Proj:
Analysis Date: 11/17/2009

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
79554 *040927744-0001*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SB3B *040927744-0002*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SS5 *040927744-0003*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
DUP *040927744-0004*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
79SB1B *040927744-0005*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Delores Beard (5)

Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

THIS IS THE LAST PAGE OF THE REPORT.

EMSL Analytical, Inc.
107 Haddon Ave., Westmont, NJ 08108
Phone: (856) 858-4800 Fax: (856) 858-4960 Email: westmontasblab@EMSL.com

Attn: **Lisa Harvey**
TriMatrix Laboratories, Inc.
5560 Corporate Exchange Court
Grand Rapids, MI 49512

Fax: (616) 940-4470 Phone: (616) 975-4500
Project: **RFAAP SSP 6 SITES**

Customer ID: TRIM50
Customer PO: LMH110909
Received: 11/10/09 10:30 AM
EMSL Order: 040927443

EMSL Proj:
Analysis Date: 11/11/2009

Test Report: Determination of Asbestos Structures over 10um in Length in Waste Water Performed by the EPA 100.2 Method

Sample ID	Sample Prep Date	# Fibers Asbestos	# Fibers Non-Asbestos	Type(s) Of Asbestos	Analytical Sensitivity (MFL)	Confidence Limits	Concentration Of Asbestos Fibers (MFL)	Comments
51 MW2 *040927443-0001*	11-10-09	0	0		0.20	0.00-0.72	<0.20	
DUP-1 *040927443-0002*	11-10-09	0	0		0.20	0.00-0.72	<0.20	
16-4 *040927443-0003*	11-10-09	0	0		0.20	0.00-0.72	<0.20	
C-1 *040927443-0004*	11-10-09	0	0		0.20	0.00-0.72	<0.20	
51 MW1 *040927443-0005*	11-10-09	0	0		4.90	0.00-18.00	<4.90	
EQBK-1 *040927443-0006*	11-10-09	0	0		0.20	0.00-0.72	<0.20	
16-4 DUP *040927443-0007*	11-10-09	0	0		0.20	0.00-0.72	<0.20	
QC EQBK-1 *040927443-0008*	11-10-09	0	0		0.20	0.00-0.72	<0.20	
LAB BLANK *040927443-0009*	11-10-09	0	0		0.01	0.00-0.04	<0.01	Blank

Analyst(s)
Christopher Gratz (8)
Debbie Little (1)

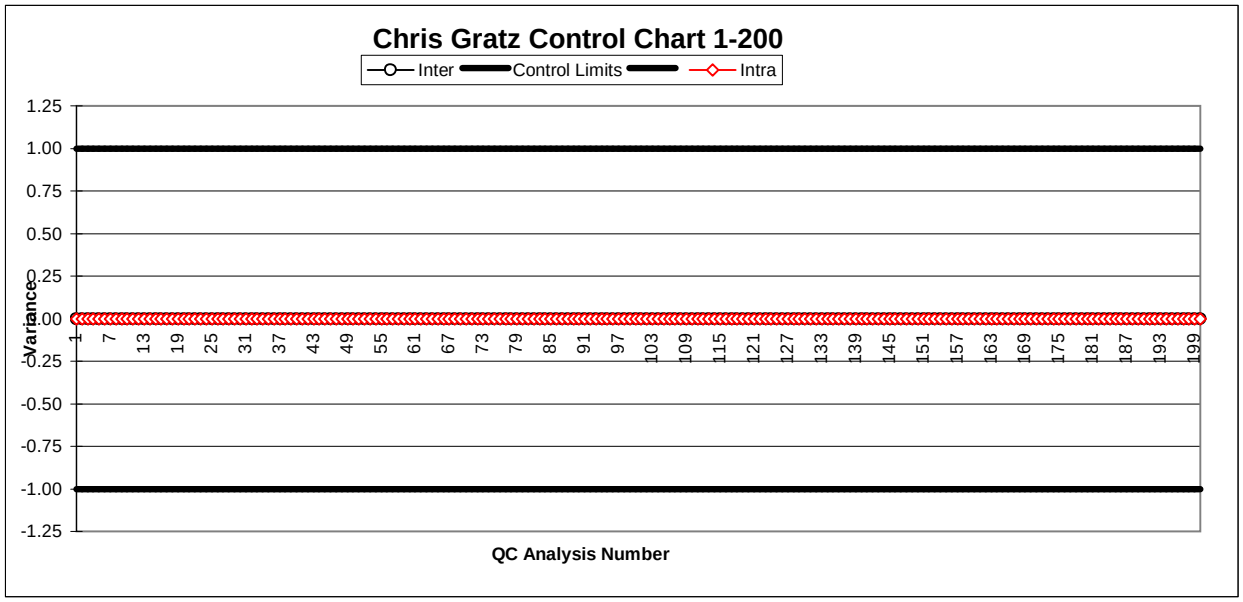
Stephen Siegel, CIH, Laboratory Manager
or other approved signatory

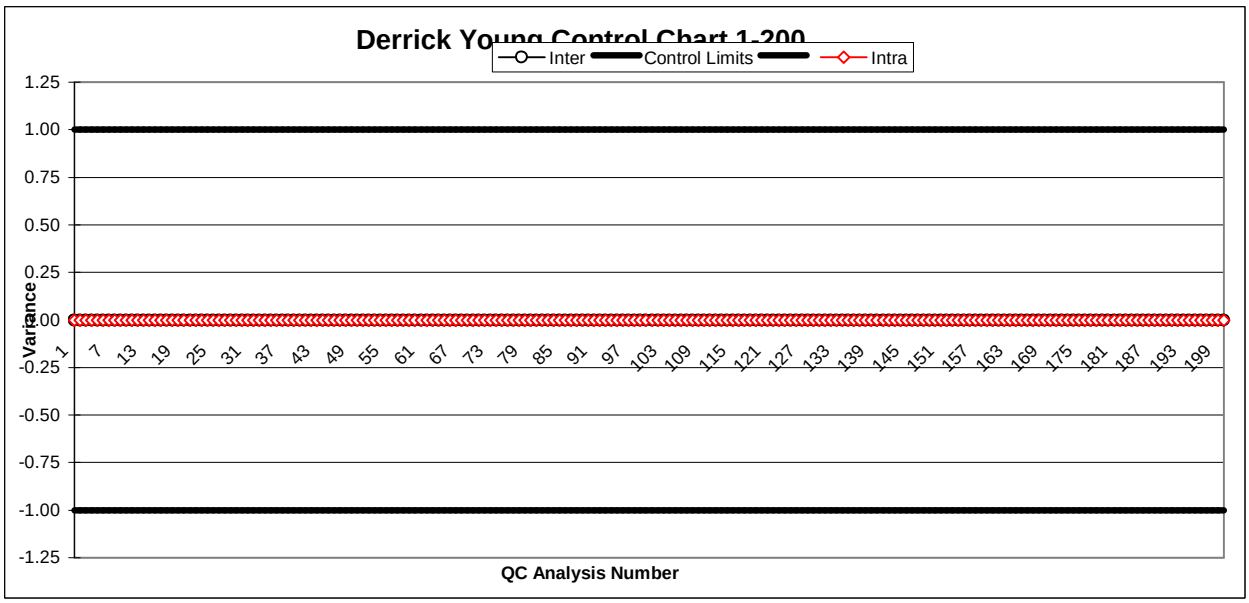
THIS IS THE LAST PAGE OF THE REPORT.

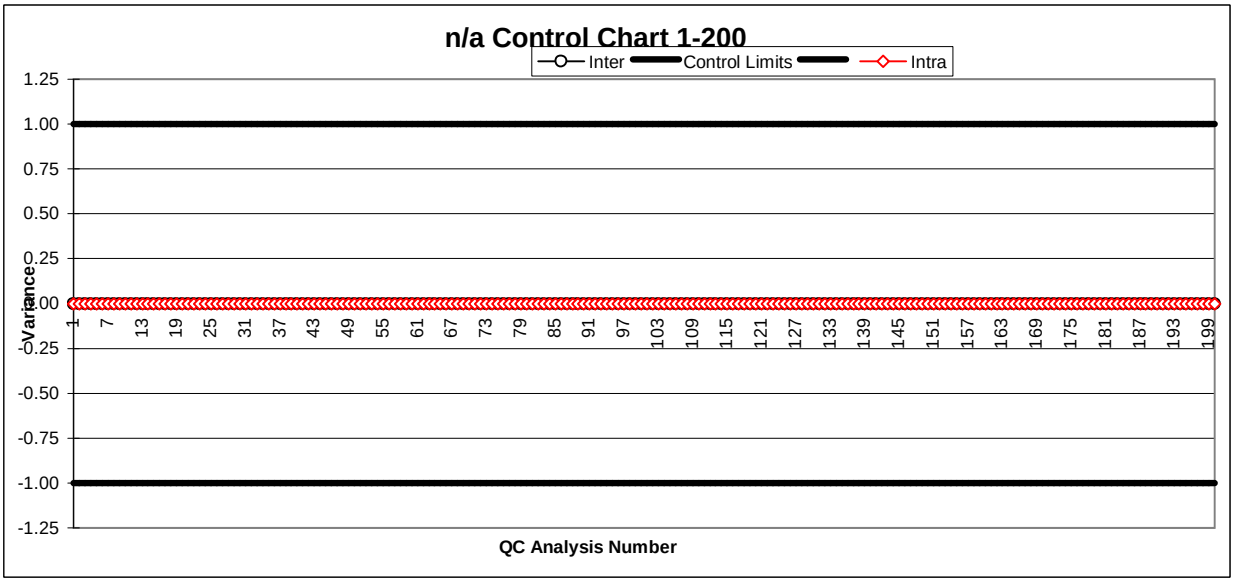
Monthly TEM Water QC Summary

Laboratory: Westmont **Report#: 1** **Month/Year: Nov-09**

	Date	Order #	Sample #	Original Analyst	Original Result	QC Analyst	QC Result	Type of Analysis	Variance Org.	Variance QC	Conclusion
1	11/11/09	27443	6	CG	0	DL	0	Replicate	0.00	0.00	Pass


Chris Gratz Control Chart 1-200
Inter
Control Limits
Intra
Variance
QC Analysis Number


Derrick Young Control Chart 1-200
Inter
Control Limits
Intra
Variance
QC Analysis Number


n/a Control Chart 1-200
Inter
Control Limits
Intra
Variance
QC Analysis Number

Blank Analysis Summary

Month/Year: Nov-09 Westmont, New Jersey

Type of Analysis	Total	Pass	Failure	Pass %	Failure%
Water-040927443	1	1	0	100.0	0

*Prep 1 lab blank/AHERA set, Analyze 1/25 or when any sample is > 70 st/mm^2

** Prep 1blank for every 20 samples analyzed

Pass/Fail Criteria: Single prep < 53 s/mm^2. Cumulative average < 18s/mm^2

Pass/Fail Criteria: Failure occurs if any ACM is found in non-ACM material.

040927443 -

TriMatrix Laboratories, Inc.

5560 Corporate Exchange Court SE Grand Rapids, MI 49512
Phone (616) 975-4500 Fax (616) 942-7463
www.trimatrixlabs.com

Chain of Custody Record

COC No.

For Lab Use Only

Cart

VOA Rack/Tray

Receipt Log No.

Project Chemist: Lisa Harvey

Work Order No.

Client Name: TriMatrix Laboratory
Address: 5560 Corporate Exchange Court SE, Grand Rapids, Michigan 49512
Phone: 616-975-4544
Fax: 616-942-7463

Project Name: RFAAP SSP 6 Sites
Client Project No. / P.O. No.: LMH110909
Invoice To: (●) Client ( ) Other (comments)
Contact/Report To: Lisa Harvey

Analyses Requested

asbestos (wtr)**

Container Type (corresponds to Container Packing List)

Number of Containers Submitted

⇦ PRESERVATIVES
A NONE pH~7
B HNO_3 pH<2
C H_2SO_4 pH<2
D 1+1 HCl pH<2
E NaOH pH>12
F ZnAc/NaOH pH>9
G MeOH
H Other (note below)

Schedule	Matrix Code	Laboratory Sample Number	Sample ID	Cooler ID	Sample Date	Sample Time	Comp / Grab	Matrix	Total	Sample Comments
			1					WTR		
			2							
			3							
			4							
			5							
			6							
			7							
			8							
			9							
			10							

2009 NOV 10 PM 1:42
EMSL WESTMONT, N.J.

Sampled By (print)

Sampler's Signature

Company

How Shipped?

Tracking No.

Comments: DOD requirements. Standard turn. Please run matrix QC as applicable per the method on the noted sample. Hard copy report to Lisa Harvey. Email results to harveylm@trimatrixlabs.com. See PO for additional information. ** 10microns or higher is acceptable for water-asbestos samples.

1. Relinquished By	Date	Time	2. Relinquished By	Date	Time	3. Relinquished By	Date	Time
1. Received By	Date	Time	2. Received By	Date	Time	3. Received For Lab By	Date	Time
DP FX		10:30am	11/10/09					

040927443

040927443

040927443 -

EMSL

107 Haddon Avenue, Westmont, New Jersey 08108 1-800-220-3675 http://www.emsl.com

SAMPLE NUMBER	SAMPLE DESCRIPTION/LOCATION	VOLUME-Air (L) Date	Area (inches sq) Time
51mw2	2 Bottles for Asbestos EPA 100.2 Environmental	11/9/09	1240
DUP-1		11/9/09	—
16-4		11/9/09	1345
C-1		11/9/09	1430
51mw1		11/9/09	1530
EQBK-1 Blank		11/9/09	1545
—	12 Bottles Total		
	All Analyzed for Asbestos EPA 100.2		
16-4 Dup			

Relinquished: [signature] Date: 11/9/09 Time: 1630
Received: Date: Time:
Relinquished: Date: Time:
Received: Date: Time:

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